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# Bramford to Twinstead Reinforcement

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Historic Environment

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# Contents

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<b>8.</b>	<b>Historic Environment</b>	<b>1</b>
8.1	Introduction	1
8.2	Regulatory and Planning Policy Context	2
8.3	Scope of the Assessment	3
8.4	Approach and Methods	5
8.5	Baseline Environment	14
8.6	Likely Significant Effects During Construction (Without Mitigation)	22
8.7	Likely Significant Effects During Operation (Without Mitigation)	29
8.8	Proposed Mitigation During Construction	33
8.9	Proposed Mitigation During Operation	34
8.10	Residual Significant Effects (With Mitigation)	34
8.11	Sensitivity Testing	36
8.12	Conclusion	37

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# 8. Historic Environment

## 8.1 Introduction

- 8.1.1 This Environmental Statement (ES) chapter details the likely significant effects of the project on the historic environment. The chapter considers three categories of heritage asset: 'archaeological remains', 'built heritage' and 'historic landscapes'.
- 8.1.2 Heritage assets can be designated or non-designated. Paragraph 5.8.3 of the Overarching National Policy Statement (NPS) for Energy (EN-1) identifies the following categories of designated heritage assets: '*World Heritage Site; Scheduled Monument; Protected Wreck Site; Protected Military Remains; Listed Building; Registered Park and Garden; Registered Battlefield; Conservation Area; and Registered Historic Landscape (Wales only)*'.
- 8.1.3 Heritage assets considered within this chapter comprise the following:
- Archaeological remains: the material remains of human activity from the earliest periods of human evolution to the present. These may be buried traces of human activities, sites visible above ground or moveable artefacts. These include statutorily designated remains such as scheduled monuments, and non-designated assets identified from Historic Environment Record (HER) datasets;
  - Built heritage: architectural, designed or other structures with a significant historical value. These are predominantly historic buildings but may include structures that have no aesthetic heritage context or structures not usually thought of as buildings, such as milestones or bridges, and also incorporates defined groups of buildings (such as conservation areas). As with archaeological remains, there are statutory - protected assets in the form of listed buildings, conservation areas, and non-designated historic structures sometimes present within the county HER datasets; and
  - Historic landscapes: the current landscape, whose character is the result of the action and interaction of natural and/or human factors. This includes elements such as historic hedgerows, which are regarded as landscape sub-elements, and Protected Lanes in Essex and historic lanes in Suffolk.
- 8.1.4 There are no World Heritage Sites, Protected Wreck Sites, Protected Military Remains or Registered Historic Landscapes within the study area and these are therefore not considered further in this chapter.
- 8.1.5 This chapter considers the potential for physical effects on heritage assets, for example due to damage or removal during construction. It also considers potential effects on the setting of heritage assets where the surroundings contribute to the experience of the asset. Development has the ability to change how heritage assets are perceived through impacts to their setting during both construction and operation.
- 8.1.6 This chapter has links with other topic chapters, in particular ES Chapter 6: Landscape and Visual (**application document 6.2.6**), which has determined the Zone of Theoretical Visibility (ZTV) for the project and assesses the effects of the project on key viewpoints. The ZTV and the viewpoint assessment have been used to inform the assessment of heritage assets, where such assets are susceptible to changes to setting.

- 8.1.7 Cumulative effects between the project and other proposed developments as well as receptors affected by more than one source of direct environmental impact resulting from the same development are considered in ES Chapter 15: Cumulative Effects Assessment (**application document 6.2.15**).
- 8.1.8 This chapter is supported by the following appendices:
- Appendix 8.1: Historic Environment Baseline (**application document 6.3.8.1**) and its Historic Environment Gazetteer presented in Annex A (**application document 6.3.8.1.1**); and
  - Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**) and its supporting Hintlesham Hall Assessment presented in Annex A (**application document 6.3.8.2.1**).
- 8.1.9 This chapter is also supported by the following figures, which can be found in ES Volume 6.4: Figures (**application document 6.4**):
- Figure 8.1: Archaeological Assets;
  - Figure 8.2: Built Heritage Assets;
  - Figure 8.3: Historic Landscape;
  - Figure 8.4: Designated Built Heritage Assets and ZTV;
  - Figure 8.5: Historic Environment Surveys; and
  - Figure 8.6: Hintlesham Hall Assessment.
- 8.1.10 This chapter also makes reference to the following documents:
- Archaeological Framework Strategy (AFS) (**application document 7.9**); and
  - Outline Written Scheme of Investigation (OWSI) (**application document 7.10**).

## 8.2 Regulatory and Planning Policy Context

### Legislation

- 8.2.1 The relevant legislation regarding the historic environment is set out in ES Appendix 2.1: Legislation, Policy and Guidance (**application document 6.3.2.1**).

### National Policy Statements

- 8.2.2 ES Chapter 2: Regulatory and Planning Policy Context (**application document 6.2.2**) sets out the overarching policy relevant to the project, including the Overarching NPS for Energy (EN-1) (Department of Energy and Climate Change (DECC), 2011a). This is supported by the NPS for Electricity Networks (EN-5) (DECC, 2011b). NPS EN-1 states that the construction, operation and decommissioning of energy projects could have adverse effects on the historic environment which has been considered within this chapter.
- 8.2.3 Paragraph 5.8.12 of NPS EN-1 states that *'In considering the impact of a proposed development on any heritage assets, the [Infrastructure Planning Committee] IPC should take into account the particular nature of the significance of the heritage assets and the value that they hold for this and future generations. This understanding should be used*

*to avoid or minimise conflict between conservation of that significance and proposals for development’.*

- 8.2.4 Paragraphs 5.8.14 and 5.8.15 of NPS EN-1 relate to ‘harm’ and ‘substantial harm’ of designated heritage assets. Paragraph 5.8.14 states that *‘There should be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. ... Substantial harm to or loss of designated assets of the highest significance, including ... Grade I and II\* listed buildings; Grade I and II\* registered parks and gardens ... should be wholly exceptional’.*
- 8.2.5 The consultation draft of Overarching NPS for Energy (EN-1) (Department for Business, Energy and Industrial Strategy (BEIS), 2021) contains additional text in relation to setting including in paragraph 5.9.22:
- ‘Any harm or loss of significance of a designated heritage asset (from its alteration or destruction, or from development within its setting) should require clear and convincing justification. Substantial harm to or loss of significance of a grade II listed building park or garden should be exceptional. Substantial harm to or loss of significance of assets of the highest significance, including... grade I and II\* Listed Buildings; grade I and II\* Registered Parks and Gardens... should be wholly exceptional.’*
- 8.2.6 EN-5 (DECC, 2011b) and the consultation draft of EN-5 (BEIS, 2021b) make no specific reference to the historic environment.

## Other Relevant Policy

- 8.2.7 ES Chapter 2: Regulatory and Planning Policy Context (**application document 6.2.2**) and ES Appendix 2.1: Legislation, Policy and Guidance (**application document 6.3.2.1**) include legislation and national policy relevant to the historic environment. It also outlines key guidance documents that have been referenced when writing this chapter.
- 8.2.8 ES Appendix 2.2: Local Planning Policy (**application document 6.3.2.2**) lists the local policy that may be deemed relevant to considering effects of the project on the historic environment. Policy CS5 in the Mid Suffolk District Core Strategy (2008) requires all development to maintain and enhance the environment, including the historic environment. The Babergh District Council Local Plan (2006) includes policy CN15 which states that *‘Development in or adjacent to an historic park or garden, listed in the Suffolk Register of locally important sites, will be expected to preserve or enhance the character of the area. Proposals that lead to the erosion of their character, appearance or setting will be refused.’*
- 8.2.9 The Braintree District Council Local Plan (2022) includes Policy LPP47, LPP 53, LPP 57 and LPP 69, which protect heritage assets including listed buildings, conservation areas and Protected Lanes. In addition, saved policy HB14 in the Mid Suffolk District Local Plan (1998) and Policy LPP 59 in the Braintree District Council Local Plan (2022) state that archaeological evaluations will be required where important archaeological remains are thought to be at risk.

## 8.3 Scope of the Assessment

- 8.3.1 ES Appendix 5.1: Scope of the Assessment (**application document 6.3.5.1**) outlines the scope of the historic environment assessment. This has been informed by the Scoping

Opinion provided by the Planning Inspectorate (**application document 6.6**) on behalf of the Secretary of State, following the submission of the Scoping Report (**application document 6.5.1**).

8.3.2 The scope has also been informed through engagement with relevant consultees as summarised in ES Appendix 5.2: Response to Consultation Feedback (**application document 6.3.5.2**).

8.3.3 The Planning Inspectorate agreed with scoping out certain aspects in their Scoping Opinion (**application document 6.6**), with further details contained in ES Appendix 5.1: Scope of the Assessment (**application document 6.3.5.1**). The aspects scoped out, along with the ID reference given in the Scoping Opinion (**application document 6.6**), are set out below:

- Archaeological remains:
  - Direct physical effects to designated archaeological remains, given the assets are located outside of the Order Limits (ID 4.3.5); and
  - Direct physical effects during operation, given that construction effects are much more likely to directly affect buried and extant archaeology given the processes involved. Operational maintenance to the project components invariably disturbs land that's already been disturbed during construction of the project (ID 4.3.1).
- Built heritage:
  - Direct physical effects during construction and operation, given that no historic buildings have been identified as being directly at risk of physical damage from construction activities (ID 4.3.2).
- Historic landscapes:
  - Direct physical effects to designated Registered Historic Parks and Gardens during construction and operation, given the two assets in the study area lie well outside of the Order Limits (ID 4.3.3); and
  - Direct physical effects to non-designated historic designed landscapes during operation, given that activities associated with the operation and maintenance of the project would not change the assets and that vegetation removed during construction or during maintenance activities would be replaced (ID 4.3.4).

8.3.4 The specific aspects that are scoped into the historic environment assessment are:

- Archaeological remains:
  - Direct physical effects to non-designated archaeological remains within the Order Limits during construction; and
  - Changes to the setting of archaeological remains during construction and operation.
- Built heritage:
  - Changes to the setting of built heritage assets during construction and operation.
- Historic landscapes:

- Direct physical effects to historic landscapes during construction; and
- Changes to the setting of historic landscapes during construction and operation.

8.3.5 Two non-designated built heritage assets included within the HER have since been identified within the Order Limits and these receptors have therefore been scoped back into the assessment to allow consideration of any likely significant effects.

8.3.6 The Dedham Vale Area of Outstanding Natural Beauty (AONB) is not a heritage asset but has a setting within which many of the heritage assets considered in this chapter are located. It is also recognised that there are cultural associations with views from and to the AONB that are captured in paintings by a range of artists, with John Constable having represented the lowland valley of the Dedham Vale and Thomas Gainsborough having captured the Stour valley. The impact of the project on the AONB and its setting in landscape terms is addressed in ES Chapter 6: Landscape and Visual (**application document 6.2.6**), which concludes that there are no likely significant residual effects on the AONB or key viewpoints during operation. In terms of the artists' representations of the views in those locations, the project would not result in any change that would affect the artistic representations more than they have already been changed by the existing transport and overhead energy infrastructure.

## Project Engagement

8.3.7 National Grid has held a number of meetings with relevant organisations, including Historic England and the Local Authority Advisors (historic environment advisory services) at Suffolk and Essex County Councils. Discussions have covered the proposed scope of assessment and the proposed approach for archaeological evaluation and mitigation as set out within the AFS (**application document 7.9**) and the OWSI (**application document 7.10**). Draft versions of both documents were issued to Essex and Suffolk County Councils for comment and their responses were considered when updating these documents to the versions submitted as part of the application for development consent.

8.3.8 There have also been discussions, particularly with Historic England, regarding the potential effects on the Grade I listed Hintlesham Hall, as this is a high value asset located within close proximity to the project. The discussions have included the need to use Historic England guidance for determining asset significance (Historic England, 2008) and setting (Historic England, 2017) to guide the assessment, and that site visits should be used to inform the assessment on setting of this asset and other assets within the study areas.

8.3.9 Further details on how consultation responses have informed the assessment can be found in ES Appendix 5.2: Response to Consultation Feedback (**application document 6.3.5.2**).

## 8.4 Approach and Methods

8.4.1 This section describes the methodology used to establish the baseline environment and the approach to consider and assess the significance of potential effects on the historic environment. A desk study has been undertaken to inform the assessment of significant effects. This has been supported by site inspections, walkover surveys, geophysical survey and archaeological trial trenches to obtain further evidence to inform the assessment.



## Data Sources

8.4.2 The baseline has been informed by a desk study which has drawn on the following key information sources:

- National Heritage List for England (NHLE) for information on nationally designated heritage assets, including World Heritage Sites, listed buildings, registered battlefields, registered parks and gardens, and scheduled monuments (Historic England, 2022);
- Essex Historic Environment Record (EHER, 2022) for information on known heritage assets in Essex, mapped cropmarks which are either related to HER monument data or indicative of further potential sites, and data from the Essex Historic Landscape Characterisation Project (Dyson-Bruce and Bennet, 2013b);
- Suffolk Historic Environment Record (SHER, 2022) for information on known heritage assets in Suffolk, national mapping programme (NMP) data for the area, and data from the Suffolk Historic Landscape Characterisation Project (Suffolk County Council Archaeological Service, 2012);
- Portable Antiquities Scheme data, provided by both Essex and Suffolk under condition of confidentiality (2021);
- Braintree, Babergh, and Mid Suffolk District Councils (2022) provided information on conservation areas, locally listed buildings, and other locally designated sites, including Protected Lanes within Essex;
- Reports for aerial investigation and mapping (AIM) (Essex County Council, 2012 and 2021b). The latter included the use of Lidar data; and
- Technical reports drawn from site surveys including Geophysical Survey (Bartlett-Clark Consultancy, 2013; and Headland Archaeology, 2022a), watching briefs conducted during ground investigations (Oxford Archaeology East, 2013; and Headland Archaeology, 2022a), Geoarchaeological and palaeoenvironmental desk-based assessment (Headland Archaeology, 2022b); and Trial Trenching (Cotswold Archaeology, forthcoming). Further details on these can be found in the section describing the site surveys and Table 8.1.

8.4.3 The Open Source data from the NHLE includes listed buildings (Historic England, 2022). This records Abbott's Farmhouse (NHLE ID 1122866) as being located inside the project Order Limits at National Grid Reference (NGR) 586994, 234783. A site visit has shown that this is marked in the incorrect location in the Open Source data and is correctly located at NGR 586885, 234854, outside of the Order Limits. ES Figures 8.2, 8.4 and 8.5 (**application document 6.4**) show the listed building in the correct location as recorded during the site visit.

8.4.4 All of the information received has been incorporated into the baseline environment description presented in Section 8.5 and the appendices supporting this chapter.

## Study Area

8.4.5 Two study areas were initially used to establish the baseline environment:

- A 3km study area for designated assets; and

- A 250m study area for non-designated assets.

8.4.6 These study areas are shown as relevant on ES Figures 8.1 to 8.4 (**application document 6.4**).

### **Archaeological Remains**

8.4.7 A 3km study area including and outwards from the Order Limits was used to identify statutorily designated archaeological remains i.e. scheduled monuments.

8.4.8 A 250m study area, defined as the area contained within the Order Limits plus a 250m area surrounding it, was used to identify non-designated archaeological remains that could be physically affected by the project. The 250m study area is considered to be appropriate based on technical knowledge of similar projects and accepted good practice to place the archaeological resource within the Order Limits in a wider context, and to estimate the potential for further unknown archaeological remains which may be present.

8.4.9 In addition, the focus of Environmental Impact Assessment (EIA) is to determine the potential for significant effects. Significant effects on non-designated archaeological remains are unlikely more than 250m from the Order Limits, based on most being low value and any of medium or high value comprising buried archaeology where setting makes a limited contribution to asset value.

The 3km and 250m study areas are shown on ES Figure 8.1: Archaeological Assets (**application document 6.4**).

### **Built Heritage**

8.4.10 A 3km study area including and outwards from the Order Limits was used to identify designated built heritage assets comprising listed buildings and conservation areas. This was used as an initial way to capture assets which had a potential to have project inter-visibility and where changes to setting arising from it might be relevant.

8.4.11 The ZTV complemented the data generated by the 3km study area to further inform areas where potential changes in visual setting to listed buildings might occur both within and outside the 3km study area. This work also considered the apparent height of the proposed pylons, which for a 50m tall pylon would be 1.02cm at 3km (see ES Appendix 6.1: Landscape and Visual Methodology (**application document 6.3.6.1**) for further details), meaning that no designated built heritage assets beyond 3km were likely to experience significant effects on their setting.

8.4.12 A 250m study area including and outwards from the Order Limits was used to identify non-designated built heritage assets. The 250m study area is considered to be appropriate based on technical knowledge of similar projects.

8.4.13 The 3km and 250m study areas are shown on ES Figure 8.2: Built Heritage Assets (**application document 6.4**).

### **Historic Landscapes**

8.4.14 The 3km study area was used for identifying the location of Protected Lanes. These are lanes within Essex whose physical form is protected within local planning policy because of their historic characteristics: sunken lanes and earthworks such as banks and ditches, often with historic hedgerows alongside. The 3km study area was used given their status in planning policy, and to gain an understanding of the extent and positions of these

protected features within the wider landscape. It also allows consideration of these in relation to the construction routes proposed. The 3km study area is shown on ES Figure 8.3: Historic Landscape (**application document 6.4**).

- 8.4.15 Historic lanes in Suffolk have the same historic qualities as Protected Lanes within Essex but are not protected by planning policy. As non-designated assets, a study area was used comprising those lanes within the Order Limits and the 250m area outside them. The 250m study area is considered appropriate based on technical knowledge of similar projects and the limited effects that would be experienced by these routes outside of the Order Limits.

## Site Survey

- 8.4.16 The general approach taken for the site surveys can be found in the AFS (**application document 7.9**). Surveys for the project have been undertaken between 2011 and 2023 and have included both non-intrusive and intrusive surveys to establish the presence, extent and potential survivability of buried archaeological remains. Site walkover surveys were also undertaken in 2021 and 2022 for the sections of the route where undergrounding would take place.
- 8.4.17 A site inspection was carried out in June 2022 to identify selected listed buildings and to understand their setting and how much it contributed to asset values. The list of properties targeted for site inspection was based on preliminary survey of aerial and street images and the ZTV to determine project inter-visibility.
- 8.4.18 A summary of the surveys can be found in Table 8.1 and the extent of the surveys and study areas are shown on Figure 8.5: Historic Environment Surveys (**application document 6.4**).

**Table 8.1 – Summary of Site Surveys (as shown on ES Figure 8.5 (**application document 6.4**))**

<b>Survey, Date and Report</b>	<b>Justification for Extent</b>
Geophysical Survey (2011- 2012) (Bartlett-Clark Consultancy, 2013)	The survey extents were based on the initial Order Limits for the project, valid until 2012. The geophysical surveys covered two sections of the original route corridor where underground cables were to be installed.
Geophysical Survey (2021-2023) (Headland Archaeology, 2023)	The extent of the geophysical survey included all (subject to landowner consent) sections of underground cable, cable sealing end (CSE) compounds and grid supply point (GSP) substation and the main site compound off the A134 not already covered by the earlier 2011-2012 surveys.  The geophysical survey did not include 132kV removal where land has previously been disturbed, or the overhead line sections where the impact on archaeology is anticipated to be limited to the pylon bases and temporary access routes, as the locations of these are not fixed and could vary within the Limits of Deviation (LoD). See ES Chapter 4: Project Description for more details ( <b>application document 6.2.4</b> ).

Survey, Date and Report	Justification for Extent
Trial Trenching (2021-2022) (Cotswold Archaeology, 2023a and b)	The main purpose of the trial trenching is to investigate areas of potential archaeology to inform the need for and extent of more detailed archaeological investigations and mitigation. Trial trenching has been undertaken in areas where anomalies of potential archaeological significance were located by the AIM survey and geophysical survey, and those anomalies were targeted where present. Additional trenching has also been carried out to in areas where no anomalies were present to test the veracity of the desk and field survey results.
Archaeological walkover surveys (2021 and 2022). No separate report but the information collected has informed the baseline and assessment presented within this chapter.	The main purpose of this survey was to ground truth information gathered during the desk study, to identify physical features on site that may indicate additional archaeological features and to inform the planning of the site surveys, for example by identifying steep terrain and access constraints.  An archaeological walkover survey was undertaken in June 2021 and June 2022. These comprised a walkover of the proposed underground cable sections by a qualified archaeologist using land access permissions, use of public rights of way and publicly accessible locations.
Listed building inspection (2022). No separate report but the information collected has informed the baseline and assessment presented within this chapter.	The main purpose of this survey was to view the heritage assets and get a better understanding of their condition and setting, to inform their sensitivity to change and inform the assessment.  A historic environment professional visited the outside of the 57 listed buildings within 250m of the Order Limits and those identified at risk of change because of their location within the area defined by the ZTV. Further details can be found in ES Appendix 8.2: Historic Environment Impact Assessment ( <b>application document 6.3.8.2</b> ). The inspection included identifying the key aspects that contribute to the setting and also taking views out from the property to see if there were likely to be views from the listed building towards the project.
Geoarchaeological desk-based assessment (Headland Archaeology, 2023)	The main purpose of this study was to inform the production of a deposit model which maps out the layers of geology, superficial deposits and anticipated groundwater levels to identify whether the ground is likely to contain waterlogged deposits or well-preserved evidence of former environments, for example pollen samples or finds that may be suitable for radiocarbon dating.  National Grid has undertaken a series of engineering ground investigations between 2021 and 2022 to inform the project design. This has comprised boreholes and geotechnical test pits. Further details can be found in ES Appendix 10.1: Geology Baseline and Preliminary Risk Assessment ( <b>application document 6.3.10.1</b> ) and the locations are shown on ES Figure 10.1: Superficial Geology ( <b>application document 6.4</b> ). The initial test pits undertaken in 2021 were watched by an archaeologist and the results of these and the borehole logs gathered since have been used to produce the deposit model. The results of this study have informed the palaeo- and geoenvironmental assessment.

## Assessment Methodology

- 8.4.19 The assessment is based on guidance set out in the Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring (Highways England *et al.*, 2020b) and DMRB LA 106 Cultural Heritage Assessment (Highways England *et al.*, 2020c). It is also guided by Conservation Principles (Historic England, 2008), Statements of Heritage Significance (Historic England, 2019), Standard and Guidance for Historic Environment Desk-based Assessment (Chartered Institute for Archaeology, 2014, updated 2020), Principles of Cultural Heritage Impact Assessment in the UK (IEMA, 2021), Section 5.8 of NPS EN-1 (DECC, 2011), and professional judgement.
- 8.4.20 ES Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**) sets out in Chapter 2 how the sensitivity (value) of the assets is identified, how the magnitude of impact is assigned and how the significance of effect is then determined taking both sensitivity and impact magnitude into account.
- 8.4.21 The contribution of setting to the value of heritage assets has been assessed, taking into account guidance provided in the Historic Environment Good Practice Advice Planning Note 3: The Setting of Heritage Assets (Historic England, 2017). The setting of a heritage asset is the surroundings in which it is experienced, which may contribute to its value. Part of the calculation of asset sensitivity is therefore determining the contribution of setting, taking into account views to and from the asset, historic context including the relationship with other historic assets in the surrounding environment, and the extents to which these have changed during its existence.
- 8.4.22 The assessment of setting for built heritage and designed historic landscapes has been informed by a combination of desk-based assessment (including ZTV) and site survey. As the ZTV is theoretical, fieldwork has been undertaken to take into account local screening elements within the landscape, such as vegetation and property. In addition, the assessment has used the landscape viewpoints in the ES Appendix 6.4: Viewpoint Assessment (**application documents 6.3.6.4.1 to 6.3.6.4.7**) and the Photomontages (**application document 5.8**) together with the study of online mapping and aerial imagery. Targeted site inspections were also made to listed buildings to consider the building's setting and locational relationship to the project.
- 8.4.23 It should be noted that whilst the setting of designed historic landscapes has been considered, Historic Landscape Character (HLC) units were not assessed in terms of setting. HLC units provide broad-based historic characterisation arising from an HLC study carried out by, or on behalf of, county councils to assist planning-based decisions. These are therefore not historic landscape assets like a designed historic park or garden, important hedgerow or historic lane, and are not treated the same in determining impact and effect. HLC units are more geared towards indicating landscape time-depth, reflecting one or more episodes of human activity within the landscape, leaving particular patterns of land use which can still survive, or be relict features within areas subject to later change.
- 8.4.24 Buried archaeology can have a setting, through having a presence in the landscape through historic boundary patterns, or their surrounding topography or through the long-term continuity in the use of the land within which they lie or the land around them. Setting can still contribute to sensitivity of buried archaeology, even when assets are not readily visible.

## Value/Sensitivity

- 8.4.25 Historic environment receptors have been identified within the study area through the desk study, and through the site surveys (see Table 8.1). This information has been used to assign to receptors one of the value (sensitivity) categories defined in ES Appendix 5.4: Assessment Criteria (**application document 6.3.5.4**). These values are based on Table 3.2N of LA 104 (Highways England *et al.*, 2020b).

## Magnitude

- 8.4.26 The criteria for assigning impact magnitude, defined in ES Appendix 5.4: Assessment Criteria (**application document 6.3.5.4**), is drawn from Table 3.4N of LA 104 (Highways England *et al.*, 2020b). These consider the scale/extent of the predicted change and the nature and duration of the impact, with examples of each category of impact magnitude provided in the guidance.

## Significance

- 8.4.27 Likely significant effects have been assessed using professional judgement considering the sensitivity (or value) of the receptors within the study area, and the predicted magnitude of change (impact) likely to be caused by project activities. These factors are combined to give an overall significance of effect, taking into account the embedded measures in the Register of Environmental Actions and Commitments (REAC) (**application document 7.5.2**) and the good practice measures in the Code of Construction Practice (CoCP) (**application document 7.5.1**), which are both factored into the design of the project.
- 8.4.28 Significance has been derived using the matrix set out in Illustration 5.1 in ES Chapter 5: EIA Approach and Method (**application document 6.3.5.1**). This has been supplemented by professional judgement which, where applicable, has been explained to give the rationale behind the values assigned. Likely significant effects in the context of the EIA Regulations 2017 are those of moderate or greater significance.

## Limitations of Assessment

- 8.4.29 As with all types of assessment of the historic environment, the assessment depends on the accuracy of data provided by third parties. It has therefore been assumed that data provided by third parties is accurate. However, it is noted that the HER data supplied by the respective County Councils is not a reproduction of definite areas of archaeological remains. The data is drawn from previous archaeological work, features on historic maps and aerial images, as well as documentary sources. The data is therefore in the most part indicative. The archaeological investigations undertaken by the project have in part been undertaken to ground-truth the available data.
- 8.4.30 The site inspections were conducted in mid-summer (June of 2021 and 2022) during a time when vegetation screens were fully effective. Winter views have been estimated using the photomontage sources (**application document 5.8**) and Google Streetview images, where winter images are available there.

## Harm

- 8.4.31 For the purposes of this chapter and in the context of NPS EN-1 (refer to paragraph 8.2.4), harm and substantial harm to heritage assets, including changes to setting where

relevant, has been determined through professional judgement from the residual significant effect (after mitigation has been applied).

- 8.4.32 For the purposes of this assessment, substantial harm is taken to arise from effects to designated assets equivalent to the total loss of an asset or a degree of loss resulting in the loss of understanding of the asset. The latter might arise when an asset's setting would experience changes which would remove or affect key characteristics. This could for example arise from effects relating to severance or extensive visual intrusion.
- 8.4.33 In terms of the EIA methodology employed in this chapter, moderate and major adverse effects (significant effects) are considered to constitute substantial harm. Minor adverse effects (not significant) are considered to constitute harm.
- 8.4.34 A comparison with the National Planning Policy Framework (NPPF) assessment of harm is useful for reference. The assessment of 'substantial harm' and 'less than substantial harm' is referred to for designated assets in the NPPF. The 'substantial harm' terminology is the same for both the NPS EN-1 and NPPF. The NPS definition of 'harm' is equivalent to the NPPF 'less than substantial harm'.
- 8.4.35 The NPS EN-1 terminology is used in this chapter. The degree of harm in relation to the project is set out in Section 8.10.

## Key Parameters for Assessment and Assumptions

- 8.4.36 This section describes the key parameters and assumptions that have been used when undertaking the assessment presented within this ES Chapter. All assessment work has applied a precautionary principle, and a reasonable worst-case scenario is assessed.
- 8.4.37 The following assumptions are based on information presented within ES Chapter 4: Project Description (**application document 6.2.4**):
- Soil stripping: The assessment considers the potential level of disturbance to soil horizons within the Order Limits. This could occur anywhere within the Order Limits, however a reasonable worst case has been assumed based on the Proposed Alignment shown on ES Figure 4.1: The Project (**application document 6.4**). Soil stripping would occur within both the underground cable and overhead line sections;
  - Vegetation loss and landscaping: The assessment is based on assumptions of potential construction working area and potential vegetation loss set out in ES Chapter 4: Project Description (**application document 6.2.4**) and the Trees and Hedgerows to be Removed or Managed Plans (**application document 2.9**) which are considered to be a reasonable worst-case scenario;
  - Lighting: It is assumed that winter working requiring task lighting may be required on the project, for example at the GSP substation, CSE compounds and trenchless crossings during construction. There is also the potential for the trenchless crossings to be undertaken at night, as once started operations cannot safely stop. It is assumed that night working outside of the trenchless crossings would be exceptional and infrequent. Operational lighting would be limited to security lighting at the GSP substation, which would be motion-sensor activated and only occasionally triggered; and
  - Reinstatement: The assessment assumes that vegetation removed during construction would be reinstated, except where there are permeant features or

planting restrictions, for example the planting of trees over the underground cables. Further details on reinstatement proposals and restrictions based on safety clearance are identified in the Landscape and Ecological Management Plan (LEMP) (**application document 7.8**).

## Embedded and Good Practice Measures

8.4.38 This section outlines the relevant embedded and good practice measures that have been embedded into the design of the project and therefore the assessment has been undertaken on the assumption that these measures would be carried out. All assessment work has applied a precautionary principle, in that where limited information is available (in terms of the project design), a realistic worst-case scenario is assessed.

### Relevant Embedded Measures

8.4.39 The REAC (**application document 7.5.2**) presents the embedded measures that have been identified through the environmental assessment as part of the iterative design and have been committed to as part of the application of the mitigation hierarchy, to avoid or reduce likely significant environmental effects to support a proportionate assessment.

8.4.40 Embedded measures relevant to the historic environment include planting around the proposed CSE compounds (EM-D01, EM-F01, EM-G03 and EM-G06) and the GSP substation (EM-H02), which would help screen the permanent features from nearby heritage assets. Other embedded measures beneficial to the setting of heritage assets include undergrounding of the cable in Dedham Vale AONB (EM-E01) and parts of the Stour Valley (EM-G02).

8.4.41 Approximately 25km of the existing 132kV overhead line would be removed between Burstall Bridge and Twinstead Tee (EM-P02), which would reduce the magnitude of change of the proposed 400kV overhead line on the setting of heritage assets. At the eastern end of the project, to the south of Hintlesham, a 5km section of 132kV overhead line would be removed and not replaced by another overhead line. This would therefore remove the existing 132kV overhead line near a scheduled monument (NHLE 1019889) and listed buildings to the south of Hintlesham. An additional 2km of 400kV overhead line would also be removed in the Stour Valley (EM-G01).

### Good Practice Measures

8.4.42 The AFS (**application document 7.9**) and OWSI (**application document 7.10**) outline the approach to managing the archaeological resource and set out the overarching principles of investigating and mitigating identified impacts to archaeological remains either through preservation in situ or preservation by record.

8.4.43 The CoCP (**application document 7.5.1**) sets out the standard good practice measures that would be undertaken during construction of the project if it is granted consent. The relevant good practice measures relating to the historic environment:

- H01: Locations of known archaeological interest/value where archaeological work is planned or where preservation in situ is proposed, would be annotated on plans within the OWSI and signposted/fenced off to avoid unintentional damage;
- H02: In the event that an unknown heritage asset with archaeological interest is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, works in that area would be halted. The project would inform



the relevant planning authority archaeologist, and Historic England where relevant, and would agree a solution that protects the significance of the new discovery, so far as is practicable, within the project parameters;

- H03: In the event that finds of human remains, or 'treasure' as defined by the Treasure Act, 1996 (as amended) are found, the contractor(s) would comply with the requirements of the relevant legislation and best practice guidance;
- H04: Any designated heritage assets that lie within or immediately adjacent to the Order Limits would be annotated on plans within the OWSI and signed on site, if needed, to ensure that the assets are preserved and to avoid any unintentional damage; and
- H05: A topographic survey would be undertaken in advance of construction of each Protected Lane (Essex) and Historic Lane (Suffolk) within the Order Limits where likely to be affected by physical works. The survey would include mapping of any historic earthwork features associated with the lane, including banks and ditches. During construction, the contractor would seek to limit the working area to the narrowest section of lane that is practicable for the works. Any historic features associated with the lane would be reinstated at the end of construction to the pre-work condition, including the replanting of hedgerows and reinstatement of historic earthworks.

8.4.44 In addition to the above, the CoCP (**application document 7.5.1**) contains a number of general good practice measures which may avoid or reduce impacts to heritage assets. For example, GG08 commits to retaining sensitive areas of vegetation where practicable and establishing an appropriate protective area through fencing and signage. Retention of such areas would maintain vegetation screening between designated built heritage assets and the project.

## 8.5 Baseline Environment

### Introduction

8.5.1 This section should be read alongside ES Appendix 8.1: Historic Environment Baseline (**application document 6.3.8.1**), which contains a full list of all heritage assets within the study area, along with their asset references and the value (sensitivity) category assigned.

### Existing Baseline

#### Archaeological Remains

8.5.2 The locations of known archaeological remains are shown on ES Figure 8.1: Archaeological Assets (**application document 6.4**).

#### Designated Archaeological Remains

8.5.3 There are 11 scheduled monuments within the 3km study area. None of these scheduled monuments are located within the Order Limits and one is located within 250m of the Order Limits. This is a medieval Moated Site at Moat Farm, 450m south of Cobbler's Corner' (NHLE 1019889). It is situated approximately 15m south of the Order Limits (near a proposed temporary access route at Chattisham).

8.5.4 As indicated by their designated status, all scheduled monuments are of national significance and are of high value.

### Non-Designated Archaeological Remains

8.5.5 There are 271 non-designated archaeological remains within the 250m study area, the majority of which have been identified as low value. Of these, 118 are located within the Order Limits, as listed in ES Appendix 8.1: Historic Environment Baseline (**application document 6.3.8.1**), with the full list of assets shown in Annex A: Historic Environment Gazetteer (**application document 6.3.8.1.1**) and locations shown on ES Figure 8.1: Archaeological Assets (**application document 6.4**). The location of artefacts recorded by the Portable Antiquities Scheme are confidential, so locations shown on ES Figure 8.1 are not exact.

8.5.6 Non-designated archaeological remains are referred to, where available, by the unique ID provided by the EHER (the 'MEX' prefix) and SHER (the 'MSF' prefix). Archaeological remains identified only through the AIM are referred to with the Site ID provided in the reports (Essex County Council, 2012; 2021b); where no ID was provided, a unique identifier preceded by 'AIM' has been provided (e.g. AIM 01, AIM 02). Archaeological remains identified only through geophysical survey have been identified with the unique field and feature numbers provided in the report, preceded by 'GS', e.g. GS 1A, GS 1B (Bartlett-Clark Consultancy, 2013).

8.5.7 AIM was undertaken for the project in 2012 (Essex County Council, 2012) and updated again in 2021 (Essex County Council, 2021b). These investigations recorded a total of 73 sites and features within the 250m study area in ES Appendix 8.1: Historic Environment Baseline (**application document 6.3.8.1**) that are not otherwise recorded within the HER and are within the Order Limits:

- One complex cropmark site with multiple enclosures, field boundaries and a possible round barrow (AIM Site 7);
- Eight enclosures (or sites with multiple enclosures);
- One possible ring-ditch of unknown date;
- Seven sites associated with drainage and water management systems or simple ditches;
- Fifty three individual field boundaries or field boundary sites;
- One moated site;
- One trackway; and
- One potential former Garden feature.

8.5.8 The 2013 geophysical survey identified two areas of particularly distinct and well-defined archaeological potential (Bartlett-Clark Consultancy, 2013) within the Order Limits:

- Dedham Vale AONB where the geophysical survey results suggest a potential curvilinear enclosure (GS 35N), which has been interpreted as a possible Iron Age settlement site, and a rectilinear enclosure (GS 35O), which may also have pit-like features nearby. This site was not previously known from the HER or AIM. Trial trenching proved that archaeological remains were not as extensive as indicated by the geophysics; and

- Stour Valley where the geophysical survey results suggest a potential enclosure (GS 11D), possible ditches (GS 11E), and a possible pit group (GS 11F). These features are all associated with the multi-period site at Hill Farm House (MEX30154).
- 8.5.9 The 2021 geophysical survey (Headland Archaeology, 2023) identified two areas of archaeological interest within the Order Limits, comprising:
- A grouping of anomalies of potential archaeological origin (GS 02) within the area of the proposed construction compound off the A134 around Leavenheath and Assington, within which trial trenching confirmed the presence of cremated human remains; and
  - A series of features (GS 11) within the proposed GSP area around Butler’s and Waldegrave Woods.
- 8.5.10 These two archaeological anomalies were subsequently confirmed as being archaeological remains through intrusive trial trench investigation.
- 8.5.11 A watching brief of 10 boreholes undertaken during ground investigations within Dedham Vale AONB (Oxford Archaeology East, 2013) predominantly recorded typical valley floor sequences of silty clays and gravels. The boreholes which had the most archaeological value, and included evidence of peat deposition, were two boreholes located in the Box Valley, and one borehole located in the Stour Valley. A subsequent watching brief on a later phase of ground investigation (Headland Archaeology, 2022a) near Polstead, Dedham Vale and the Stour Valley did not locate any archaeological features in the trial pits monitored.
- 8.5.12 Within the valleys of the Rivers Brett, Box and Stour, cropmark evidence, previous artefactual finds, the combination of aerial photographic evidence, and geophysical survey and trial trench excavation in the River Stour valley (Cotswold Archaeology, 2023a) indicate a concentration of prehistoric (late Bronze Age and early Iron Age) and Romano-British remains. The potential for further unrecorded buried archaeology is considered to be high in these areas.
- 8.5.13 There is one non-designated site of archaeological remains within the Order Limits which have been assigned a high sensitivity (value) on a precautionary basis; AIM Site 8 which was recorded during AIM (Essex County Council, 2021b) and comprises the cropmarks of a large circular enclosure that has been truncated by a modern road, immediately east of AIM Site 7. The AIM report (Essex County Council, 2021b) notes that ‘*The positioning of a circular enclosure in proximity to both a possible round barrow and mortuary enclosure suggests it could be contemporary and is very similar to examples in Essex such as Rivenhall and Feering*’. Given what these potentially represent in terms of prehistoric funerary features, their relative rarity on a regional basis warrants the value assigned, though ground-truthing through trial trench investigation is needed to confirm this.
- 8.5.14 There are two further non-designated sites of archaeological remains immediately adjacent to the Order Limits:
- A potential Neolithic long barrow feature (MSF38093) lies just to the south of AIM Site 7 but outside the Order Limits; and
  - AIM Site 7 which was recorded during AIM (Essex County Council, 2021b) and comprises a series of cropmarks including a possible incomplete small circular

enclosure, a possible round barrow (although there is the potential that this is a former pond), and field boundaries. This is adjacent to the long barrow feature mentioned (MSF38093).

8.5.15 Assessment of the non-designated archaeological remains indicated that there are 15 which could be of medium value, of which seven were within the Order Limits and eight outside. These assets are shown on ES Figure 8.1: Archaeological Assets (**application document 6.4**) and as outlined in ES Appendix 8.1: Historic Environment Baseline (**application document 6.3.8.1**). The assets mostly comprise medieval moated sites, with some exhibiting extant earthwork remains and place names associated with them. These are of sufficient scarcity in the county and the wider region to warrant the assigned value. The assets assigned with a medium value are listed below, and it is noted which of these are located within the Order Limits:

- The Old Hall (MSF12100) which is a possible medieval moated site;
- A rectangular moated site (MSF14017) within the Order Limits at Park Yards;
- A possible moated site (MSF34601) at Leaven Hall;
- A medieval road (MSF13370) with ditches and banks within the Order Limits;
- Cropmarks of an enclosure of a possible prehistoric date (AIM Site 5) which has been truncated by a modern road;
- Earthwork of a possible medieval moated site (AIM Site 11) within the Order Limits;
- Earthworks relating to a moated enclosure (AIM Site 13) at Overbury Hall;
- Cropmarks of a possible incomplete enclosure and field boundaries of a probable medieval date (AIM Site 18). The site is located within an area of building rubble recorded on the Suffolk HER (MSF38093);
- A series of cropmarks at Hill Farm (MEX30154) which is an extensive, potentially multi-period cropmark complex in the Stour valley (ES Figure 8.1) lies within the Order Limits. This site appears to incorporate a probable windmill mound, a potential enclosure (GS 11D), possible ditches (GS 11E), and a potential pit group (GS 11F) recorded during geophysical survey and numerous cropmarks mapped through AIM (Site G3 (Essex County Council, 2012) and Site 1 (Essex County Council, 2021b));
- A medieval moat at Moat Farm (MEX29828);
- Pelham Hall (MEX30080) medieval moated site;
- Near Grasmere Farm (MEX30109) just east of the River Stour within the Order Limits, which is another complex cropmark site that includes enclosures and ring ditches that may date to the prehistoric period. The southern portion of this site also incorporates Dedmans Hill Field (Tithe) (MSF15334), the placename for which suggests a burial mound or possible gallows location. This site incorporates features mapped through AIM (Site G1) and a linear feature recorded during geophysical survey (GS 19G) but which may be a recently infilled ditch or trench;
- A medieval moated site at Oak Farm (MEX30074);
- A medieval moated site at Copey Farm (MEX30067) lies within the Order Limits; and

- A possible barrow within All Saints Churchyard (MEX30148) is within the Order Limits.

8.5.16 Assessment of all other non-designated archaeological remains indicates that they range from having no value (artefacts which have been removed from their original context) to negligible and low value as outlined in ES Appendix 8.1: Historic Environment Baseline (**application document 6.3.8.1**). These include more common features such as field boundaries, isolated ditches or pits, and drainage systems, and heritage assets which are no longer extant or which have been removed, such as previously excavated sites and demolished structures. Table 8.2 summarises the non-designated archaeological remains.

**Table 8.2 – Summary of Non-Designated Archaeological Remains**

<b>Asset Value</b>	<b>Within the Order Limits</b>	<b>0-250m Study Area</b>	<b>Total</b>
High	2	1	3
Medium	6	8	14
Low	92	108	200
Negligible	0	2	2
No value	19	25	40
<b>TOTAL</b>	<b>119</b>	<b>144</b>	<b>263</b>

8.5.17 There is also the potential for direct adverse physical impacts on unknown and previously unrecorded non-designated archaeological remains during construction in areas of ground disturbance, such as:

- Damage or destruction through removal of archaeological deposits; and
- Damage through compaction and/or removal of topsoil.

### **Geoarchaeological and Palaeoenvironmental Remains**

8.5.18 The potential for geoarchaeological and palaeoenvironmental remains have been identified within the floodplains of the River Box and River Stour and may take the form of peat deposits interleaved with layers of alluvium, or relict palaeo-channels sealed by alluvium in the buried environment (Headland Archaeology, 2022b). Overall, there is a high potential for deposits of geoarchaeological and palaeoenvironmental interest focused predominantly within the river valleys.

### **Built Heritage**

8.5.19 The locations of built heritage assets, and these locations in the context of the ZTV are shown on ES Figure 8.2: Built Heritage Assets and ES Figure 8.4: Built Heritage Designations and ZTV (**application document 6.4**).

### **Designated Built Heritage**

8.5.20 There are 103 designated built heritage assets (listed buildings) within 250m of the Order Limits, and 1,235 identified within the 3km study area. These are detailed in ES Appendix 8.1 Annex A: Historic Environment Gazetteer (**application document 6.3.8.1.1**) and

summarised in Table 8.3. There is one listed building within the Order Limits; the Grade II listed gate piers, gates and railings to Hintlesham Hall (1036916), shown on Figure 8.2: Built Heritage Assets and on Figure 8.6: Hintlesham Hall Assessment.

**Table 8.3 – Summary of Designated Built Heritage**

<b>Asset</b>	<b>Grade</b>	<b>Within the Order Limits</b>	<b>Order Limits – 250m</b>	<b>250m – 1km Study Area</b>	<b>1km-3km Study Area</b>	<b>TOTAL</b>
Conservation Areas	n/a	0	0	3	6	9
Listed Buildings	I	0	1	3	19	23
	II*	0	6	9	48	63
	II	1	96	213	839	1149
<b>TOTAL</b>		<b>1</b>	<b>103</b>	<b>228</b>	<b>912</b>	<b>1244</b>

- 8.5.21 The listed buildings and structures within the baseline are predominantly:
- Residential, rural or semi-rural buildings such as manor houses, cottages, farmhouses and outbuildings which date to between the 16<sup>th</sup> and 19<sup>th</sup> centuries;
  - Parish churches, many of which have foundations dating to the medieval or early medieval periods;
  - Public buildings such as village halls, inns, public houses, post offices;
  - Street furniture such as telephone boxes and milestones; and
  - Public monuments such as war memorials.
- 8.5.22 As rural and semi-rural structures, these listed buildings are dispersed across the 250m and 3km study areas as individual structures e.g. Valley Farmhouse (1284842), isolated small groups e.g. Lower Layham (1468467, 1037136, 1181837, 1181827, 1037143, 1351553 and 1284805), or in larger groupings within villages and towns, often demarcated by conservation areas, such as Hadleigh and Polstead. As indicated by their designated status, listed buildings are of national interest and are of high value.
- 8.5.23 There are no conservation areas within the 250m study area and nine within the 3km study area. Though these nine conservation areas contain heritage assets of national interest, they have generally mixed characters. They feature some modern infill and have undergone varying degrees of change to setting, mainly from more modern development outside of the historic village cores, together with features like the existing overhead power lines in the nearby landscape. Given the changes to their historic character they have all been assigned a medium value. The conservation areas which are situated nearest to the Order Limits and have been identified as having a setting that could be influenced by the project are:
- Polstead, situated approximately 280m south of the Order Limits; and
  - Hadleigh, situated approximately 450m north of the Order Limits.
- 8.5.24 The remaining seven conservation areas in the wider 3km study area are Boxford, Stoke-by-Nayland, Nayland, Pebmarsh, Sudbury, Bures St Mary and Bures Hamlet. The ZTV indicates theoretical inter-visibility, however, further study including the results of the

Viewpoint Assessment (ES Appendix 6.4: Viewpoint Assessment (**application documents 6.3.6.4.1 to 6.3.6.4.7**)) showed these as having no project inter-visibility (see Table 3.1 in ES Appendix 8.1: Historic Environment Baseline (**application document 8.3.8.1**)).

### Non-Designated Built Heritage

- 8.5.25 Four non-designated historic structures have been identified within the EHER and SHER within the Order Limits. These comprise three pillboxes (MEX1034883, MEX1034884 and MSF26067) of which one (MEX1034884) lies within the Order Limits in the River Stour valley, and the Stour Valley Railway Line (Great Eastern Railway) (MSF35002).

### Historic Landscapes

- 8.5.26 Historic landscapes are shown on ES Figure 8.3: Historic Landscape (**application document 6.2.8**).
- 8.5.27 The historic landscape character of the area predominantly consists of rural fieldscapes formed from an undulating landscape dotted with isolated farmsteads and smaller built-up areas. In particular, there are a large number of areas of pre-18th century enclosure, fields with later boundary loss, and woodland (much of which is ancient). There are also more modern types, such as post-1950s agricultural landscape, 20th century enclosure, modern plantations, and current industrial landscapes.
- 8.5.28 Historic routeways are presented in the ES Appendix 8.1: Historic Environment Baseline (**application document 6.3.8.1**) and consist of Protected Lanes in Essex and historic lanes in Suffolk.
- 8.5.29 Registered Historic Parks and Gardens are designated landscapes, though they are not statutorily-protected. Designed landscapes have a setting but this is not fixed through their designation, as they may relate to the landscape outside the designation in visual, aesthetic or historic terms.
- 8.5.30 The landscape in this area of south Suffolk and eastern Essex, also has important cultural associations that exist with artists such as John Constable (1776–1837), Thomas Gainsborough (1727–1788), John Nash (1893–1977), Sir Alfred Munnings (1878–1959), and the East Anglian School of Painting and Drawing under the direction of Sir Cedric Morris (1889–1982). These artists are associated with the Dedham Vale AONB and the Stour Valley Project Area and painted many landscapes in the local area including The Hay Wain (Constable), Cornard Woods (Gainsborough), Barge on the Stour at Dedham (Munnings) and Wormingford Mill (Nash).

### Designated Historic Landscapes

- 8.5.31 There are no registered parks and gardens within the Order Limits or 250m study area, though there are two within the 3km study area. These comprise:
- Chantry Park (1000271; Grade II), which lies approximately 2.6km east of the Order Limits; and
  - Tendring Hall Park (1000406; Grade II), which lies approximately 2.3km south of the Order Limits.
- 8.5.32 As indicated by their non-statutory designated status, registered parks and gardens are of national value and have therefore been assessed to be of high value.

- 8.5.33 There are 25 Protected Lanes within the 3km study area, with nine lying within or immediately adjacent to the Order Limits as shown on ES Figure 8.3: Historic Landscape (**application document 6.4**). These are:
- Gentry's Farm Road (BTELANE78);
  - Tymperley Farm Road (BTELANE79 and BTELANE80);
  - Loshouse Farm Road (BTELANE81);
  - Twinstead Road (BTELANE83);
  - Old Road, Twinstead (BTELANE84);
  - Lorkins Lane (BTELANE85);
  - Ansell's Farm/Henny Back Road (BTELANE86); and
  - Moat Lane (BTELANE87).
- 8.5.34 The Protected Lanes have certain features in common such as being sunken lanes / roads with one or more features such as banks, ditches and historic hedgerows alongside. Whilst most appear to be medieval in origin, it is likely that some of them are much earlier. In Essex, these have a protected status through local planning policy (Policy LPP 69, Braintree District Council 2022), which is based in part on their assessed historic integrity, their association with other heritage assets, and their archaeological potential. Protected Lanes have been identified as having a particular historic and landscape value for the character of the countryside (Essex County Council, 2013). The Protected Lanes have been identified as of medium value.

### Non-Designated Historic Landscapes

- 8.5.35 The Dedham Vale AONB is not a heritage asset, as AONB are landscape designations. However, cultural heritage aspects within the Dedham Vale AONB are present in the historic character of much of its landscape. The historic environment elements have been considered in this assessment.
- 8.5.36 There are 20 historic lanes (Suffolk) which cross through the Order Limits, of which 12 would be affected by the proposed temporary works. There are a further two in the wider 250m study area which have no relationship with the Order Limits. These demonstrate a variety of types but feature one or more characteristics including historic ditches, banks and hedgerows lining some of the assets. The historic lanes are listed in Table 4.1 in ES Appendix 8.1: Historic Environment Baseline (**application document 6.3.8.1**). Whilst not protected by planning policy in Suffolk, they are important historic landscape elements and are the same in their broad character to the Protected Lanes in Essex. Given their characteristics they are identified as of medium value.
- 8.5.37 ES Appendix 7.5: Important Hedgerows Assessment (**application document 6.3.7.5**) sets out the results of the Important Hedgerow Assessment for the project. The importance has been established using the archaeological and historical criteria as outlined within Schedule 1, Part II of the Hedgerows Regulations 1997. Hedgerows can be indicative of historic boundaries and can make an important contribution to the historic character of the landscape, and as such have been assigned individual heritage asset values of a low value. For example, within the study area historic hedgerows demark the



parish boundary between Burstall and Bramford and form part of a pattern of pre-18<sup>th</sup> century enclosure.

- 8.5.38 Hintlesham Park (MSF11949) is the sole example of a non-designated formal park and garden within the Order Limits or wider 250m study area. The historic extents of the former formal parkland that surrounded Hintlesham Hall date to the 16<sup>th</sup> century. Many elements of the former parkland survive, such as ornamental earthworks and the remnants of tree-lined avenues. The asset has been degraded through partial reversion to arable use and the partial loss of the tree-lined avenues. This has resulted in severance and erosion of the original character. The Order Limits pass through the historic extents of the former parkland, which has a medium asset value, given that there is a strong historic relationship with the Hall. Further details on Hintlesham Park can be found in ES Appendix 8.2 Annex A: Hintlesham Hall Assessment (**application document 6.3.8.2.1**).

## Future Baseline

- 8.5.39 Changes to the historic environment baseline conditions could occur from changes to an asset's designation status. This could arise as more information is understood about them or changes to their condition. For example, degradation might occur from removal of assets as a result of other proposed developments in the immediate vicinity of the project, or from the long-term effects of deep ploughing. However, the assessment has been undertaken on a precautionary basis, and there are no anticipated changes to the baseline data that would materially alter the assessment.

## 8.6 Likely Significant Effects During Construction (Without Mitigation)

### Introduction

- 8.6.1 This section sets out the potential for likely significant effects on the historic environment during construction. It takes into account the embedded measures as set out in the REAC (**application document 7.5.2**) and assumes that the relevant good practice measures in the CoCP (**application document 7.5.1**) are in place before assessing the effects. The results of the assessment then inform the need for any additional mitigation requirements during construction (see Section 8.8).
- 8.6.2 As described in ES Chapter 4: Project Description (**application document 6.2.4**), the assessment presented within this chapter is split into the 'main project' and the 'GSP substation'. The main project includes the 132kV overhead line removal, proposed overhead line and underground cables (including the CSE compounds). The GSP substation includes works at the substation where this connects into the network and the minor works to the existing overhead lines.
- 8.6.3 It is assumed that this reinforcement would operate at least 400kV in a similar way to the majority of the rest of the transmission network. For the purposes of this report, the new overhead line is referenced as 'proposed 400kV overhead line' to differentiate it from the existing 400kV overhead line and the UK Power Networks owned 132kV overhead line.
- 8.6.4 The following sub-sections summarise the likely significant effects identified arising from the project. The full assessment is presented in ES Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**).

## Main Project

### Archaeological Remains

- 8.6.5 All of the high value designated archaeological remains (scheduled monuments) lie outside of the Order Limits and are sufficiently distant from the construction activity to not be physically affected by the project. Therefore, there would be no change to the 11 high value scheduled monuments identified within the study area during construction in terms of physical impacts, and therefore this would be a **neutral** effect, which is **not significant**.
- 8.6.6 The setting of the 11 high value scheduled monuments within the 250m study area would not change during construction given their distance relative to the project and the nature of their setting, which predominantly consists of buried archaeology within arable or pastoral environments. The setting is therefore very localised and merged with the existing rural landscape. Even with the closest scheduled monument to the Order Limits; the Moated site at Moat Farm, 450m south of Cobbler's Corner (1019889) which comprises extant earthworks as well as buried archaeology, the proximity of the Order Limits would result in a temporary negligible adverse impact. This would result in a **minor adverse** effect which is **not significant**.
- 8.6.7 Table 8.4 contains all archaeological remains identified as undergoing a moderate adverse effect or above, which would be significant prior to mitigation. Additional neutral to minor effects (not significant) from construction-related activity have been identified for the remaining non-designated archaeological remains. The full assessment is presented in ES Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**).

Table 8.4 – Significant Effects on Non-Designated Archaeological Remains

Asset	Asset Value	Impacts Identified	Magnitude of Impact	Significance of Effect
Former field boundaries on south-west side of A134 - AIM identifier: 1765 and the presence of Romano-British archaeology as evidenced from geophysical survey and archaeological trial trenching. Archaeological remains included settlement with a cremation burial	Low	Excavation (topsoil strip) and compression of soil horizons associated with the proposed construction compound	Large adverse	Moderate adverse
Archaeological remains associated with a Romano-British settlement site east of St Edmund's Hill (B1508)	Medium	Excavation work (for temporary access routes, pylon bases and crane pad) associated with the construction of the proposed 400kV overhead line	Large adverse	Moderate adverse

Asset	Asset Value	Impacts Identified	Magnitude of Impact	Significance of Effect
Cropmark complex at Hill Farm House (MEX30154)	Medium	Topsoil strip and cable trench excavation associated with the placement of underground cables	Medium adverse	Moderate adverse

8.6.8 As listed in Table 8.4, the construction works are assessed to result in potential medium and large magnitude adverse impacts on three low to medium value assets (the cropmark complex at Hill House Farm - MEX30154, archaeological remains associated with a Romano-British settlement site east of St Edmund's Hill, and former field boundaries and Romano-British archaeology on south-west side of A134). This would result in a **moderate adverse** effect, which is **significant** before mitigation.

8.6.9 There are no significant effects anticipated for any non-designated archaeological remains in terms of impacts on their setting during construction, as the setting is very limited and due to the limited and temporary nature of the construction activities. Changes to the setting of non-designated archaeological remains would amount to a **neutral** effect which is **not significant**.

8.6.10 The desk study has shown that there is the potential for palaeoenvironmental deposits to exist within the river valleys. These are likely to exist between layers of alluvium or within relict watercourses now sealed by alluvium. The geoarchaeological assessment (Headland Archaeology 2023) includes a deposit model, which has highlighted that the valleys of the River Box and River Stour are areas of potential sensitivity. The presence of surviving organic remains has not been confirmed.

8.6.11 ES Appendix 10.2: Groundwater Baseline and Assessment (**application document 6.3.10.2**) has assessed that groundwater levels are unlikely to be affected during construction of the project components in general, including foundations. Trenchless crossings are proposed at the River Box, River Stour, Sudbury Branch Railway Line and to the south of Ansell's Grove. Localised dewatering around trenchless crossing launch and reception shafts have been identified as a risk and could theoretically degrade any surviving organic remains located there. The potential level of disturbance of buried organic remains within the River Box and Stour valley floors is presently unknown, as the presence of such remains has yet to be confirmed. The resultant effect on any palaeoenvironmental remains of negligible to medium value which are close enough to experience any change, would therefore be **minor** adverse, which is **not significant**.

### Built Heritage

8.6.12 The assessment presented in ES Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**) identified no physical impacts to designated and non-designated built heritage during construction. This was scoped out of assessment in agreement with the Planning Inspectorate, as set out in Section 8.3 of this chapter.

8.6.13 The noise and vibration assessment presented in ES Chapter 14: Noise and Vibration (**application document 6.2.14**) has shown that predicted vibration levels, such as from piling and construction traffic, would be insufficient to cause even cosmetic damage to nearby buildings, whether designated or non-designated historic structures.

- 8.6.14 The impact assessment identified the potential for short-term setting related impacts relating to construction activities on the medium value Hadleigh conservation area and a number of high value listed buildings adjacent to the working areas. Temporary setting impacts would arise due to loss of vegetation screening leading to visibility of construction vehicle activity, as well as increased levels of noise, though these have been quantified as being not significant in ES Appendix 14.2: Construction Traffic Noise and Vibration Assessment (**application document 6.3.14.2**). The impacts range from negligible to small adverse magnitude, resulting in **neutral** to short term **minor adverse** effect, which is **not significant**.
- 8.6.15 The Polstead Conservation Area is the only other conservation area which has limited project inter-visibility. This is further afield from the project than the Hadleigh Conservation Area and the potential setting impacts arising from the construction would amount to no change to this medium value designation. The remaining seven Conservation Areas have no visual relationship with the project and would similarly experience no change and a **neutral effect**, which would be **not significant**.
- 8.6.16 ES Appendix 13.1: Dust Risk Assessment (**application document 6.3.13.1**) refers to the good practice measures set out within the Construction Environmental Management Plan (CEMP) and CoCP (**application documents 7.5** and **7.5.1** respectively). In terms of residual effects, risk of dust would be reduced to a **negligible** effect and therefore any effects on built heritage arising from dust spoiling would be **not significant**.
- 8.6.17 The effects from construction to designated and non-designated built heritage assets as summarised above do not lead to any significant effect.

## Historic Landscapes

### Designated Historic Landscapes

- 8.6.18 The assessment presented in ES Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**) confirms that there is no project inter-visibility from either of the two registered medium value historic parks and gardens within the 3km study area (Chantry Park and Tendring Hall, at 2.6km and 2.3km respectively from the Order Limits). As these would experience no project inter-visibility this would result in no change and a **neutral effect**, which would be **not significant**.
- 8.6.19 There are seven medium value Protected Lanes in Essex that could be directly affected by the project during construction, due primarily to temporary access requirements and/or installation of underground cables. These are detailed in Section 5.5 of ES Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**). The significance of effect is calculated considering the good practice measures listed in the CoCP (**application document 7.5.1**), including H05 which states that the contractor would seek to limit the working area to the narrowest section of lane that is practicable for the works. Any historic features associated with the lane would be reinstated at the end of construction to the pre-work condition, including the replanting of hedgerows and reinstatement of historic earthworks. With this good practice measure in place, the magnitude of impact would be medium and the direct effects to Protected Lanes and historic lanes would be a short term **minor adverse** effect, which is **not significant**.
- 8.6.20 Indirect impacts to Protected Lanes (Essex) and medium value historic lanes (Suffolk) would arise from additional traffic movement along those of them intended to be used for construction traffic. This could arise from larger vehicles in terms of damage to earthworks

from physical contact. These would be short term temporary effects during construction, which with the good practice measures, including H05, would amount to no change and a **neutral** effect, which is **not significant**.

### Non-Designated Historic Landscapes

- 8.6.21 The assessment presented in Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**) confirms that there may be temporary minor effects on HLC in some locations. Effects would be **neutral**, which is **not significant**.
- 8.6.22 There are 11 historic lanes in Suffolk that could be directly affected by the project during construction, due primarily to temporary access requirements and/or installation of underground cables. These are detailed in Section 5.4 of ES Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**). As with Protected Lanes in Essex, the significance of effect considers the good practice measures listed in the CoCP (**application document 7.5.1**), including H05. With this good practice measure in place, the medium adverse magnitudes of impact direct effects to historic lanes would have a **minor adverse** effect, which is **not significant**.
- 8.6.23 Two important hedgerows (with low asset values) would be permanently affected during construction phase due to the creation of permanent access routes. This means that a gap would be created in the hedgerow that would not be replaced in situ. However additional hedgerow planting and reinforcement would take place at other locations to compensate for the loss. The two important hedgerows are:
- H-D-07 – Gap in hedgerow for permanent access route to Dedham Vale East CSE compound; and
  - H-G-17 – Gap in hedgerow for permanent access route to Stour Valley West CSE compound.
- 8.6.24 The gaps in the historically important hedgerows listed above would comprise partial removal only and comprise a small impact on assets of low value. This would result in a permanent **minor adverse** effect, which is **not significant**.
- 8.6.25 Other important hedgerows affected during construction would be reinstated at the end of the construction phase. The potential temporary construction impacts are assessed to be small adverse magnitude. On historic landscape assets of low value, this would result in a short-term **minor adverse** effect which is **not significant**.

## GSP Substation

### Archaeological Remains

#### Designated Archaeological Remains

- 8.6.26 The closest high value scheduled monument to the proposed GSP substation is a Roman Villa 480m South East of Hill Farm (NHLE 1011806), which is situated approximately 1.9km from the GSP substation. There would be no inter-visibility with any construction work associated with the GSP substation or associated works to connect this into the network. There would be no change to the setting of this heritage asset during construction resulting in a **neutral** effect, which is **not significant**.

## Non-Designated Archaeological Remains

- 8.6.27 There is the potential for direct adverse physical impacts on unknown and previously unrecorded non-designated archaeological remains during construction of the GSP substation in areas of ground disturbance, such as:
- Damage or destruction through removal of archaeological deposits; and
  - Damage through compaction and/or removal of topsoil.
- 8.6.28 ES Appendix 10.2: Groundwater Baseline and Assessment (**application document 6.3.10.2**) has assessed that groundwater levels are unlikely to be affected during construction of the GSP substation. The resultant effect on any non-designated archaeological remains of negligible to medium value would therefore be **neutral**, which is **not significant**.
- 8.6.29 One known site of archaeological remains is recorded within the GSP substation boundary, comprising the cropmarks of a former field boundary (MEX1031722), probably of 19<sup>th</sup> century date, which has been assessed to be of low value. Construction of the GSP substation could remove part of this heritage asset, given it is within the working area. The level of removal or damage would warrant a medium adverse magnitude of impact. This would result in a **minor adverse** effect, which is **not significant**.
- 8.6.30 Archaeological trial trenching of the GSP substation location has not revealed any archaeological remains which require mitigation, though the area to the south-west of it revealed some archaeological features; probable post-medieval field boundaries and two possible prehistoric features. Their dates are unknown given a lack of dating artefacts, so preliminary interpretation has been made on their form. These remains are of low value and a medium adverse magnitude impact is predicted, resulting in a **minor adverse** effect, which is **not significant**.
- 8.6.31 No further non-designated archaeological remains have been identified within the 250m study area of the GSP substation with potential for an impact on their cultural heritage value during construction, including changes to setting.

## Built Heritage

- 8.6.32 The closest listed buildings are situated approximately 250m away from the proposed GSP substation location, and there is therefore no potential for direct physical impacts. This was scoped out of assessment in agreement with the Planning Inspectorate, as set out in Section 8.3 of this chapter.
- 8.6.33 ES Appendix 10.2: Groundwater Baseline and Assessment (**application document 10.2**) outlines how the potential for changes to the baseline groundwater environment are limited and no indirect physical impact on designated built heritage assets is anticipated. ES Chapter 14: Noise and Vibration (**application document 6.2.14**) outlines how the nature of potential impacts due to vibration would not extend beyond 100m from the construction activity. No listed buildings are situated within close enough proximity to the construction works to be adversely affected by vibration. Furthermore, no impacts from HGV on construction traffic routes have been identified as sufficient to damage buildings. ES Chapter 14: Noise and Vibration (**application document 6.2.14**) states '*Construction vibration from traffic was scoped out the assessment at the scoping stage as the vibration levels are expected to be less than 0.3 mm/s peak particle velocity (PPV) assuming a baseline of negligible where vibration might be perceptible in residential environments*

*beyond 1m from the road and therefore not perceptible at building receptors beyond this distance within the study area. This conclusion was based on initial calculations using Traffic Induced Vibration in Buildings'. The Planning Inspectorate agreed that further assessment of this matter could be scoped out of the ES.*

- 8.6.34 In terms of setting, the closest listed buildings (high value) are situated approximately 250m away from the site to the north-east. Butler's Wood and Waldegrave Wood would largely filter views of construction activities at the proposed GSP substation. No listed buildings would have direct visibility of the proposed works. Butler's Hall Farmhouse (NHLE 1169693, Grade II\*) and Nether House Farmhouse (NHLE 1123031, Grade II) would have the potential for oblique intervisibility with the proposed GSP substation and the single circuit sealing end compound working areas; however, these are both screened from the site by agricultural outbuildings and the general nature of the intervening topography and vegetation. Due to the limited potential for intervisibility with the construction activities at the GSP substation, there would be no change to the setting of any listed buildings during construction, resulting in a **neutral** effect, which would be **not significant**.
- 8.6.35 The effects from construction to designated and non-designated built heritage assets as summarised above would result in no significant effects.

### Historic Landscapes

- 8.6.36 Old Road in Twinstead (BTELANE84) is the only historic landscape feature that would be affected by the construction of the GSP substation, via the creation of a temporary bellmouth onto the road. The hedgerows in the area have not been classed as important using the historic criteria. The potential temporary construction impacts on Old Road are assessed to be small adverse magnitude, given the commitments to reinstate and restore hedgerows and historic earthworks at the end of the construction phase in accordance with good practice measure H05 in the CoCP (**application document 7.5.1**). This historic landscape is of medium value, which would result in a **minor adverse** effect, which is **not significant**.
- 8.6.37 The H-H-23 hedgerow would experience a permanent gap in the hedgerow at the location of the proposed access route for use during operation of the GSP substation. The severance of this historic feature would amount to a small adverse impact on an asset of low value, resulting in a **minor adverse** effect, which is **not significant**.

### Summary of Construction Effects

- 8.6.38 The key potential impact during construction on the historic environment is ground disturbance and the potential for physical effects on non-designated archaeological remains. These are detailed in ES Appendix 8.1: Historic Environment Impact Assessment (**application document 6.3.8.2**). Prior to mitigation being applied, the project has potential to result in significant effects to the three sets of archaeological remains in Table 8.4.
- 8.6.39 The potential effects on non-designated archaeological remains (Table 8.4) in terms of direct physical effects would be addressed through a programme of archaeological investigations as set out in the AFS (**application document 7.9**) and the OWSI (**application document 7.10**).

- 8.6.40 Construction activity would result in a range of adverse effects to historic landscape elements and may change the setting of listed buildings. However, the embedded measures set out in the CoCP (**application document 7.5.1**) would ensure that these are temporary in nature and not significant.
- 8.6.41 The predominantly temporary nature of the potential construction impacts on the setting of all heritage assets would not result in any significant effects.

## 8.7 Likely Significant Effects During Operation (Without Mitigation)

### Introduction

- 8.7.1 This section sets out the potential for likely significant effects on the historic environment during operation. This assessment assumes that the relevant embedded measures in the REAC (**application document 7.5.2**) and the good practice measures in the CoCP (**application document 7.5.1**) would be implemented during the construction phase, and the results of the assessment then inform the need for any additional mitigation during operation (see Section 8.9).
- 8.7.2 The potential sources of operational impact comprise setting change to built heritage and historic landscape assets, as set out in ES Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**) and include the following:
- Removal of the existing 132kV overhead line and a section of the existing 400kV overhead line;
  - The introduction of the overhead/above ground components of the project (proposed 400kV overhead line, CSE compounds, link pillars, GSP substation and permanent access routes) into the historic landscape and setting; and
  - Maturing landscape planting such as the establishment of vegetation from the implementation of embedded planting around the CSE compounds and GSP substation and also replacement planting.
- 8.7.3 As described in ES Chapter 4: Project Description (**application document 6.2.4**), the assessment presented within this chapter is split into the 'main project' and the 'GSP substation'. The main project includes the 132kV overhead line removal, proposed overhead line and underground cables (including the CSE compounds). The GSP substation includes works at the substation where this connects into the network and the minor works to the existing overhead lines.

### Main Project

#### Archaeological Remains

- 8.7.4 The scheduled monument (high value) closest to the project is the Moated site at Moat Farm, 450m south of Cobbler's Corner (1019889). The removal of the existing 132kV overhead line 280m north of the monument would amount to a small beneficial impact on the historic setting of the monument, resulting in a **minor beneficial** effect, which is **not significant**. The operational phase of the project would not change the setting of the remaining scheduled monuments, given how far they are from the proposed 400kV overhead line. None of them has a setting that would be changed by visual intrusion from



the proposed 400kV overhead line on what are for the most part buried archaeological remains. This would amount to no change and a **neutral** effect, which is **not significant**.

- 8.7.5 There are no significant effects anticipated for non-designated archaeological remains in terms of changes to their setting in the operational phase. This would be due to the partial undergrounding of the cable and the removal of the existing 132kV line. The additional changes brought by the proposed 400kV overhead line are insufficient in visual terms to affect the setting of buried archaeological remains, which are generally defined by the existing rural environment within which they lie. The removal of archaeology within the Order Limits during construction would not adversely affect archaeology outside them. The overall effect on setting of non-designated archaeological remains (which are of negligible to medium value) would be a **neutral** effect, which is **not significant**.

## Built Heritage

### Designated Built Heritage

- 8.7.6 No significant adverse effects have been identified to any of the medium value conservation areas given their distance from the project and the intervening topography, standing buildings or structures and vegetation screening. The proposed 400kV overhead line would be on the same alignment as the existing 132kV overhead line, except at the eastern end of the project in the area of Hintlesham. The Hadleigh Conservation Area is the closest such designation to the project (600m away). However, the intervening vegetation screening and the minimal change to the historic setting from the proposed overhead line, the project would represent only a small adverse impact to the setting, resulting in a **minor adverse** effect, which is **not significant**.
- 8.7.7 The Polstead Conservation Area would not be affected by visual intrusions, due to the proposed cable undergrounding. There would be no change to this heritage asset, and there would also be no change to Stoke-by-Nayland, Nayland, Boxford, Bures St Mary, Bures Hamlet, Sudbury and Pebmarsh owing to distance from the project, topography and screening. There would be no scale of change to the setting of these areas that would result in an adverse effect on their value, resulting in a **neutral effect**, which is **not significant**.
- 8.7.8 The assessment of setting on listed buildings (high value) is presented in ES Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**). Supporting detailed consideration of the Grade I listed Hintlesham Hall (1036917) and the listed buildings within its setting is provided as an Annex to Appendix 8.2: Hintlesham Hall Assessment (**application document 6.3.8.2.1**). The assessment takes into account the removal of the 132kV overhead line and the use of a parallel alignment of the existing 400kV overhead line north of the Hall. It also takes into account any vegetation management requirements associated with the operational safety clearances of the overhead line. The Hintlesham Hall Assessment utilised the photomontages (**application document 6.2.6**) which included a specific historic environment key view within Hintlesham Park to understand the changes both to the Hall and its listed ancillary buildings. The photomontages also help to understand the historic limits of Hintlesham Park; the designed landscape that surrounds the buildings.
- 8.7.9 Direct inter-visibility between the Hall and its ancillary buildings and the proposed 400kV overhead line is very limited even with winter conditions. The changes to the setting of Hintlesham Park are more pronounced, but the section of parkland through which the proposed overhead line would pass is one which has been much changed in character

since its 17<sup>th</sup> century beginning, having been reverted chiefly to arable usage as well as accommodating the existing 400kV overhead line. The parkland contributes to the Hall's value as an asset, but the location within which the project is proposed makes only small positive contribution to the Hall's value as an asset.

- 8.7.10 The proposed 400kV overhead line would run closely in parallel to the existing 400kV overhead line. Where the proposed overhead line diverts away from the existing overhead line, the new pylons and cables would be at sufficient distance from the Hall and its ancillary buildings so as not to affect it directly in visual terms. The project would result in a negligible magnitude of impact on the Hall's setting, given the extent of potential changes to the existing. The changes to setting in terms of visual intrusion and historic changes range from **neutral** to **minor adverse**. **No significant** effects to listed buildings would occur during the operational phase.
- 8.7.11 There would also be a range of beneficial effects on listed buildings in the areas of the project where the 132kV overhead line would be removed and where no 400kV overhead line is proposed. Small beneficial impacts to properties in Hintlesham such as Chattisham Hall (1193450), Manor Farmhouse (1936912), and Wood Farmhouse (1036913) would amount to **minor beneficial** effects. The same magnitude of impact and effect can be attributed to Sprott's Farmhouse (1182360) on Holt Road, Sparrows Farmhouse (1337885), a cottage (1306346) and barn (1123273), and Abbott's Farmhouse (1122866) in the Alphamstone area. These effects are **not significant**.

#### Non-Designated Built Heritage

- 8.7.12 There are five non-designated assets (pillboxes - MSF26067, MEX1034883 and MEX1034884, the Stour Valley Railway MSF35002, and an old cast iron water pump MEX1035629) within and adjacent to the Order Limits. These are of low value and would not be affected by the operation of the project, as setting makes a minimal contribution to their sensitivity (value) given they are set within hedges or earth banks. There would therefore be a **neutral** effect, which is **not significant**.

#### Historic Landscapes

- 8.7.13 The assessment presented in ES Appendix 8.2: Historic Environment Impact Assessment (**application document 6.3.8.2**) contains the detail of the assessment on historic landscape assets. No significant effects have been identified to the two registered historic parks and gardens within the study area in terms of setting change, owing to their distance from the project and the intervening topography, and the scale of the proposed changes from the existing, given that the proposed 400kV overhead line would replace the existing 132kV line on the same alignment. This removal of the 132kV overhead line in the Hintlesham area would have a small beneficial impact on the Chantry Park registered park and garden during operation, given the removal of the modern overhead line closest to it and therefore from its historic setting. This would result in a **minor beneficial** effect, which is **not significant**.
- 8.7.14 Protected Lanes lie within the Order Limits in Section G: Stour Valley. In operational terms there would be no change to their form, given embedded and good practice measures would restore any physical changes to the lanes brought about during construction. As the proposed new infrastructure would comprise underground cables in Section G: Stour Valley, there would be no change to the setting of the lanes, which are of medium value. There would therefore be a **neutral** effect on Protected Lanes in Essex, which is **not significant**.

- 8.7.15 The additional proposed 400kV overhead lines in the Suffolk part of the project would introduce an additional overhead line into the visual and historic setting of the historic lanes there, which have a medium value. The lanes have an historic rural setting but are not assets where visual intrusion from new development would result in a large change to their sensitivity. The proposed overhead line would result in a small adverse impact, resulting in a **minor adverse** effect, which is **not significant**.
- 8.7.16 The effects on important hedgerows are considered in Section 8.6, no further effects are anticipated on important hedgerows.

## GSP Substation

### Archaeological Remains

- 8.7.17 There would be no change in setting to low value non-designated buried archaeological remains within the Order Limits within the working area of the proposed GSP, given that these would have been removed during construction. The designated and non-designated buried archaeological remains outside the Order Limits would experience no change from the proposed GSP in terms of setting, given that the proposals would not result in any major topographical change that would affect the presence of the buried assets or their interpretation. The operational impact would therefore result in a **neutral** effect on archaeological remains, which is **not significant**.

### Built Heritage

- 8.7.18 The GSP substation would be screened by existing vegetation through the proposed planting (EM-H02) and mounding (EM-H04) as described in the REAC (**application document 7.5.2**). This would reduce effects in the longer-term during operation by screening the structure from the high value historic listed buildings of Gentry's Farmhouse (1169822) and Butler's Hall Farmhouse (1169693). At the very beginning of the operational phase the visual impact would be more marked given that newly planted vegetation would not have had a chance to consolidate and become established. ES Chapter 6: Landscape and Visual (**application document 6.2.6**) states that by Year 15 the vegetation would have reached a level of maturity that would provide more effective visual screening and a more naturalised environment.
- 8.7.19 Visual intrusion would reduce during operation, given the growth of the vegetation screen, resulting in no change and a **neutral** effect, which is **not significant**.

### Historic Landscapes

- 8.7.20 The GSP substation would be screened by existing vegetation and through the proposed planting (EM-H02) and mounding (EM-H04) as described in the REAC (**application document 7.5.2**). This would reduce effects in the longer-term during operation in terms of changes to the setting of historic landscape assets (such as the nearest medium value Protected Lane at Old Road (BTELANE84)).
- 8.7.21 Important hedgerow H-H-23 would experience a gap at the location of the proposed permanent access route resulting in a small adverse magnitude impact on assets of low value. The surrounding hedgerow would be reinforced. This would result in a **minor adverse** effect, which is **not significant**.
- 8.7.22 The operational effects from the proposed GSP would therefore be **not significant**.

## Summary of Operational Effects

- 8.7.23 The good practice measures outlined in the CoCP (**published document 7.5.1**) such as GG06, GG07, GG08, LV01, LV02, LV03 and H05 would reinstate and restore landscape and historic features to their original state during operation, except for those already mentioned. These measures have been accounted for in the assessment of changes to the setting of heritage assets.
- 8.7.24 The key potential impacts during operation on the historic environment are changes to the setting of listed buildings. In all cases, the introduction of the proposed 400kV overhead line, CSE compounds and GSP substation would amount to a small adverse magnitude impact, given that in the main it would be in the context of the existing 400kV overhead line and primarily on the same alignment as the existing 132kV overhead line, albeit with taller pylons. The exception to this is in Section AB: Bramford Substation/Hintlesham, where the 132kV overhead line would be removed to the south of Hintlesham and the proposed overhead line would run parallel to the existing 400kV overhead line and to the north and west of Hintlesham Woods. Given the high value of all listed buildings, the impact would result in a **neutral** to **minor adverse** effect, which is **not significant**.
- 8.7.25 Listed buildings which have inter-visibility with the existing 132kV overhead line in the area south of Hintlesham, Dedham Vale and the Stour Valley where it would not be replaced by the proposed 400kV overhead line, and in locations such as Dedham Vale AONB and parts of the Stour Valley, where undergrounding would result in one less overhead line running across the landscape, would result in an improvement to their setting. This would amount to a small beneficial impact and a **minor beneficial** effect, which is **not significant**.

## 8.8 Proposed Mitigation During Construction

### Introduction

- 8.8.1 This section sets out the proposed additional mitigation for the potential likely significant effects during construction outlined in Section 8.6. The additional mitigation measures are listed in the REAC, which forms Appendix B to the CEMP (**application document 7.5.2**). The CEMP is secured through Requirement 4 of the draft Development Consent Order (DCO) (**application document 3.1**).

### Main Project

#### Archaeological Remains

- 8.8.2 In line with the AFS (**application document 7.9**) and OWSI (**application document 7.10**), a level of archaeological mitigation would be applied to all archaeological remains where removal or damage is unavoidable, whether significant or not, as per good practice. This would stipulate implementation of the mitigation approach as set out in the OWSI. Mitigation would take the form of watching brief, strip, map and record and archaeological excavation, where warranted. The preliminary locations of such approaches have been made in the OWSI (**application document 7.10**). Where archaeological investigation locates significant remains worthy of preservation in situ, the option of preserving them as such would be considered and applied, where warranted. However, most buried archaeology is expected to be of low value, warranting preservation by record.

- 8.8.3 The archaeological investigation, including trial trenching, is ongoing and may identify other archaeological remains. However, if this were the case, then these would be added to the overall mitigation strategy for the project. This would record archaeological remains prior to or during the construction phase and would enable their preservation as an archive. With these measures in place there would be **no significant** residual effects to known or unknown archaeological remains.
- 8.8.4 If palaeoenvironmental remains exist within the areas affected by dewatering in the trenchless crossing areas, mitigation would be carried out as stated within the OWSI (**application document 7.10**).
- 8.8.5 Requirement 6(1) of the draft DCO (**application document 3.1**) states that '*the authorised development must be undertaken in accordance with the AFS and the OWSI.*' In addition, and as outlined in the OWSI, Detailed Written Schemes of Investigation would be prepared for the proposed mitigation.

### **Built Heritage**

- 8.8.6 The assessment has concluded that there are **no significant** effects in relation to the identified built heritage assets during construction. Therefore, no additional mitigation has been identified beyond the good practice measures in the CoCP (**application document 7.5.1**) and the embedded measures in the REAC (**application document 7.5.2**).

### **Historic Landscapes**

- 8.8.7 The assessment has concluded that there are no likely significant effects in relation to historic landscapes during construction. Therefore, no additional mitigation has been identified beyond the good practice measures in the CoCP (**application document 7.5.1**) and the embedded measures in the REAC (**application document 7.5.2**).

## **GSP Substation**

### **Archaeological Remains**

- 8.8.8 The archaeological remains identified within the GSP substation working area can be preserved by record and an archaeological watching brief approach has been proposed in the OWSI (**application document 7.10**).

## **8.9 Proposed Mitigation During Operation**

- 8.9.1 The assessment has concluded that there are no likely significant effects in relation to the historic environment during operation. Therefore, no additional mitigation measures have been identified.

## **8.10 Residual Significant Effects (With Mitigation)**

- 8.10.1 Table 8.5 summarises the likely significant effects, proposed mitigation and residual significant effects for the historic environment during construction. No potential for significant effects during operation have been identified.
- 8.10.2 The construction works are assessed to result in potential medium and large magnitude adverse impacts on three low to medium value assets (the cropmark complex at Hill House Farm - MEX30154, archaeological remains associated with a Romano-British

settlement site east of St Edmund’s Hill, and former field boundaries and Romano-British archaeology on south-west side of A134). This would result in a **moderate adverse** effect, which is **significant** before mitigation. During construction, there could be other effects resulting from the discovery of other unknown archaeology through the ongoing investigations. In all of these cases, the measures set out within the AFS (**application document 7.9**) and OWSI (**application document 7.10**) would locate significant remains worthy of preservation in situ, or would result in preservation by record. This would record archaeological remains prior to or during the construction phase and would enable their preservation as an archive. With these measures in place there would be **no residual significant** effects on known or unknown archaeological remains.

Table 8.5 – Summary of Likely Significant Effects during Construction

Aspect/Proposed Matter	Likely Significant Effect (Without Mitigation)	Proposed Additional Mitigation	Residual Significant Effect (With Mitigation)
<b>Construction</b>			
Archaeological remains: Removal of, or damage to: <ul style="list-style-type: none"> <li>Former field boundaries on south-west side of A134 - AIM identifier: 1765 and the presence of Romano-British archaeology as evidenced from geophysical survey and archaeological trial trenching;</li> <li>Archaeological remains associated with a Romano-British settlement site east of St Edmund’s Hill (B1508); and</li> <li>Cropmark complex at Hill Farm House (MEX30154).</li> </ul>	Long-term moderate adverse	Archaeological recording (preservation by record) as per the AFS ( <b>application document 7.9</b> ) and OWSI ( <b>application document 7.10</b> ).	Long-term neutral

## Assessment of Harm

8.10.3 The following paragraphs consider the potential for harm and substantial harm on designated heritage assets, as set out in NPS EN-1 and explained in paragraphs 8.4.31 to 8.4.35 of this chapter.

### Construction

8.10.4 No significant residual effects are identified on any designated heritage assets during construction. Accordingly, **no substantial harm** is identified, as there are no construction effects on designated heritage assets of moderate or greater significance.

8.10.5 Due to the predicted minor adverse effects on setting (not significant), **harm** has been identified to designated heritage assets during construction due to construction activities. The harm associated with minor adverse effects during construction is considered to be acceptable when weighed against the public benefit of the project in increasing electricity capacity.

## Operation

- 8.10.6 No significant residual effects are identified on any designated heritage assets during operation. Accordingly, **no substantial harm** is identified, as there are no operational effects on designated heritage assets of moderate or greater significance. Further details regarding the explanation of harm can be found in ES Appendix 8.2, Annex A: Hintlesham Hall Assessment (**application document 6.3.8.2.1**).
- 8.10.7 Due to the predicted minor adverse effects on setting (not significant), **harm** has been identified to designated heritage assets during operation. Setting change would arise from the additional small degree of visual intrusion on the skyline from the above ground features such as the proposed 400kV overhead line and CSE compounds. The harm associated with minor adverse effects is considered to be acceptable when weighed against the public benefit of the project in increasing electricity capacity.

## 8.11 Sensitivity Testing

### Introduction

- 8.11.1 This section outlines alternative approaches to the baseline assessment presented in Sections 8.6 to 8.10. It considers the alternative construction schedule, which is described in ES Appendix 4.2: Construction Schedule (**application document 6.3.4.2**) and also flexibility between the baseline design and method set out within ES Chapter 4: Project Description (**application document 6.2.4**) and the Proposed Alignment shown on ES Figure 4.1: The Project (**application document 6.4**). Further details on the flexibility assumptions are outlined in Section 4.2 of ES Chapter 4: Project Description (**application document 6.2.4**).

### Assessment of Alternative Construction Schedule

- 8.11.2 This chapter assumes the construction schedule described in ES Appendix 4.2: Construction Schedule (**application document 6.3.4.2**) for the purposes of the assessment. Sensitivity testing has considered the alternative construction schedule, which has a later start date due to the construction of the GSP pursuant to the DCO, has shown that there would be no new or different likely significant effects to those identified in the construction schedule assessed in Sections 8.6 to 8.10.

### Flexibility in Design

#### Flexibility in Trenchless Crossings

- 8.11.3 The assessment has assumed trenchless crossings at the River Box, River Stour, Sudbury Branch Railway Line and south of Ansell's Grove. Changes that could result from an alternative trenchless construction method to HDD or from a change of drilling direction would not result in any new or different significant effects to all historic environment assets from those presented in Sections 8.6 to 8.10.

#### Flexibility in Construction Method

- 8.11.4 The assessment has considered the possible effects of locating temporary working areas including the temporary access routes, lay-down areas and compounds elsewhere within the Order Limits than the location shown on ES Figure 4.1: The Project (**application**

**document 6.4**). The archaeological mitigation in the OWSI is comprehensive and any movement of activities such as using different temporary access routes potentially affecting different archaeological remains would be subject to the mitigation strategy applied in the OWSI (**application document 7.10**).

- 8.11.5 The extent to which such changes might be brought about within the Order Limits would not result in any additional adverse effects on historic buildings or historic landscapes. The movement of temporary bellmouths or access routes would not increase the levels of impact already identified in this assessment on the form of historic landscapes or their setting, or the setting of built heritage assets.

### **Flexibility within the Order Limits**

- 8.11.6 The assessment presented within Sections 8.6 to 8.10 has assumed the Proposed Alignment, including pylon locations shown on ES Figure 4.1: The Project (**application document 6.4**). It should be noted that as described in ES Chapter 4: Project Description (**application document 6.2.4**), the Proposed Alignment is not fixed and could be subject to change within the defined Limits of Deviation (LoD) within the parameters shown on the Works Plans (**application document 2.5**).
- 8.11.7 Sensitivity testing has been carried out to determine the potential for likely significant effects should alternative designs within the parameters defined by the LoD be taken forward. In the proposed overhead line sections, the assessment has concluded that the pylons could be located anywhere within the parameters of the LoD (including the vertical LoD) without resulting in significant effects to heritage assets.
- 8.11.8 Archaeological remains identified from desk studies and archaeological investigation are of a low and medium value and the effects arising from construction work would not be significant. Adverse effects would occur, but these can be mitigated through implementing the preservation by record approach as set out in the OWSI (**application document 7.10**). The archaeological mitigation in the OWSI is comprehensive and any movement of components potentially affecting different archaeological remains is subject to the mitigation strategy applied in the OWSI (**application document 7.10**).

## **8.12 Conclusion**

- 8.12.1 The assessment presented in Sections 8.6 to 8.10 has concluded that with the proposed mitigation in place (as outlined in the AFS and the OWSI), together with the embedded and good practice measures, there would be no residual significant adverse effects on the historic environment.
- 8.12.2 In accordance with paragraph 5.8.14 of NPS EN-1, adverse changes to setting would amount to **harm** to designated heritage assets including listed buildings. No adverse changes to setting amounting to substantial harm have been identified. No changes to effect have been identified through the sensitivity testing, therefore no changes to harm are anticipated to those described in paragraphs 8.10.3 to 8.10.7.
- 8.12.3 The AFS (**application document 7.9**) and the OWSI (**application document 7.10**) set out the steps that would be taken to identify and evaluate known as yet unknown archaeological remains within the Order Limits and the measures that would be used to either protect these in situ or to provide preservation by record. The AFS and OWSI are secured through Requirement 6 of the draft DCO (**application document 3.1**).



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National Grid plc  
National Grid House,  
Warwick Technology Park,  
Gallows Hill, Warwick.  
CV34 6DA United Kingdom

Registered in England and Wales  
No. 4031152  
[nationalgrid.com](http://nationalgrid.com)