The Great Grid Upgrade

Norwich to Tilbury

Environmental Implications of Change

Proposed Changes to Connection at Tilbury

March 2025

nationalgrid

AENC-ARC-CNS-REP-0021

Contents

1. Environmental Implications of Change – Proposed Changes to Connection at Tilbury

1.1 Introduction

1.1.1 This report provides the Environmental Implications of Change (EIC) to support the '*Thurrock 3: proposed changes to connection at Tilbury consultation summary document*'. It sets out the potential for any different likely significant environmental effects associated with the proposed changes around the Tilbury connection (the 'proposed changes'), comparing against those presented within the original Preliminary Environmental Information Report (PEIR) (National Grid, 2024) that was prepared for the Norwich to Tilbury project (the 'Project') and presented at statutory consultation in April 2024. There is no formal requirement to prepare a PEIR or an addendum to the PEIR to support this consultation.

1.1.2 As this report discusses the potential changes to likely significant environmental effects identified in the original PEIR, it is recommended that the original PEIR (and its appendices and figures) are reviewed alongside this EIC.

1.2 Environmental Impact Assessment

1.2.1 Environmental Impact Assessment (EIA) is a process that is used to identify the likely significant effects that could occur as a result of a project. The information gathered is taken into account by the decision-making body when determining the application for consent. Three main EIA documents are produced by the applicant as part of the Nationally Significant Infrastructure Project (NSIP) pre-application process:

- Scoping Report: This sets out the likely significant environmental effects from a project and proposes the scope (approach and methodology) of the EIA bearing in mind those identified effects. To inform the identification of likely significant environmental effects it presents the data collected to reach those conclusions. National Grid submitted the Scoping Report for the Proposed Project to the Planning Inspectorate in November 2022. The Planning Inspectorate provided a Scoping Opinion (a document concluding their thoughts on the potential for significant environmental effects and what they would want to see as part of an EIA) on behalf of the Secretary of State in December 2022. This included a number of items to be considered when producing the Environment Statement (ES) and the application for development consent

- PEIR: This sets out the preliminary information that is reasonably required for consultation bodies and stakeholders to develop an informed early view of the likely significant environmental effects of a project. The PEIR (National Grid, 2024) for the Project was published in April 2024

  This EIC has been undertaken in accordance with the '*Planning Act 2008: Guidance on the Pre-application stage for Nationally Significant Infrastructure Projects*

(Ministry of Housing, Communities and Local Government and Department for Levelling Up, Housing and Communities, 2024) which states '*Targeted consultation can be statutory or non-statutory or a combination of the two depending on whether new persons needing to be consulted under section 42 of the Planning Act have been identified, but such targeted consultation will not require the production of PEI provided proportionate and appropriate information on environmental implications of any changes, where necessary, is provided*'.

- ES: The ES is a document that presents the results of the EIA undertaken for a project. It identifies the likely significant environmental effects that may result if a project were to be implemented, and any proposed mitigation to avoid or reduce those significant environmental effects to a non-significant level (where possible). The ES will be submitted as part of the application for development consent for the Project and will be taken into account during the decision-making process

1.2.2 A Draft Outline Code of Construction Practice (CoCP) (National Grid, 2024) was published as part of the original PEIR during statutory consultation. This included the general principles and good practice control and management measures that National Grid Electricity Transmission plc ('National Grid') proposes to reduce the construction effects of the Project on the environment. An Outline CoCP will be submitted with the ES and the application for development consent. Commitments contained within the Draft Outline CoCP (National Grid, 2024) submitted with the original PEIR at statutory consultation also apply to the changes that are the subject of this consultation.

1.2.3 National Grid is also in the process of drafting a suite of management plans for the Project. These will include further details of how the Project would be managed during construction, should consent be granted. Management plans and other related documents that will be incorporated as part of the application for development consent, will include but not necessarily be limited to the following:

- Outline Construction Traffic Management Plan (CTMP)
- Outline Landscape and Ecological Management Plan (LEMP)
- A Draft Archaeological Mitigation Strategy and Outline Written Scheme of Investigation (WSI)
- Outline Site Waste Management Plan (SWMP)
- Outline Soil Resources Plan (SRP)
- Outline Dust Management Plan (DMP)
- Outline Stakeholder Communications Plan
- Outline Noise and Vibration Management Plan (NVMP)
- Outline Flood Warning and Evacuation Plan
- Outline Public Rights of Way Management (PRoW) Plan

1.3 Description of the Proposed Changes Since Statutory Consultation

1.3.1 The Project presented at the summer 2024 statutory consultation comprised:

- A new 400 kV (kilovolt) electricity transmission connection of approximately 184 km overall length from Norwich Main Substation to Tilbury Substation via Bramford Substation comprising:
  - Approximately 159 km of new overhead line supported on approximately 510 steel lattice pylons (approximately 50 m in height) some of which are gantries (typically up to 15 m in height) within proposed Cable Sealing End (CSE) compounds or existing or proposed substations
  - Approximately 25 km of 400 kV underground cabling (some of which is located through the Dedham Vale National Landscape (an Area of Outstanding Natural Beauty (AONB))
- Six new CSE compounds each with a permanent access, to connect the overhead lines to the underground cables
- A new 400 kV East Anglia Connection Node (EACN) Substation, with a new permanent access, on the Tendring Peninsula. This is proposed to be an Air Insulated Switchgear (AIS) substation
- Substation extension works at the existing Norwich Main and Bramford Substations and works within the existing Tilbury Substation to connect and support operation of the new transmission connection
- Temporary works associated with the construction of the Project

1.3.2 Third party utilities diversions and / or modifications would also be required to facilitate the construction of the Project.

1.3.3 An option was also considered for undergrounding at the Waveney Valley.

1.3.4 This EIC focuses on the proposed changes at the Tilbury connection.

1.3.5 The proposed changes remove the CSE compound and approximately 4.5 km of underground cables from the CSE compound to the existing Tilbury Substation. The proposed changes connect into a new standalone substation, in the location of the previously proposed CSE compound to the south of Orsett Golf Course. This is proposed to be connected to an existing 400 kV line to complete the electrical connection to Tilbury Substation.

1.3.6 The proposed changes result in the following amended project description:

- A new 400 kV electricity transmission connection of approximately 180 km in overall length from Norwich Main Substation via Bramford Substation and a new Tilbury North Substation, into Tilbury Substation comprising:
  - Approximately 159 km of new overhead line supported on approximately 510 steel lattice pylons (approximately 50 m in height) some of which are gantries (typically up to 15 m in height) within proposed CSE compounds, or existing or proposed substations
  - Approximately 22 km of 400 kV underground cabling some of which is located through the Dedham Vale National Landscape (formerly known as Dedham Vale AONB)
- Seven new CSE compounds, each with a permanent access, to connect the overhead lines to the underground cables

- A new 400 kV EACN Substation, with a new permanent access, on the Tendring Peninsula. This is proposed to be an AIS) substation
- A new 400 kV Tilbury North Substation to the south of Orsett Golf Course in Thurrock with access options. This is proposed to be a Gas Insulated Switchgear (GIS) substation
- Modifications to the existing National Grid Electricity Transmission overhead lines, including into and out of the new 400 kV Tilbury North Substation and access options
- Substation extension works at the existing Norwich Main and Bramford substations to connect and support operation of the new transmission connection
- Temporary works associated with the construction of the Project

1.3.7 Third party utilities diversions and / or modifications would also be required to facilitate the construction of the Project.

1.3.8 The proposed changes are presented on the Consultations Plans available on the Project website.

Further Detailed Description of the Proposed Changes

1.3.9 The proposed changes to the connection at Tilbury comprise the following principal elements:

- A new 400 kV Tilbury North Substation to the south of Orsett Golf Course in Thurrock with access options. This is proposed to be a Gas Insulated Switchgear (GIS) substation
- Modifications to the proposed and existing National Grid Electricity Transmission overhead lines into and out of the new 400 kV Tilbury North Substation, including two new CSE compounds and access options

1.3.10 The components that would comprise these principal elements of the proposed change are described further in the paragraphs that follow.

Proposed Tilbury North GIS Substation

1.3.11 A new 400 kV substation in a secure compound with an operational footprint of approximately 340 m x 300 m with heights of approximately 15 m excluding any requirement for landscaping and cable / overhead line connections:

- New GIS building (approximately 130 m x 20 m and 15 m in height)
- Annex building (approximately 130 m x 10 m and 5 m in height)
- Exterior and interior lighting
- Internal access and circulation
- Associated plant and apparatus
- Drainage
- Security fencing (approximately 4 m in height)
- Two access route options into the site (see 1.3.12)

1.3.12 The two proposed access options into the new Tilbury North Substation during construction and operation (and maintenance) comprise:

- A Primary Access Route (PAR) via Stanford Road (east of the Orsett Cock Roundabout), Buckingham Hill Road and Hoford Road leading to:
  - A temporary haul road (during construction) with two alternative alignments: one running mainly along or alongside Hoford Road before crossing the south western part of the Clearserve site; and one running mainly through the Clearserve site from north-east to south-west or,
  - A permanent private access road (during operation) with two alternative alignments similar to those described for the temporary haul road
- A PAR via Brentwood Road leading to:
  - A temporary haul road (during construction) with two alternative alignments: one running east to west between Brook Farm and Orsett Golf Course; and one running slightly further to the west and south or,
  - A permanent private access road (during operation) running east to west between Brook Farm and Orsett Golf Course – as an alternative to the permanent private access road across the Clearserve site

1.3.13 Figure B1 in Annex B shows the above access route options. Further detail is shown on the Construction Access Plans sheets A to F and the Consultation Plans sheets A to D, which are available on the project website.

Modifications to the existing transmission network

1.3.14 Sections of the existing YYJ and ZB National Grid Electricity Transmission overhead lines require modification to facilitate the connection of the existing transmission network into the new substation. These works comprise:

- The re-routing of the existing YYJ overhead line to a more southerly permanent alignment and connection into the proposed new substation. This would require eight new pylons and the removal of five existing pylons
- Undergrounding a short section (approximately 0.55 km) of the existing ZB overhead line and the construction of two new CSE compounds to the south of Orsett Golf Course, both with a permanent access from High House Lane. In addition, three new pylons would be required and four existing pylons removed
- A number of temporary overhead line diversions onto temporary pylons and using the proposed permanent pylons in a temporary arrangement are required to facilitate the works to maintain ‘live’ circuits for the YYJ and ZB overhead lines. It is assumed that these temporary diversions would be required for a minimum of two years but up to three years. Any temporary pylons like the permanent pylons are approximately 50 m in height.

1.3.15 There are three access route options for the modifications to the existing transmission network, these comprise:

- A PAR via Stanford Road/ Heath Road (existing alignment). If the LTC Project were consented, this PAR would follow the alignment of Heath Road proposed as part of the LTC project

- A PAR via Stanford Road/ Gammonfields Way (existing alignment). If the LTC Project were consented, this PAR would follow the alignment of Gammonfields Way proposed as part of the LTC project
- A PAR via Marshfoot Road/ Muckingford Road - this PAR, shown in Figure B1 in Annex B and the Construction Access Plans Sheet F, would not change if the LTC project was consented. Only Light Goods Vehicles (LGVs) would use this access

1.3.16 Figure B1 in Annex B shows the above access route options.

Environmental Mitigation / Environmental Areas

1.3.17 Proposed areas for environmental mitigation / Environmental Areas are presented on Figure 5 in Annex A. There are two options for environmental mitigation; if the LTC project is consented, and if the LTC project is not consented. In summary:

- If the LTC project is consented, the Norwich to Tilbury Project would need to provide alternative locations for LTC's nitrogen deposition areas and ancient woodland mitigation as these areas would be affected by the proposed changes. In addition, opportunities for screen planting around the two proposed new CSE compounds would be limited by the presence of the LTC project
- If the LTC project is not consented, alternative locations for nitrogen deposition and ancient woodland mitigation would not be required, and a large area for screen planting around the two proposed new CSE compounds could be provided

1.4 Engagement

1.4.1 Prior to the start of this consultation, engagement has been undertaken with Thurrock Council's Highways Development Management Team and briefings held with relevant stakeholders.

1.4.2 National Grid held a series of meetings with Thurrock Council's Highways Team (some of which were attended by National Highways) between November 2024 and January 2025 to discuss the access route options for its construction vehicles.

1.4.3 During discussions on access route options, Thurrock Council's Highways Team highlighted the local importance of Hoford Road and Public Rights of Way (PRoWs) for walking and cycling and its concerns about HGVs travelling through Chadwell St Mary. In response, National Grid identified two alternative access route options for the proposed Tilbury North Substation, one of which minimises the use of Hoford Road. In response to the second concern, National Grid is proposing that construction vehicles would be limited to LGVs along the access route via Chadwell St Mary.

1.5 Environmental Implications of Change Approach and Method

1.5.1 This report sets out the EICs that are relevant in relation to the changes set out in the '*Thurrock 3: proposed changes to connection at Tilbury consultation summary document'*. The methodology used in this EIC follows the same approach that was adopted in the original PEIR (Volume 1, Main Report, Chapter 5: PEIR Approach and Method).

1.5.2 This EIC focuses on the likely significant environmental effects during the construction and operation (and maintenance) phase that would be material to a decision to consent the Project.

1.5.3 There are generally no anticipated changes to decommissioning to those set out in the original PEIR. Therefore, decommissioning is not discussed further in this EIC.

1.5.4 The residual effects noted in this EIC take into account embedded, standard and additional mitigation measures that were identified within the original PEIR, that would help to avoid or reduce significant environmental effects that may otherwise be experienced during the construction and operation (and maintenance) phases of the Project.

1.5.5 Volume 1, Main Report, Chapter 4: Project Description of the original PEIR (National Grid, 2024) includes a number of project assumptions regarding the construction programme, working methods, for example how sensitive features would be crossed (see sections 4.6, 4.7, 4.8 and 4.9). These assumptions all still apply (unless specified otherwise in the paragraphs that follow) and have been used when assessing the changes presented within this EIC.

1.6 Regulatory and Planning Policy Context

1.6.1 This EIC has given due consideration to relevant national policy and local policy, including those outlined in Volume 1, Main Report, Chapter 2: Key Regulatory and Planning Policy Context of the original PEIR. This EIC has considered those environmental topics presented within the relevant National Policy Statements (NPS); the Overarching NPS for Energy (EN-1) and the NPS for Electricity Networks Infrastructure (EN-5). Since the original PEIR was produced and the statutory consultation undertaken a revised National Planning Policy Framework (NPPF)[1] was published in December 2024. The revised NPPF states that effective strategic collaboration across local planning authority boundaries will play a vital and increasing role, including for delivering strategic infrastructure and for consistency in policy making based on the information available (paragraphs 24, 27 and 28); and that local authorities should support planning applications for all forms of renewable and low carbon development, giving significant weight to the benefits associated with renewable and low carbon energy generation and the proposal's contribution to a net zero future (paragraph 168).

1.7 Environmental Implications of Change Since Statutory Consultation

1.7.1 The preliminary environmental assessment undertaken as part of this EIC has identified that for a number of the environmental topics, the environmental effects would likely be very similar to those presented within the original PEIR submitted at statutory consultation. In these cases, the conclusions have been summarised and are presented in Table 1.1.

1.7.2 Section 1.8 reports environmental topics where there is potential for more substantial environmental implications of the proposed change, including differences in the baseline

[1] National Planning Policy Framework

environment and preliminary impact assessment compared with that presented within the original PEIR submitted at statutory consultation.

1.7.3 The relevant environmental features noted in this section are shown on figures in Annex A.

Table 1.1 - Environmental Topics with similar effects to the Original PEIR submitted at Statutory Consultation

<table>
<tr><th>Topic</th><th>Comments / observations / identified environmental implications of the proposed change when compared to the preliminary assessment presented in the original PEIR</th></tr>
<tr><td>Agriculture and Soils</td><td>
The proposed changes would amend the Agriculture and Soils Study Area noted in the original PEIR outlined within Chapter 6: Agriculture and Soils.
The proposed changes would reduce the draft Order Limits presented in the original PEIR due to the removal of 4.5 km of underground cable, avoiding the disturbance of an area of provisional Grade 3 agricultural land to the south of the proposed new substation (see Figure 2 in Annex A). However, additional provisional Grade 2 Best and Most Versatile (BMV) land would form part of the baseline due to the proposed works to the ZB and YYJ existing overhead lines to the west of the proposed new substation which was not in the draft Order Limits presented at statutory consultation (see Figure 2 in Annex A).
The loss of agricultural land is summarised in the table below:
<table>
<tr><th></th><th>Loss of Agricultural Land reported in the original PEIR</th><th>Loss of Agricultural Land as a result of proposed changes</th></tr>
<tr><td>Permanent Loss*</td><td>48 ha</td><td>58.5 ha (proposed change introduces an additional 10.5 ha of agricultural land)</td></tr>
</table>
*All estimates of permanent loss exclude permanent land take required for permanent access and pylon footprints at this preliminary stage.
No additional or different mitigation to that recorded in the original PEIR (National Grid, 2024) would be required. Agriculture and soils mitigation measures would be detailed in the Outline Soil Resource Plan as part of the Outline Code of Construction Practice.
The temporary effects on soil resources and agricultural land for the Project as a whole, despite the removal of 4.5 km of underground cable, compared to the design present at statutory consultation, would still be significant, as greater than 20 ha of agricultural land would be temporarily taken out of agricultural production.
The proposed changes would permanently remove an estimated 11 ha of Grade 2 BMV agricultural land from agricultural production as a result of the proposed new substation and two new CSE compounds. Therefore, an additional 10.5 ha of agricultural land would be permanently lost as a result of the proposed change, compared to the design presented at statutory consultation (as the design presented at statutory consultation considered a 0.5 ha CSE compound which would be replaced by the proposed new substation). Permanent loss of agricultural land would
</td></tr>
</table>

Topic	Comments / observations / identified environmental implications of the proposed change when compared to the preliminary assessment presented in the original PEIR
	increase to 58.5 ha, compared to the 48 ha assessed in the original PIER. However, although the proposed changes would result in greater negative effects on agriculture and soils compared to the design presented at statutory consultation, permanent effects on agricultural land would remain as significant – therefore there would be no change to the overall likely significance of effects when compared to the original PEIR.
Air Quality	A review of predicted traffic volumes as a result of the proposed change (presented in Annex B) determined there are no new roads would be screened into the Affected Road Network (ARN) when compared to the original PEIR (Chapter 7: Air Quality), although the traffic volumes are now higher. No new air quality receptors would be introduced into the baseline when compared to the original PEIR. There would be localised changes to traffic volumes during the construction phase around the proposed change compared with the original PEIR, with an increase in Heavy Goods Vehicle (HGV) volumes being predicted on the A1013 Stanford Road and Buckingham Hill Road. A review of potential risk from the increase in traffic has been carried out by reviewing if there are changes to the roads screened into the ARN and reviewing the impacts predicted at receptors along the A1013 and Buckingham Hill Road. Two receptors, HR_18 (adjacent to Buckingham Hill Road) and HR_17 (adjacent to A1013 Stanford Road) (see Figure 1 in Annex A), were previously modelled, with predicted concentrations well below air quality objectives[2]. Given the predicted increase in construction vehicle emissions at Tilbury North Substation, concentrations at these locations are likely to increase. However, as the predicted concentrations at these receptors would remain well below air quality objectives, the increase in HGVs is not expected to result in any exceedances or significant effects when compared to the original PEIR. While the realignment of access roads and the construction compounds require reassessment, they are not expected to result in significant air quality effects. Overall, the changes in construction vehicle emissions introduced by the proposed changes are unlikely to cause significant impacts. With the implementation of good practice measures in the Outline CoCP, the design changes are expected to result in similar air quality effects to those presented in the original PEIR, with no likely significant impacts at any phase of the Project.
Contaminated Land, Geology	The proposed change would amend the Contaminated Land, Geology and Hydrogeology Study Area outlined within Chapter 9: Contaminated Land, Geology and Hydrogeology of the original PEIR.

[2] National air quality standards for NO_2 (Annual mean 40 µg/m^3), PM_{10} (Annual mean 40 µg/m^3) and $PM_{2.5}$ (The current target for annual mean $PM_{2.5}$ is 20 µg/m^3, however the Environmental Targets (Fine Particular Matter) (England) Regulations 2023, state that the annual mean level of $PM_{2.5}$ in ambient air must be equal to or less than 10 µg/m^3 ('the target level') by 31 December 2040. The Environmental Improvement Plan (2023) sets an interim target of 12 µg/m^3, to be achieved by 31 January 2028.)

Topic	Comments / observations / identified environmental implications of the proposed change when compared to the preliminary assessment presented in the original PEIR
and Hydrogeology	The proposed change would remove part of the Project presented at statutory consultation that passed through a groundwater Source Protection Zone 2. The proposed change would reduce the amount of underground cabling in a mineral safeguarded area and would remove a large section of underground cabling through a number of historical landfills around Tilbury (see Figure 1 in Annex A). Considering the above, no additional or different mitigation to that recorded in the original PEIR would be required. The proposed change would reduce the potential for negative effects on groundwater and human health receptors during construction because the proposed change would remove the need to disturb historical landfills (and any associated contamination) around Tilbury when compared to the design presented at statutory consultation. In relation to minerals there would be likely to be no overall change to impacts during construction. In relation to operational effects there would also likely be no overall change to the effects presented in the original PEIR.
Health and Wellbeing	The proposed changes would amend the Health and Wellbeing Study Areas outlined within Chapter 10: Health and Wellbeing of the original PEIR. The preliminary assessments within other environmental topic chapters feed into the Health and Wellbeing chapter. It is therefore anticipated that any change to the original PEIR within the Noise and Vibration, Landscape and Visual, Air Quality, Traffic and Transport, Socio-economics, Recreation and Tourism, and Contaminated Land, Geology and Hydrogeology sections would similarly impact physical and/or mental health and wellbeing (positively or negatively). Additional or different mitigation outlined within the other environmental topics relevant to health and wellbeing would also be required to mitigate potential physical and/or mental health and wellbeing effects. This includes raised compounds to prevent increases in flood risk (as described within the Hydrology, Flood Risk and Land Drainage section of this report) and the changes to the landscaping scheme proposed within the Landscape and Visual sections. The proposed changes would not produce any new significant negative effects during the construction phase for Noise and Vibration, Socio-economics, Recreation and Tourism, or Air Quality, and would reduce the potential for negative effects to human health in the case of Contaminated Land, Geology and Hydrogeology. Although negative effects on Landscape and Visual receptors are expected to increase during construction, particularly around Chadwell St Mary, effects to visual receptors are likely to remain negative and significant, as reported within the original PEIR. Therefore, this would not change the conclusions recorded in the Health and Wellbeing preliminary assessment in the original PEIR. No new significant effects during the operational phase are expected as a result of the changes with regards to Socio-economics, Recreation and Tourism or Contaminated Land, Geology and Hydrogeology. With the

Topic	Comments / observations / identified environmental implications of the proposed change when compared to the preliminary assessment presented in the original PEIR
	implementation of mitigation during operation (and maintenance) for Noise and Vibration and Hydrology, Flood Risk and Land Drainage and Landscape and Visual, there would be no new negative or significant effects in relation to physical and/or mental health and wellbeing. Effects on visual receptors in Stanford-le-Hope, East Tilbury and Chadwell St Mary would remain negative and significant as reported within the original PEIR. Although there is potential for negative effects on mental health and wellbeing in particular to be experienced by people across a wider geographical area as a result, this is not considered to lead to new significant effects. No additional effects are anticipated for the proposed changes when compared to the original PEIR.
Noise and Vibration	The proposed changes would change the location of construction activities when compared to Chapter 14: Noise and Vibration of the original PEIR. Construction activities that would be removed, such as the 4.5 km of underground cable, would remove potential associated construction noise and vibration effects. The proposed changes would remove the need for PARs using the A1089 and Fort Road. The potential negative effect would be removed from these roads. The proposed changes lead to the introduction of additional PARs on the A1013 Stanford Road when compared to the original PEIR. The Study Area would therefore change accordingly, but the noise and vibration baseline itself would not change. The proposed change would also introduce an additional operational noise source in relation to the proposed new Tilbury North Substation. The application of best practicable means (BPM) during construction would be employed to reduce the effects of construction noise and vibration. This is the same as the original PEIR and no additional or different mitigation measures would be required. In addition to the embedded enclosure for the proposed new Tilbury North Substation, potential noise mitigation options would still be required to reduce the operational noise. In principle, this would include standard mitigation to ensure noise is within acceptable levels at nearby sensitive receptors as defined in the original PEIR. These mitigation measures would be in addition to those presented within the original PEIR. Construction traffic noise effects associated with the proposed changes would alter construction traffic flows (as presented in Annex B) and associated noise levels on the local road network. A review of construction traffic has been undertaken and determined that changes to noise levels would be negligible on all affected routes. Therefore, there would be no change to the preliminary assessment presented in the original PEIR. With the implementation of appropriate operational noise and construction noise and vibration mitigation, there would be no additional significant negative effects on the noise and vibration sensitive receptors within the Study Areas expected as result of the proposed change when compared to the design presented within the original PEIR.

Topic	Comments / observations / identified environmental implications of the proposed change when compared to the preliminary assessment presented in the original PEIR
Socio-economics, Recreation and Tourism	The proposed changes would amend the Socio-economics, Recreation and Tourism Study Area outlined in Chapter 15: Socio-Economic, Recreation and Tourism of the original PEIR. No additional or different mitigation to that recorded in the original PEIR would be required. The proposed changes would remove the underground cabling works near an area of Countryside and Rights of Way (CRoW) registered common land when compared to the design presented at the statutory consultation. Therefore, effects on this receptor during construction and operation (and maintenance) would be removed when compared to the original PEIR. The proposed change may introduce negative effects on additional receptors during construction, such as Thurrock Rugby Football Club, UK Stone Company and The Fox Orsett (see Figure 1 in Annex A). However, potential effects would be mitigated via the application of mitigation in the CTMP and are therefore not likely to be significant. The design presented at the statutory consultation and the proposed change both negatively affect Orsett Golf Course and associated PRoW during construction and operation (and maintenance). However, this would not change the potential significant effect during constriction and not significant effect during operation (and maintenance) on these receptors compared to those reported in the original PEIR. No additional significant negative effects are anticipated for the proposed changes when compared to the original PEIR.
Traffic and Transport	The proposed changes would amend the Traffic and Transport Study Area outlined in Chapter 16: Traffic and Transport of the original PEIR. Within the original PEIR, Primary Access Routes (PARs) included the A1013 Stanford Road (east of Orsett Cock Roundabout) and Buckingham Hill Road, and these would remain (with the addition of a section of Hoford Road) as one of the options to access the new Tilbury North Substation (see Figure B1 in Annex B). The proposed changes would remove the need for PARs using the A1089, Windrush Way, Fort Road and a section of Cooper Shaw Road, when compared to the design presented at statutory consultation. The proposed changes would lead to the introduction of additional PARs on the A1013 Stanford Road (west of Orsett Cock Roundabout) and Gammonfields Way for the works to modify the overhead lines west of the A1089; and additional PARs on Heath Road, Marshfoot Road, Chadwell Hill and Muckingford Road / Linford Road for the works to modify the overhead lines east of the A1089; and Brentwood Road as one of the options to access the new Tilbury North Substation (see Figure B1 in Annex B). The effect of the construction flows associated with the proposed changes need to be assessed for all PARs. All PARs identified in the original PEIR and proposed new PARs are considered to be ‘sensitive’. The Institute of Environmental Management and Assessment (IEMA) guidelines require a detailed assessment on links

Topic	Comments / observations / identified environmental implications of the proposed change when compared to the preliminary assessment presented in the original PEIR
	that exceed a 30% increase of total traffic or HGVs, or a 10% increase of total traffic for sensitive links. The construction flows for the proposed changes (see Annex B) are anticipated to be over the IEMA guidelines thresholds for A1013 Standford Road (east of Orsett Roundabout), Buckingham Hill Road, A1013 Standford Road (west of Orsett Roundabout), Brentwood Road and Heath Road, therefore a full assessment would be carried out and presented in the ES for the PARs using those roads. For Gammonsfield Way, Muckingford Road/Linford Road and Chadwell Hill, the total percentage increase is below 1% therefore there would not be any significant effects. The construction flows generated by the proposed changes would require additional mitigation to alleviate driver delays and walking, cycling and horse riding (WCH) amenity when compared to the original PEIR. Standard mitigation such as improved signage, and driver pack information would also be provided similar to that proposed within the original PEIR. Additional mitigation measures to improve walking and cycling infrastructure and crossing facilities may also be proposed, for example, along Hoford Road near the access to the Clearserve site. This is a no-through road used mainly by pedestrians and cyclists and where motorised vehicles are restricted. The proposed changes following the implementation of mitigation during construction are not anticipated to result in any additional significant effects when compared to the original PEIR. The proposed changes would remove the need for PARs using the A1089 and would therefore remove negative effects on this road and the A1089 roundabout when compared to the original PEIR. There would be limited vehicle movement during operation (and maintenance) therefore no effects are anticipated as outlined in the EIA Scoping Report (National Grid, 2022) and the original PEIR.

1.8 Additional Preliminary Assessment

Ecology and Biodiversity

Existing Baseline

1.8.1 Volume 1, Main Report, Chapter 8: Ecology and Biodiversity of the original PEIR presented the preliminary likely significant effects of the Project on ecology and biodiversity. Key information from this original document is provided below where it is considered relevant to the proposed design changes.

1.8.2 There are no changes to statutory designated nature conservation sites that fall within the Study Area, from those presented within the original PEIR, as a result of the proposed changes (see Figure 1 in Annex A).

1.8.3 Within the original PEIR, 20 non-statutory designated Local Wildlife Sites (LWSs) were identified within the Study Area around the Tilbury North (and associated works) area.

The proposed changes would result in the following LWS being scoped out: St Catherine's Churchyard, East Tilbury; and Coalhouse Ford Marshes. However, Blackshots Nature Area LWS and Stifford Clays Copse LWS would be scoped in as a result of the proposed changes. Overall maintaining a total of 20 LWSs scoped into the preliminary assessment (see Figure 1 in Annex A).

1.8.4 At the time of writing the original PEIR, habitats across the Project had been digitally mapped through aerial drone surveys undertaken in 2022. Ground truthing surveys of these habitats over the 2023 season had begun and results to date were presented within the original PEIR (this included land where the proposed new Tilbury North Substation is located).

1.8.5 The ecological surveys identified as outstanding within the original PEIR have now been undertaken or are scheduled to take place in the 2025 survey season. The additional land included in the draft Order Limits for the proposed changes are very similar in terms of habitat to those that were considered in the original PEIR and therefore it is not expected that new species or habitat receptors would be added to the ES. Key findings to date, associated with the proposed changes include:

- Trees with bat roost potential have been identified with survey work to continue in 2025, further surveys to confirm the presence of roosts in affected trees will be undertaken in 2025 (if the data meets the relevant bat activity criteria) or at pre-construction, as agreed with Natural England
- Hazel dormouse surveys have been undertaken in Rainbow Wood and Ashen Shaw Wood, located to the south of the proposed new Tilbury North Substation, over the 2024 season. No evidence of dormouse was recorded during the surveys and dormouse is assumed absent in these areas
- Breeding bird desktop data suggests a range of typical farmland birds may be present that would use available habitats within the area. Further breeding bird surveys are proposed to be undertaken in this area in March - July 2025
- Reptile surveys have been undertaken at Orsett Golf Course. All four common reptile species (grass snake, adder, slow worm and common lizard) were identified in low numbers, through survey work undertaken in 2024
- Wintering bird desktop information for the area was consistent with the wider draft Order Limits for the Project, with the habitats present likely to support common and widespread farmland bird species. No habitat present within the vicinity of the proposed new Tilbury North Substation has the potential to support birds associated with the Thames Estuary and Marshes Ramsar Site and Special Protection Area (SPA)
- All watercourses/ditches located within the Tilbury North area have been surveyed for otter and water vole over the 2023-2024 season. No evidence of either water vole or otter have been found in these areas
- Badger surveys have been undertaken over the 2023-2024 season, targeting main setts only to inform the ES with further survey work to be undertaken pre-construction. Further badger surveys are proposed at the Tilbury North area in 2025. Records of setts are confidential to avoid persecution and therefore are not publicly disclosed
- Great crested newt surveys have not been undertaken as Natural England has project wide District Level Licensing can be used. Proposed changes to the draft

Order Limits has been communicated with Natural England associated with this consultation

Summary of Key Changes for Ecology and Biodiversity

1.8.6 The proposed changes include the removal of approximately 4.5 km of underground cable and works at Tilbury Substation from the Project. The proposed changes introduce modification to existing overheard lines (YYJ and ZB routes), a new substation and two new CSE compounds.

1.8.7 There are key design changes relevant to ecology and biodiversity features comprise:

- The proposed Tilbury North Substation requires a larger permanent footprint than the CSE compound proposed in this location during statutory consultation which would require an increase in permanent habitat loss. The footprint of the proposed substation also lies slightly closer to the Mucking Heath Complex Southfields LWS but does not extend into the locally designated site when compared to the original PEIR. Associated substation construction works also lie in proximity to the Mucking Heath Complex Southfields LWS, including the Brentwood Road permanent access road option
- The proposed modifications to the existing overhead lines to the south of the proposed substation introduce additional potential impacts on ecological features, with draft Order Limits extending into Blackshots Nature Area LWS.
- The removal of 4.5 km of underground cable and modifications to the existing Tilbury Substation from the Project, would remove construction activity out of the zone of influence of the Thames Estuary and Marshes SPA and Ramsar site. The wintering / passage bird baseline within the original PEIR, included areas of potentially Functional Linked Land (FLL) associated with the Thames Estuary and Marshes Ramsar Site and SPA. The proposed changes would avoid the FLL associated with the SPA and Ramsar site, removing the need for Appropriate Assessment in this area.

Mitigation Measures

1.8.8 The proposed changes increase the permanent footprint of works when compared to the original PEIR. Modifications to existing overhead line connecting in from the south west, would also reduce the extent of the proposed Environmental Area that was presented within the original PEIR. A revised Environmental Area is therefore proposed around the two proposed CSE compounds, but it is currently unlikely that there would be opportunities for an Environmental Area around the proposed substation due to surrounding constraints.

1.8.9 There would be two options for the proposed revised Environmental Area, one taking into account the proposed Lower LTC project, and the other without (see Figure 5 in Annex A). The revised Environmental Area(s) would also be considered within the Biodiversity Net Gain assessment.

1.8.10 In addition, the larger permanent footprint would reduce the amount of available land available for LTC's proposed ancient woodland and nitrogen deposition mitigation. A suitable alternative location for the ancient woodland mitigation, to the east of Rainbow Wood, has been identified and would be included within the revised draft Order Limits. This identified area would be the same size in area as outlined within the LTC documents and would lead to woodland creation next to the existing ancient woodland

habitat. Alternative land suitable for nitrogen deposition mitigation has also been identified, located to the west of Brentwood Road. This area is suitable for the nitrogen deposition mitigation which comprises tree and grassland planting. The new site is equal in size to that lost as a result of the proposed changes.

1.8.11 No additional species-specific mitigation would be required as a result of the proposed changes. All standard construction mitigation measures as set out within the original PEIR and Draft Outline CoCP would still be relevant as a result of the proposed changes.

Likely Significant Effects During Construction

1.8.12 While the proposed new substation's permanent footprint would be larger than the CSE compound presented within the original PEIR, it would extend into arable habitat which is of low ecological value. With the larger footprint, the proposed new substation would lie slightly closer to the Mucking Heath Complex Southfields LWS but would not extend into the locally designated site. The proposed permanent access to the new substation via Brentwood Road (one of two access options), would also lie along the boundary of the Mucking Heath Complex Southfields LWS but not within the designation boundary. Standard construction mitigation measures would be implemented to ensure no detrimental impact on the LWS would occur during construction. No additional likely significant effects on the LWS would be anticipated as a result of the proposed changes and a neutral residual effect following the implementation of mitigation is predicted as outlined within the original PEIR.

1.8.13 The proposed modification to existing overhead lines, would move one pylon out of the Mucking Heath Complex Southfields LWS and another pylon into the LWS. On balance, the proposed change would result in no change to potential significant effects to the LWS as presented within the original PEIR and a neutral residual effect, following the implementation of mitigation, is predicted on the LWS as outlined within the original PEIR.

1.8.14 There would be no change to the neutral effects on Rainbow Wood and Ashen Shaw LWS, which have been surveyed by the LTC project as ancient woodland, because of the proposed changes when compared to the design set out in the original PEIR. The LWS and ancient woodland would be retained under the Norwich to Tilbury proposals and were assessed as being retained within the original PEIR. Standard construction mitigation measures would be implemented to ensure no detrimental impact would occur during construction. However, if LTC is granted consent and works implemented, the proposed ancient woodland and nitrogen mitigation land for the LTC project would be impacted by the Norwich to Tilbury proposed changes and would reduce the available land available for mitigation planting. The alternative ancient woodland and nitrogen deposition mitigation sites identified as part of the proposed changes (as detailed within the mitigation section), would therefore be used to ensure a neutral effect and no residual significant effects as outlined in the original PEIR.

1.8.15 The two proposed new CSE compounds (and associated undergrounding) would be within predominantly arable land of low ecological value. The eastern end of the cables / CSE compound overlaps with the original cable route and was therefore previously included within the original PEIR assessment. The impact of the CSE compounds and short section of undergrounding would have no additional significant effects on ecological features and a neutral effect following the implementation of mitigation is predicted as outlined within the original PEIR.

1.8.16 An existing pylon (ZB23) lies within Blackshots Nature Area LWS and another (YYJ115) lies on the edge of the locally designated site. Modification works to these existing pylons are proposed; these works are minor and would have no significant effect on the LWS.

1.8.17 The original PEIR concluded that in the absence of mitigation there was the potential for a significant effect on the Thames Estuary and Marshes SPA and Ramsar through impacts to habitat (or land functionally linked to it) and species from construction pollution (vibration, dust, air quality, light, noise and visual) and disruption of hydrological links that can affect Ground Water Dependent Terrestrial Ecosystems (GWDTE). The removal of 4.5 km of underground cables from the Project, removes construction activities out of the zone of influence of the Thames Estuary and Marshes SPA and Ramsar site. The proposed change therefore removes the potential impact pathways relating to the Thames Estuary and Marshes SPA and Ramsar and as a result is screened out as part of the Habitats Regulations Assessment (HRA) Stage 1 Screening Assessment. As a result of the proposed changes there would be no likely significant effects on the Thames Estuary and Marshes SPA and Ramsar site.

1.8.18 The removal of the 4.5 km of underground cabling in this area, would significantly reduce the potential effects reported in the original PEIR relating to habitat loss and subsequent impacts (injury, mortality and disturbance) on the associated protected / notables species using the habitat in question having a positive effect on ecology features in comparison to the original PEIR. Specifically, it would avoid valuable terrestrial invertebrate, badger and water vole habitat around the existing Tilbury Substation. It also removes areas of interest south of the railway line, being considered as part of a potential Tilbury Site of Special Scientific Interest (SSSI) by Natural England.

Likely Significant Effects During Operation (and Maintenance)

1.8.19 No significant adverse effects to ecological features in the Tilbury North area were anticipated in the original PEIR for the operational and maintenance phase of the Project, and this would not change as a result of the proposed design changes.

Historic Environment

Existing Baseline

1.8.20 Volume 1: Main Report, Chapter 11: Historic Environment of the original PEIR presented the preliminary likely significant effects of the Project on the historic environment. Key information from this is provided below where considered relevant to the proposed design changes.

1.8.21 Since the submission of the original PEIR, additional desk-based research and non-intrusive field surveys have been undertaken to inform the baseline as well as assist with the identification of possible impacts. These have included review of aerial photographs, historic mapping and geophysical survey. Intrusive works have been limited to the archaeological monitoring of ground investigation works. A phase of evaluation trial trenching is proposed to be undertaken.

1.8.22 The non-intrusive surveys have built on the information already obtained from the Essex Historic Environment Record (HER), with a small amount of additional information obtained.

Summary of Key Changes for Historic Environment

1.8.23 The proposed changes would amend the Historic Environment Study Areas noted in the original PEIR, as the change would result in the removal of approximately 4.5 km of underground cable and introduction of works to the existing YYJ and ZB overhead lines.

1.8.24 The proposed changes would not alter the draft Order Limits at the proposed Tilbury North Substation site. However, the draft Order Limits assessed in the original PEIR would change to the south of this with the removal of approximately 4.5 km of underground cable between Orsett Golf Course and the existing Tilbury Substation. This would alter the archaeological assets within the baseline and significantly reduce the impact of the Project on a landscape of high archaeological potential as the works proposed for the existing YYJ and ZB overhead lines would have less of a physical impact on the archaeological landscape than the underground cable works. There is the potential for these works to cause minor impacts during construction to several HER identified monuments largely comprising low to potentially high value cropmark complexes (e.g. MEX1031028, MEX6327, MEX18051, MEX6420) (see Figure 4 in Annex A) which would not have been physically impacted by the design assessed in the PEIR.

1.8.25 The change to the draft Order Limits would also alter the designated heritage assets included in the baseline and assessment. The proposed changes would likely reduce or remove the impacts of the Project on West Tilbury conservation area and the scheduled monument ‘Earthworks near church, West Tilbury’ (1002199), and remove the scheduled monuments ‘Tilbury Fort’ (1021092) and ‘Coalhouse Fort Battery and Artillery Defences’ (1013943) and scheduled monuments, conservation areas and listed buildings in Gravesend from the baseline due to change in study areas.

1.8.26 The works to the YYJ and ZB overhead lines to the west of the proposed Tilbury North Substation would introduce effects due to change in the settings of scheduled monuments ‘Crop mark complex, Orsett’ (1002134) and ‘Causewayed enclosure and Anglo-Saxon cemetery 500m ENE of Heath Place’ (1009286). The proposed changes also have the potential to reduce or remove the impacts of the Project on one Grade II* and ten Grade II listed buildings; whilst conversely introducing or increasing impacts to one Grade II* and nine Grade II listed buildings (see Figure 1 in Annex A for location of heritage assets).

Mitigation Measures

1.8.27 There would be no change to the type of mitigation measures proposed in the PEIR. The change in design and reduction in impacts to archaeology is expected to reduce the scale of the archaeological mitigation required.

1.8.28 For designated heritage assets no additional or different mitigation to that proposed in the original PEIR would be required.

Likely Significant Effects During Construction (and Maintenance)

1.8.29 There would be a reduction in significant negative effects to archaeological remains, as the proposed changes would impact a smaller area owing to the removal of approximately 4.5 km of underground cable from the design. There would be no change to the expected effects to archaeological remains at the site of the Tilbury North Substation and the short section of underground cable to the south as this area was also impacted by the design presented and assessed in the PEIR.

1.8.30 For non-designated heritage assets, the proposed changes would remove the impact of the Project on an extensive complex of a low value World War II anti-glider ditches and multi-period cropmark complex. The works associated with the YYJ and ZB overhead lines have the potential to impact several HER identified monuments largely comprising low to potentially high value cropmark complexes (e.g. MEX6327, MEX1805, MEX6420, MEX1031028), the last of these being associated with the scheduled monument 'Causewayed enclosure and Anglo-Saxon cemetery 500m ENE of Heath Place' (1009286). The scale of the works associated with this element of the Project, in proximity to ground already disturbed for installation of the existing pylons, is expected to result in not significant negative effects to these assets.

1.8.31 Significant negative effects to West Tilbury conservation area and the scheduled monument 'Earthworks near church, West Tilbury' (1002199) were assessed in the original PEIR for the construction phase. The proposed changes would reduce these to not significant effects during construction as construction activity would be further from these assets and focused on existing overhead lines that are already present within the settings of the assets.

1.8.32 No impact was assessed for the scheduled monuments 'Crop mark complex, Orsett' and 'Causewayed enclosure and Anglo-Saxon cemetery 500 m ENE of Heath Place' in the original PEIR. The settings of these assets extend to the proposed works associated with the YYJ and ZB overhead lines and during construction the works would cause change within their settings. However, as the works would be focused on existing overhead lines that are already present within the settings of the assets, and their settings make a limited contribution to their value, this would result in not significant negative effects.

1.8.33 The proposed changes also have the potential to introduce or increase negative effects to one Grade II* and nine Grade II listed buildings, although in all cases the effects are expected to be not significant as they would be focused on existing overhead lines that are already present within the settings of the assets.

1.8.34 The proposed location of the new Tilbury North Substation would not be expected to introduce any new significant negative effects to designated heritage assets due to its topographical position and distance from designated assets.

Likely Significant Effects During Operation (and Maintenance)

1.8.35 The proposed replacement planting to the south of the scheduled monument 'Causewayed enclosure and Anglo-Saxon cemetery 500m ENE of Heath Place' would be a change in the setting of this asset, with the introduction of trees into an open arable landscape. This aspect of the asset's setting makes a minor contribution to its value and therefore this change is considered to result in a negative effect which is not significant.

1.8.36 No significant negative effects to designated assets were assessed in the original PEIR for the operational and maintenance phase of the Project in this area, and this would not alter as a result of the proposed changes. This will be kept under review and assessed within the ES as more design details emerge.

Hydrology, Land Drainage and Flood Risk

Existing Baseline

1.8.37 Volume 1: Main Report, Chapter 12: Hydrology, Land Drainage and Flood Risk of the original PEIR presented the preliminary likely significant effects of the Project on the water environment. Key information from this is provided below where considered relevant to the proposed design changes.

1.8.38 Since the submission of the original PEIR, additional data has been collected to characterise the water environment baseline and engagement with key stakeholders has continued. A draft Flood Risk Assessment has been prepared as has a draft Water Framework Directive Assessment which have been shared with Lead Local Flood Authorities and the Environment Agency.

Summary of Key Changes for Hydrology, Land Drainage and Flood Risk

1.8.39 The proposed changes would amend the Hydrology, Land Drainage and Flood Risk Study Area noted in the original PEIR, as the change would result in the removal of approximately 4.5 km of underground cable.

1.8.40 When compared to the design presented at statutory consultation the proposed changes would remove works within the Tilbury Flood Storage Area (FSA) and would avoid works within an area of Flood Zone 3 that is associated with the River Thames floodplain and which benefits from protection by flood defences (see Figure 1 in Annex A). The proposed removal of the approximate 4.5 km of underground cable would also prevent the need for crossings of several watercourses and land drains, including the West Tilbury Main, which is an Environment Agency main river. Similar to the design presented at statutory consultation, there would be elements of the proposed Project, in particular some of the temporary works to facilitate construction, that encroach into areas at high risk of surface water flooding. The new Tilbury North Substation and the eastern cable sealing end compound for undergrounding of the ZB overhead line both clash with an overland surface water flow route.

Mitigation Measures

1.8.41 The proposed changes would mean that mitigation in terms of providing floodplain compensation for works within the FSA and Flood Zone 3 is no longer required and that temporary impacts on several watercourses, associated with crossings for the underground cable, would be avoided (therefore mitigation for these watercourse crossings would no longer be required). To mitigate surface water flood risk, the new Tilbury North Substation and eastern CSE compound would be raised and a box culvert installed beneath the substation and cable sealing end compound to maintain the flow route and prevent flood risk increases.

Likely Significant Effects During Construction

1.8.42 The proposed changes would remove direct effects on a FSA (and areas of defended floodplain) and would avoid the need for crossing of several watercourses. The proposed changes are generally beneficial for hydrology, land drainage and flood risk compared to the design presented at statutory consultation.

1.8.43 There would be no other changes to the effects and likely significant effects reported in the original PEIR.

Likely Significant Effects During Operation (and Maintenance)

1.8.44 During operation (and maintenance) of the Project, no new or different significant negative effects are anticipated associated with the proposed changes. This is on the basis that operational infrastructure would be served by a range of Sustainable Drainage measures to manage surface water runoff, and continuity of overland surface water paths would be retained through design, as described above.

Landscape and Visual

Existing Baseline

1.8.45 Volume 1 Main Report, Chapter 13: Landscape and Visual of the original PEIR presented the results of the preliminary landscape and visual assessment arising from the Project. This included consideration of the landscape and visual receptors reported in the baseline and whether effects were anticipated to be significant.

1.8.46 South of the A13, the Project lies within several published Landscape Character Areas (LCAs), including White Crofts/ Orsett Heath Urban Fringe LCA D4, Linford/ Buckingham Hill Urban Fringe LCA D5 and West Tilbury Urban Fringe LCA D7. Small parts of the draft Order Limits extend along roads into the outer edges of Grays/ Chadwell St Mary Urban Area LCA E4 and Corringham/ Stanford-le-Hope Urban Area LCA (see Figure 3 in Annex A).

1.8.47 There are a range of people (visual receptors) with potential for views of the proposed changes. These include people living and moving around the local community of Chadwell St Mary and people engaged in outdoor recreation (such as people using PRoW and people visiting outdoor attractions). Baseline photographs from Viewpoint 8.05: Chadwell St Mary and Viewpoint 8.11: Public Right of Way near Southfields (no 42) are provided in Annex C.

Summary of Key Changes for Landscape and Visual

1.8.48 The proposed changes would introduce some new and increased effects in comparison to those identified within the original PEIR, during both construction and operation. This would be due to the introduction of larger and additional areas of above ground infrastructure extending further west into the landscape towards Chadwell St Mary. The landscape and visual Study Area described in Chapter 13 of the original PEIR would change. The proposed changes would introduce new permanent infrastructure including the new Tilbury North Substation, two new CSE compounds and a relatively short section of underground cable to connect them. The proposed changes would also include works to existing overhead lines near Chadwell St Mary (which also involves the introduction of temporary towers during construction). The proposed changes would also remove proposals for approximately 4.5 km of underground cable between Orsett Golf Course and the existing Tilbury Substation.

1.8.49 The proposed changes would not introduce works outside the LCAs captured in the baseline presented at statutory consultation (reported in the original PEIR). The nature and extent of proposed works would change within several LCAs, including White Crofts/ Orsett Heath Urban Fringe LCA D4, Linford/ Buckingham Hill Urban Fringe LCA D5 and West Tilbury Urban Fringe LCA D7. The proposed design change would also remove works from the Chadwell Escarpment Urban Fringe LCA D6 and Tilbury Marshes LCA C5.

1.8.50 The potential impacts on visual amenity were reported in the original PEIR by taking into consideration potential changes in views from 'Visual Receptor Areas' (reported in the original PEIR and Appendix 13.2 – Visual Baseline and Assessment). These were identified based on geographical location, shared landscape characteristics and a similarity in the nature of views towards the Project. In relation to the Visual Receptor Areas reported in the original PEIR the proposed changes to the Project would remove works within Visual Receptor Area H7 (Tilbury Marshes).

1.8.51 Comparative photowirelines have been produced for two viewpoints to illustrate the difference between the Project presented in the original PEIR and the proposed changes. Photowirelines for Viewpoint 8.05: Chadwell St Mary and Viewpoint 8.11: Public Right of Way near Southfields (no 42) are provided in Annex C.

1.8.52 The locations and extents of a number of Visual Receptors Areas would change in response to the revised Study Area. This would remove some visual receptors (people) from the Study Area and introduce others.

Mitigation Measures

1.8.53 The proposed increased footprint of the new Tilbury North Substation compared to the CSE compound considered in the original PEIR, together with changes to overhead line arrangements connecting in from the south-west, would reduce the potential and extent of the proposed 'Environmental Area' presented at statutory consultation.

1.8.54 Mitigation is proposed to the south-west of the proposed new substation and around the proposed new CSE compounds, to soften and integrate the infrastructure in the landscape and in views. The mitigation would result in changes to the Environmental Area presented in the original PEIR. There would be two options for the proposed revised 'Environmental Area'. One taking into account the proposed LTC, and the other without.

Likely Significant Effects During Construction

1.8.55 The original PEIR reported preliminary significant and negative landscape effects on the following five LCAs during construction: White Crofts/ Orsett Heath Urban Fringe LCA D4; Linford / Buckingham Hill Urban Fringe LCA D5; West Tilbury Urban Fringe LCA D7; Tilbury Marshes LCA C5; and Chadwell Escarpment Urban Fringe LCA D6.

1.8.56 When compared to the preliminary assessment recorded in the original PEIR, the proposed changes would remove or change construction landscape effects related to three LCAs due to the removal of approximately 4.5 km of proposed underground cable.

1.8.57 Direct effects on landscape character would be entirely removed from two LCAs, Chadwell Escarpment Urban Fringe LCA D6 and Tilbury Marshes LCA C5, and also from within part of the West Tilbury Urban Fringe LCA D7. As a consequence, there would be an overall reduction in construction activities including the construction of haul roads, cable swathes and vegetation clearance (some of which could not be re-planted over underground cables).

1.8.58 The effects on Chadwell Escarpment Urban Fringe LCA D6 and Tilbury Marshes LCA C5 would reduce from significant and negative, as reported within the original PEIR, to no effect. This would be due to the removal approximately 4.5 km of proposed underground cable.

1.8.59 Different construction impacts would be introduced into West Tilbury Urban Fringe LCA D7 as a result of the construction of a new CSE compound and works to existing

overhead lines. The effects on West Tilbury Urban Fringe LCA D7 would therefore remain negative and significant, as reported within the original PEIR.

1.8.60 The proposed changes would intensify construction impacts on White Crofts/ Orsett Heath Urban Fringe LCA D4 and Linford / Buckingham Hill Urban Fringe LCA D5. This would be due to the extent and spread of construction works in the landscape including those relating to Tilbury North Substation, a new CSE compound and works to existing overhead lines. The effects on White Crofts/ Orsett Heath Urban Fringe LCA D4 and Linford / Buckingham Hill Urban Fringe LCA D5 would increase and remain negative and significant, as reported within the original PEIR.

1.8.61 The original PEIR reported preliminary significant and negative visual effects on three Visual Receptor Areas, H4 (Stanford-le-Hope and East Tilbury), H5 (Chadwell St Mary) and H7 (Tilbury Marshes) during construction.

1.8.62 Some negative visual effects on people within Visual Receptor Area H4 (Stanford-le-Hope and East Tilbury) would be reduced due to the removal of proposed underground cable. The design change would however also locally increase negative effects within Visual Receptor Area H4 (Stanford-le-Hope and East Tilbury) in relation to impacts on views from Orsett Golf Club and the PRoW which runs through and alongside it, immediately north of the proposed Tilbury North Substation. This is mainly due to the construction of the proposed new Tilbury North Substation which is larger than the CSE compound considered in the original PEIR.

1.8.63 The design change would increase the geographical spread of significant and negative visual effects within Visual Receptor Area H5 (Chadwell St Mary) during construction; albeit visual effects of the previously proposed underground cable construction would be removed in the south-east. Negative effects would increase overall due the nature and extent of the above ground construction works associated with the temporary overhead line diversions, the new Tilbury North Substation, new CSE compounds and new overhead line connections. The proposed change would increase and extend the impact of construction further west into the landscape and in views from and around Chadwell St Mary, most notably the construction of two new CSE compounds and temporary overhead line diversion works. The effects on views within Visual Receptor Area H5 (Chadwell St Mary) would remain significant and negative, as reported within the original PEIR.

1.8.64 When compared to the preliminary assessment recorded in the original PEIR, the proposed changes would remove all significant and negative visual effects on Visual Receptor Area H7 (Tilbury Marshes). This is due to the removal of the proposed underground cable.

Likely Significant Effects During Operation (and Maintenance)

1.8.65 The original PEIR reported preliminary significant and negative landscape effects on two LCAs, White Crofts/ Orsett Heath Urban Fringe LCA D4 and Linford / Buckingham Hill Urban Fringe LCA D5, during operation. The effects on these two LCAs would be intensified by the extent and spread of operational infrastructure including the proposed new Tilbury North Substation, new CSE compounds and works to existing overhead lines. Effects would remain significant and negative, as reported within the original PEIR.

1.8.66 When compared to the preliminary assessment recorded in the original PEIR, the proposed changes would remove or change landscape effects related to three LCAs which were reported to have likely negative, but not significant, effects. Direct negative

(but not significant) effects on landscape character would be entirely removed from two LCAs, Chadwell Escarpment Urban Fringe LCA D6 and Tilbury Marshes LCA C5. This is due to the removal of 4.5 km of proposed underground cable which would have placed some restrictions on replacement planting and introduced several small above ground link boxes along the cable swathe. The effects on these two LCAs would reduce from negative (but not significant), as reported within the original PEIR, to no effect.

1.8.67 The original PEIR reported preliminary non-significant and negative effects on the landscape character of West Tilbury Urban Fringe LCA D7 during operation. Due to the proposed addition of new CSE compounds, and to a lesser extent changes to the existing overhead lines, the Project has the potential to have a significant effect on this LCA during operation. In the longer term, proposed planting within the Environmental Area around CSE compounds would reduce the perceptibility of the Project, and therefore effects on landscape character. The effects on West Tilbury Urban Fringe LCA D7 would increase from negative (but not significant), as reported within the original PEIR, to significant and negative.

1.8.68 The original PEIR reported preliminary significant and negative visual effects on two Visual Receptor Areas, H4 (Stanford-le-Hope and East Tilbury) and H5 (Chadwell St Mary), during operation. Comparative photowirelines have been generated to illustrate the difference between the Project presented in the original PEIR and the proposed changes. These are provided for Viewpoint 8.05: Chadwell St Mary and Viewpoint 8.11: Public Right of Way near Southfields (no 42) in Annex C.

1.8.69 The design change would locally increase effects within Visual Receptor Area H4 (Stanford-le-Hope and East Tilbury) in relation to impacts on views from Orsett Golf Club and the PRoW which runs through and alongside it. The proposed Tilbury North Substation would be larger than the CSE compound presented in the original PEIR and would extend up to the PRoW, golf course and practice area. The proposed changes would be partly visible at Viewpoint 8.11: Public Right of Way near Southfields (no 42) due to the introduction of additional infrastructure in the view (see Annex C).

1.8.70 The design change would increase the geographical spread of significant visual effects within Visual Receptor Area H5 (Chadwell St Mary) during operation. Effects would increase overall due to the nature and extent of the above ground infrastructure associated with the introduction of the new Tilbury North Substation, new CSE compounds and new overhead line connections. Alterations to the existing overhead lines and the introduction of a new overhead line connecting into the new Tilbury North Substation would locally increase the presence of pylons during operation; albeit there are existing parallel overhead lines in this area. Visual receptors likely to be affected would include: people living and moving around Chadwell St Mary (noting that the future baseline may include settlement extension resulting in close views from local community); people living and moving around scattered properties in the local community; people walking and cycling along Hoford Road (Protected Lane); people walking along PRoW; and people playing golf at Orsett Golf Club. The proposed changes would be visible at Viewpoint 8.05 Chadwell St Mary (see Annex C) due to changes to existing overhead lines and the introduction of additional infrastructure in the view.

1.8.71 Mitigation within the Environmental Area(s) would seek to reduce effects as far as practicable, noting that opportunities for mitigation around the proposed Tilbury North Substation would be limited due to space constraints.

1.8.72 The effects on visual receptors within Visual Receptor Area H4 (Stanford-le-Hope and East Tilbury) and Visual Receptor Area H5 (Chadwell St Mary) would remain significant

and negative, as reported within the original PEIR; however, the levels of significance would likely increase as effects would be spread over a larger geographical part of Visual Receptor Area H5 and be locally intensified in Visual Receptor Area H4.

1.9 Conclusion

1.9.1 The proposed changes would change some of the conclusions that were reported within the original PEIR (National Grid, 2024) that was published for statutory consultation and those changes are outlines in the paragraphs above. The original PEIR can be viewed here.

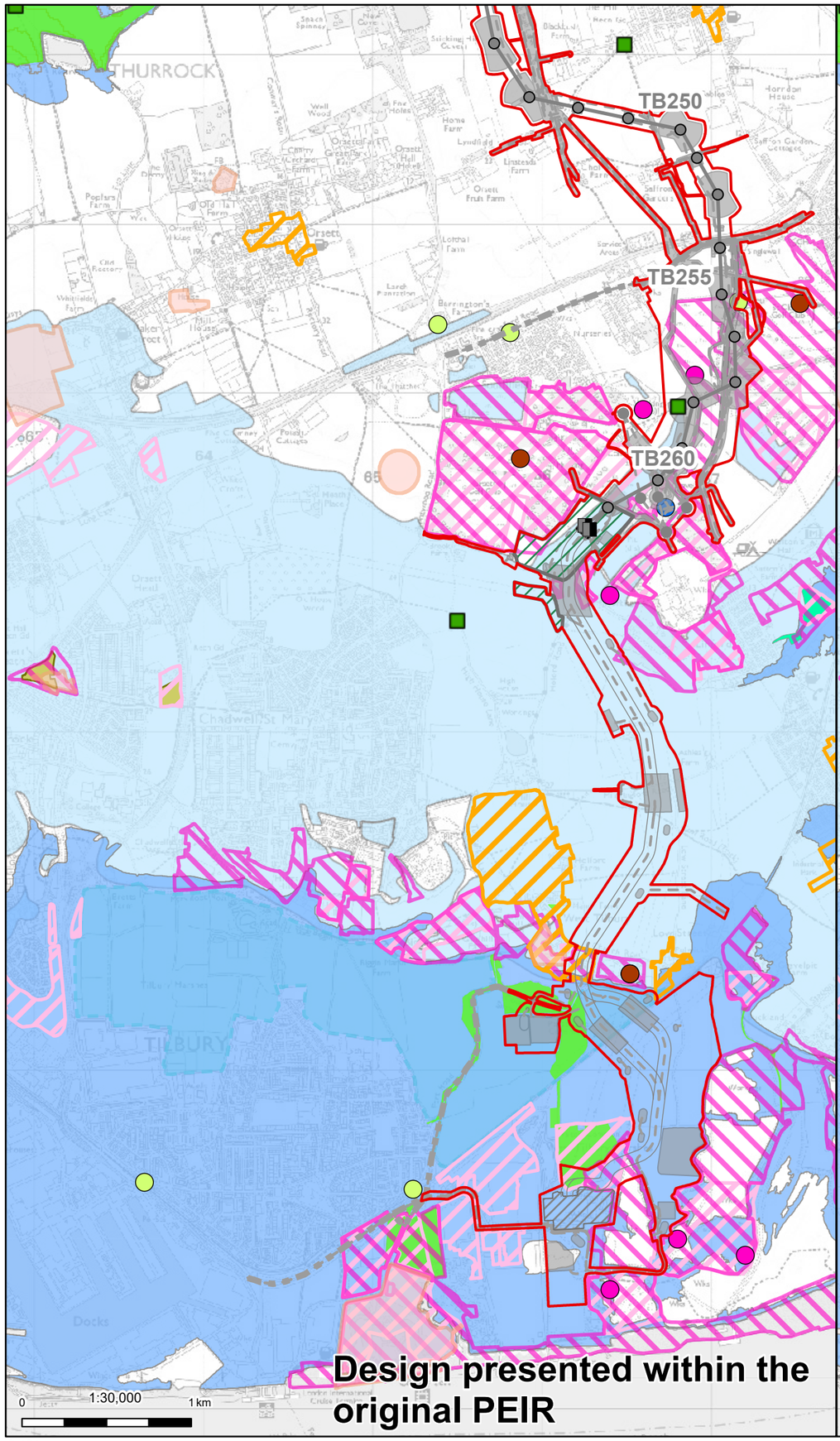
1.9.2 If the proposed changes are taken forwards, baseline information (and environmental surveys) and assessment associated with the proposed changes would be provided in the ES.

Abbreviations

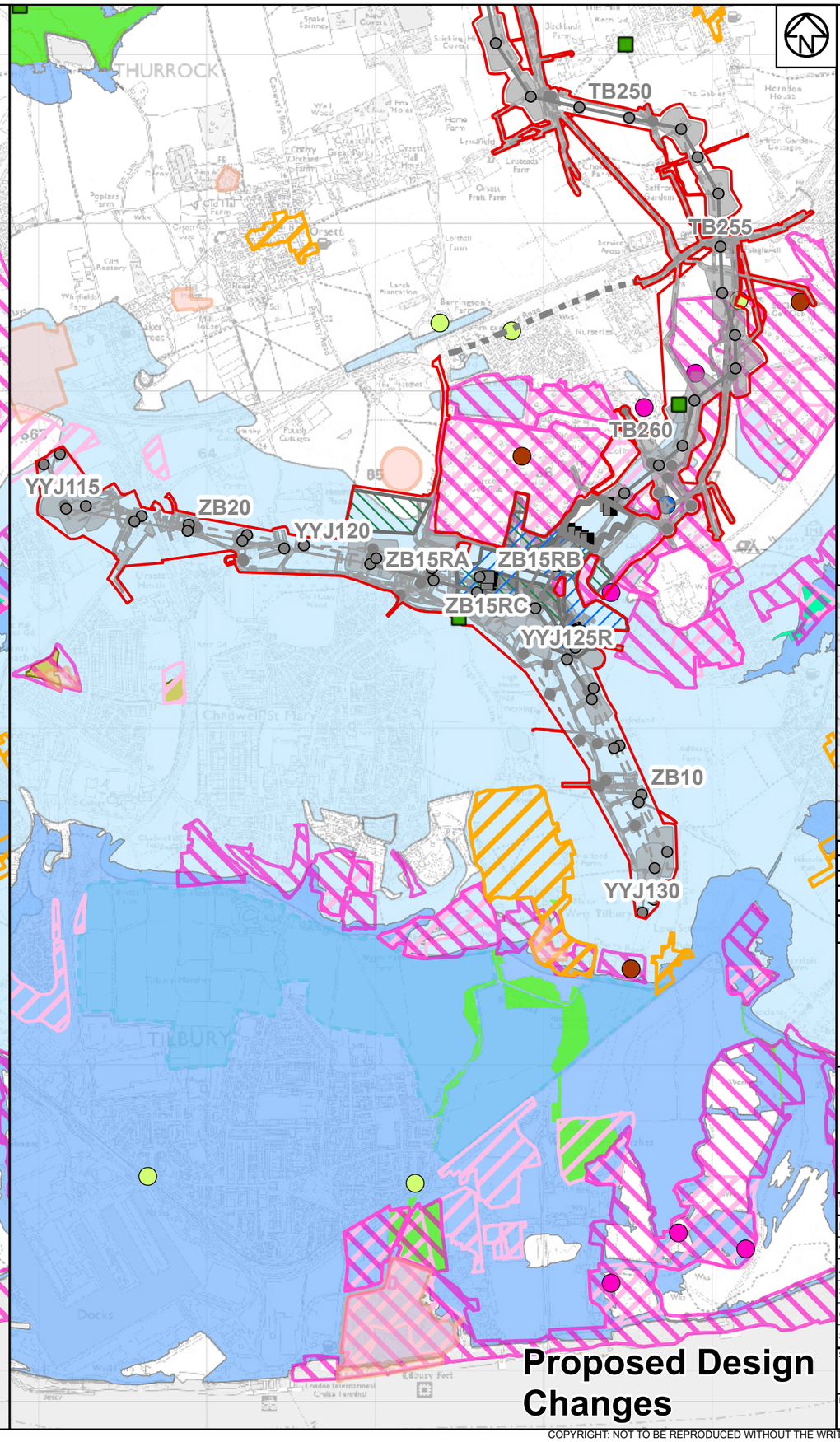
AIS	Air Insulated Switchgear
AONB	Area of Outstanding Natural Beauty
ARN	Affected Road Network
BMV	Best and most versatile
BNG	Biodiversity Net Gain
CoCP	Code of Construction Practice
CRoW	Countryside and Rights of Way
CSE	Cable Sealing End
CTMP	Construction Traffic Management Plan
DMP	Dust Management Plan
EACN	East Anglia Connection Node
EIA	Environmental Impact Assessment
ES	Environmental Statement
FLL	Functional Linked Land
FSA	Flood Storage Area
GIS	Gas Insulated Switchgear
GWDTE	Ground Water Dependent Terrestrial Ecosystems
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HRA	Habitats Regulations Assessment
IEMA	Institute of Environmental Management and Assessment
Km	kilometer
kV	kiloVolt
LCA	Landscape Character Area
LEMP	Landscape and Ecological Management Plan
LTC	Lower Thames Crossing
LWS	Local Wildlife Site
NPPF	National Planning Policy Framework

NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NVMP	Noise and Vibration Management Plan
PAR	Primary Access Route
PEIR	Preliminary Environmental Information Report
PRoW	Public Right of Way
SPA	Special Protection Area
SRP	Soil Resources Plan
SSSI	Site of Special Scientific Interest
SWMP	Site Waste Management Plan
WCH	Walking, cycling and horse riding
WSI	Written Scheme of Investigation

ANNEX A: Environmental Constraints Plans



Design presented within the original PEIR



Proposed Design Changes

Order limits

Proposed project design details

- Proposed full line tension gantry
- Proposed low duty gantry
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed pylon position (S42 Design)
- Existing substation
- Proposed Tilbury North Substation
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental area/ Environmental mitigation area without LTC
- Proposed environmental area/ Environmental mitigation area with LTC
- Other temporary and permanent construction and operational works
- Primary access route

Environmental Constraints and Features

- Landscape viewpoints
- AQ human receptors
- Historic landfill
- Sports club
- Campsite BnB holiday home
- Other socio-economic receptors

Environmental constraints

- Scheduled monument
- Conservation areas
- Sites of special scientific interest
- Thames estuary site of special scientific interest notification project
- County / local wildlife sites
- Local nature reserves
- Countryside and rights of way open access land
- Ancient woodland
- Flood zone 3
- Flood storage area
- Mineral safeguarding areas

Rev	Date	Description	Drawn	Check	Approv
A	Jan 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1:
Environmental Constraints at Tilbury
Page 1 of 5

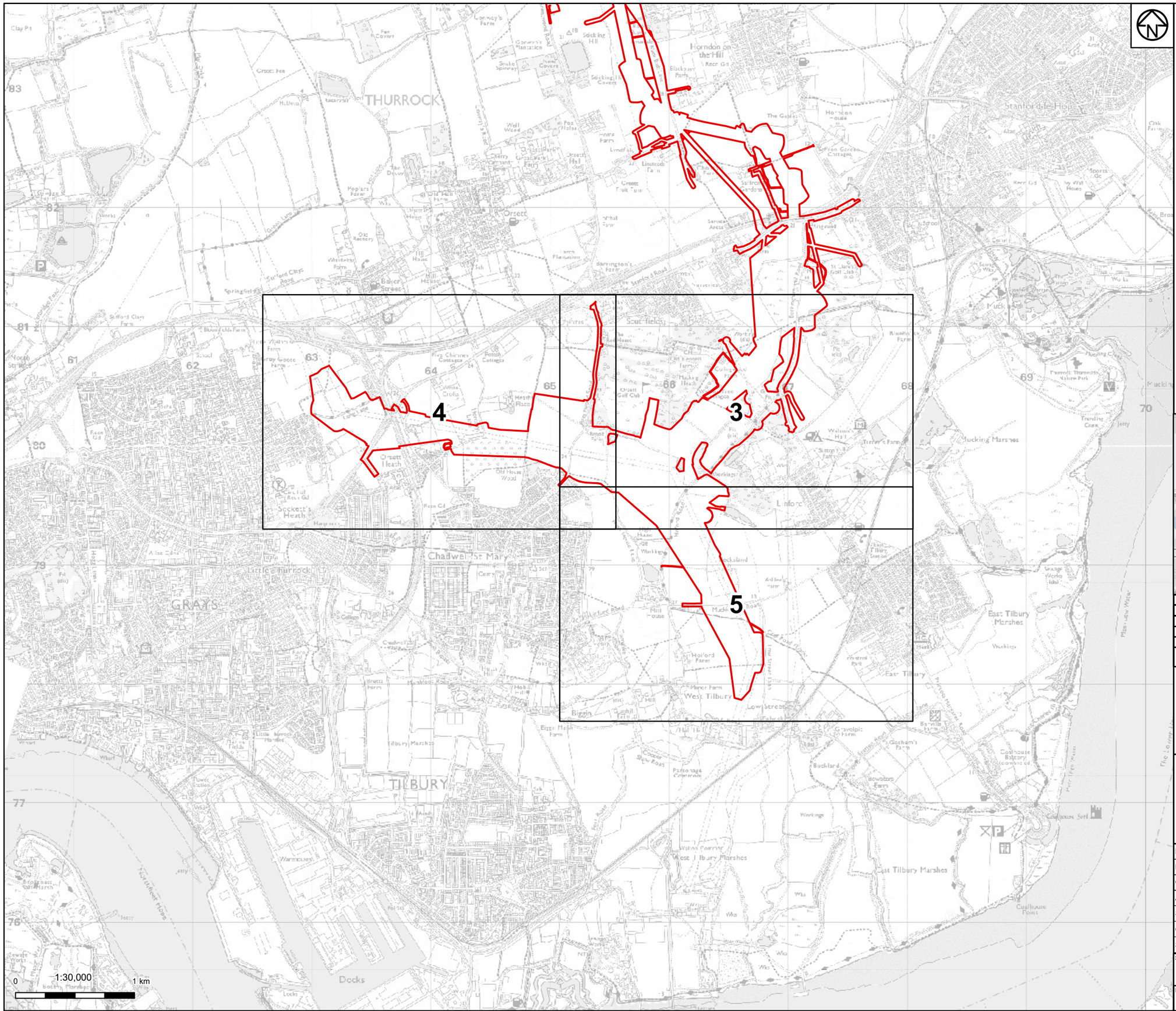
Designed	C. Banks	Date	January 2025
Drawn	S. Sarkar	Date	January 2025
Checked	A. Fell	Date	January 2025
Approved	K. Burrows	Date	January 2025
Scale:	1:30,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00403

Revision: A

Print Date: 03-14-25 15:48:02



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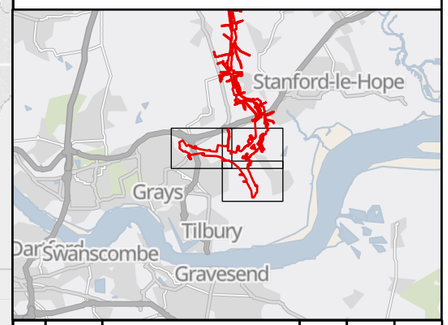

Rev	Date	Description	Drawn	Check	Approv
A	Jan 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT:
Norwich to Tilbury

Title:

Figure 1:
Environmental Constraints at Tilbury
Page 2 of 5

Designed	C. Banks	Date	January 2025
Drawn	S. Sarkar	Date	January 2025
Checked	A. Fell	Date	January 2025
Approved	K. Burrows	Date	January 2025
Scale:	1:30,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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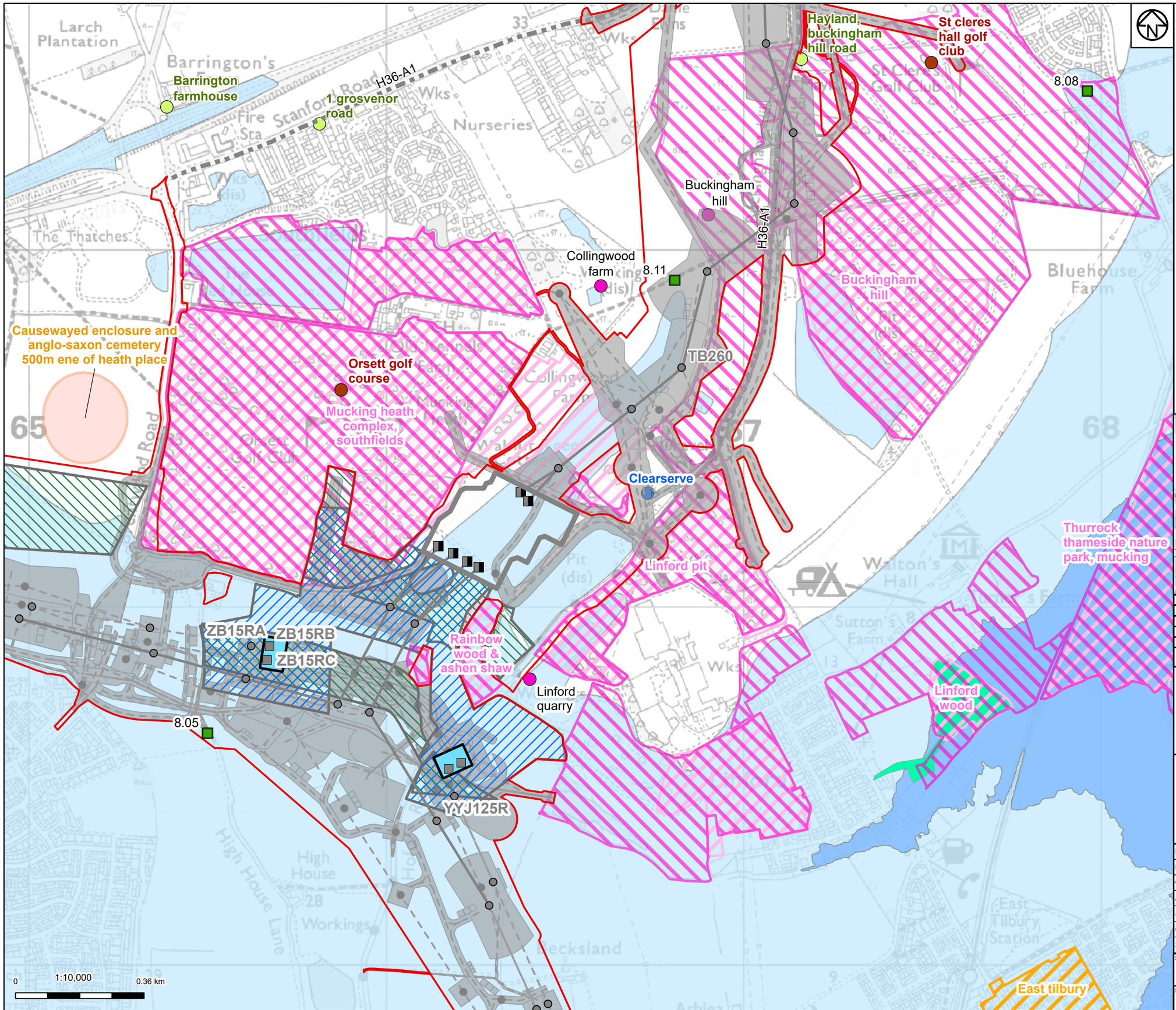
Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00403

Revision: A

Print Date: 03-14-25 15:43:53



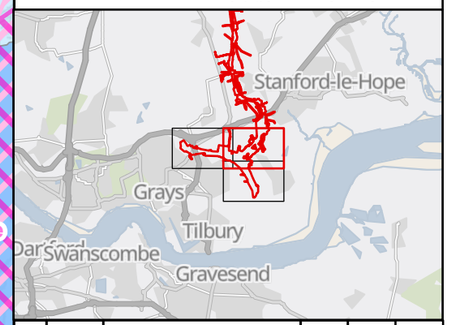
Order limits

Proposed permanent design details

- Proposed full line tension gantry
- Proposed low duty gantry
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed Tilbury North Substation
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental area/ Environmental mitigation area without LTC
- Proposed environmental area/ Environmental mitigation area with LTC
- Other temporary and permanent construction and operational works
- Primary access route

Environmental Constraints and Features

- Landscape viewpoints
- AQ human receptors
- Historic landfill
- Sports club
- Other socio-economic receptors
- Scheduled monument
- Conservation areas
- Thames estuary site of special scientific interest notification project
- County / local wildlife sites
- Local nature reserves
- Flood zone 3
- Mineral safeguarding areas



Rev	Date	Description	Drawn	Check	Approv
A	Jan 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1:
Environmental Constraints at Tilbury
Page 3 of 5

Designed	C. Banks	Date	January 2025
Drawn	S. Sarkar	Date	January 2025
Checked	A. Fell	Date	January 2025
Approved	K. Burrows	Date	January 2025
Scale:	1:10,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00403

Revision: A

Print Date: 03-14-25 15:44:06

Crop mark complex, orsett

Springfield style enclosure and iron age enclosures south of hill house, baker street.

Barrington farmhouse

Blackshots nature area

Baker street brownfield, chadwell st mary

Causewayed enclosure and anglo-saxon cemetery 500m ene of heath place

Mucking heath complex, southfields

YYJ115

ZB20

YYJ120

ZB15RA

ZB15RC

8.05

Hangman's wood & deneholes

Dene holes in hangman's wood

Terrels heath

Chadwell wood

0 1:10,000 0.36 km

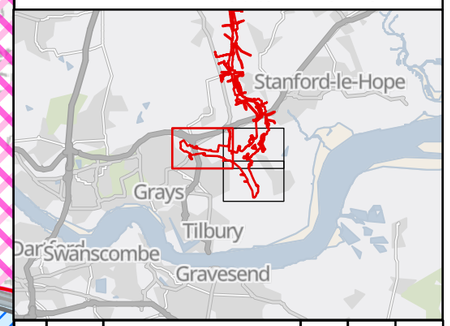
Order limits

Proposed permanent design details

- Proposed low duty gantry
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed cable sealing end compound
- Proposed environmental area/ Environmental mitigation area without LTC
- Proposed environmental area/ Environmental mitigation area with LTC
- Other temporary and permanent construction and operational works
- Primary access route

Environmental Constraints and Features

- Landscape viewpoints
- ES landscape and visual viewpoint (wireline only)
- AQ human receptors
- Scheduled monument
- Sites of special scientific interest
- Thames estuary site of special scientific interest notification project
- County / local wildlife sites
- Ancient woodland
- Mineral safeguarding areas



Rev	Date	Description	Drawn	Check	Approv
A	Jan 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1:
Environmental Constraints at Tilbury
Page 4 of 5

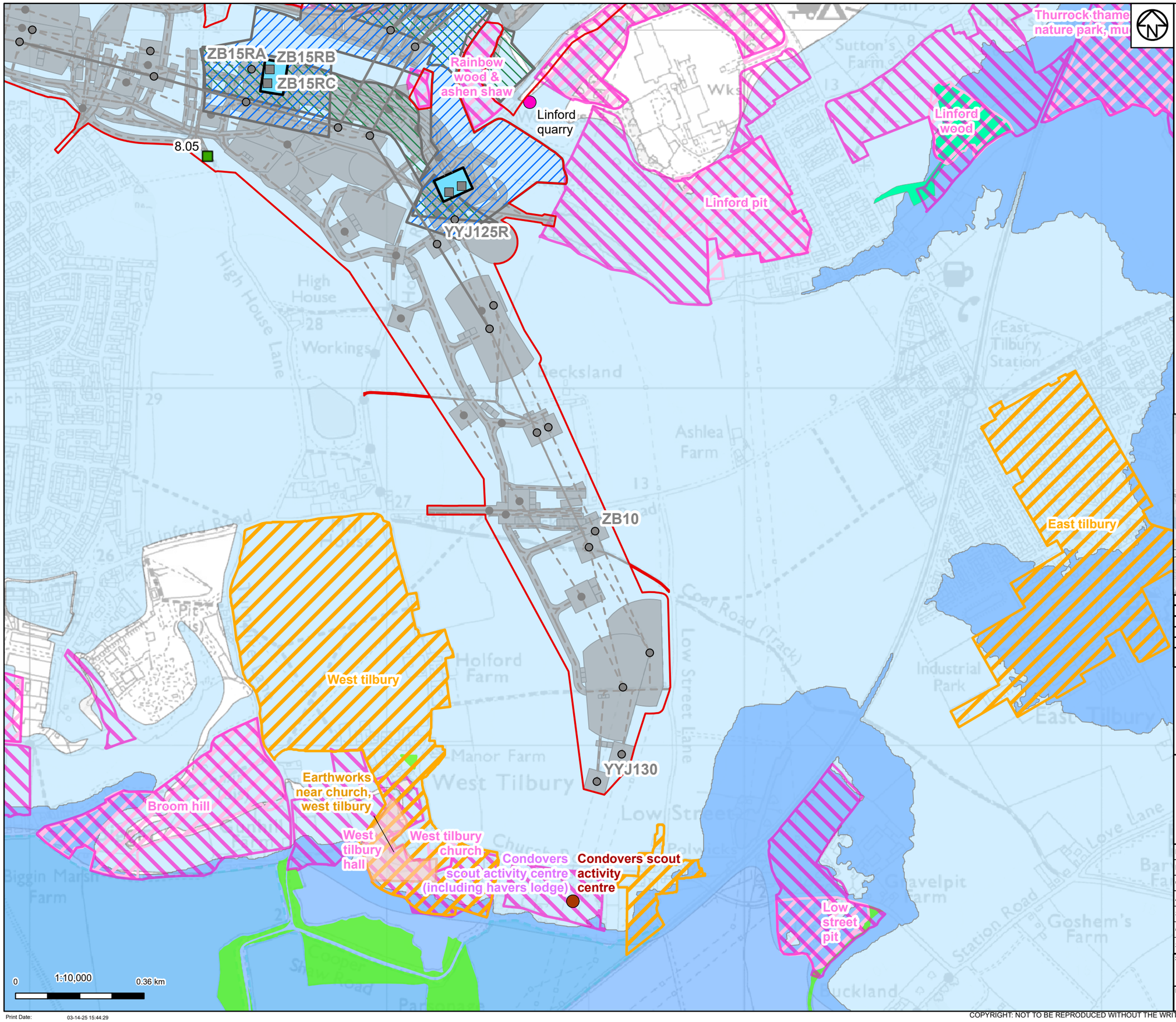
Designed	C. Banks	Date	January 2025
Drawn	S. Sarkar	Date	January 2025
Checked	A. Fell	Date	January 2025
Approved	K. Burrows	Date	January 2025
Scale:	1:10,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00403

Revision: A

Print Date: 03-14-25 15:44:19



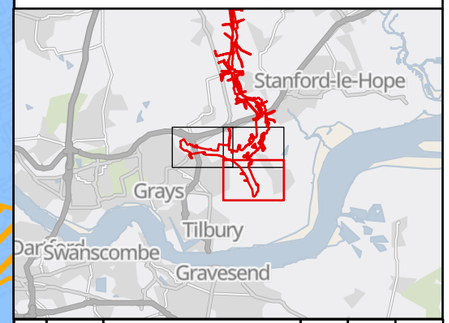
Order limits

Proposed permanent design details

- Proposed low duty gantry
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed Tilbury North Substation
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental area/ Environmental mitigation area without LTC
- Proposed environmental area/ Environmental mitigation area with LTC
- Other temporary and permanent construction and operational works

Environmental Constraints and Features

- Landscape viewpoints
- Historic landfill
- Sports club
- Campsite BnB holiday home
- Scheduled monument
- Conservation areas
- Thames estuary site of special scientific interest notification project
- County / local wildlife sites
- Local nature reserves
- Countryside and rights of way open access land
- Flood zone 3
- Flood storage area
- Mineral safeguarding areas



Rev	Date	Description	Drawn	Check	Approv
A	Jan 2025	FOR DCO APPLICATION	SS	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

Figure 1:
Environmental Constraints at Tilbury
Page 5 of 5

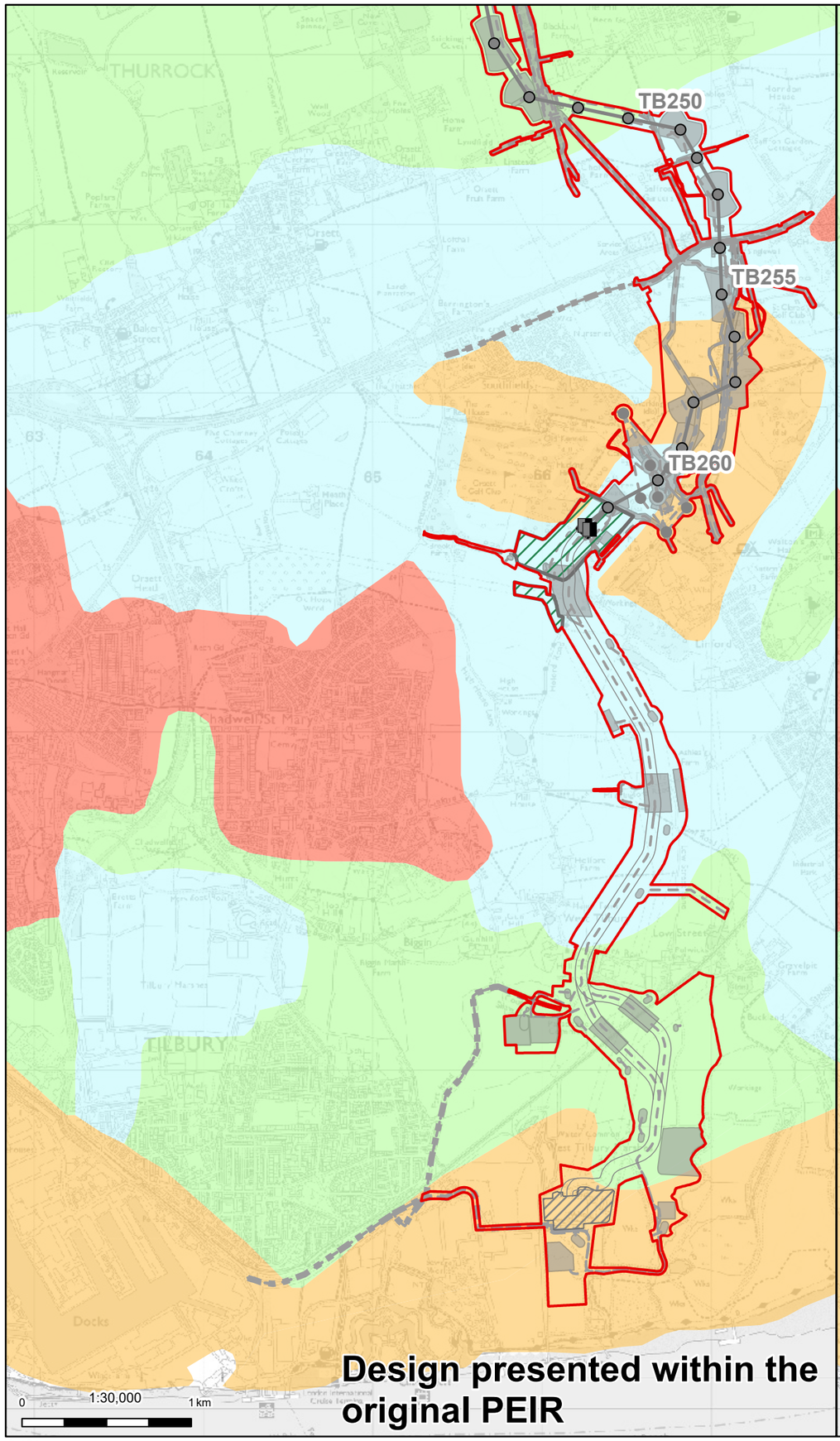
Designed	C. Banks	Date	January 2025
Drawn	S. Sarkar	Date	January 2025
Checked	A. Fell	Date	January 2025
Approved	K. Burrows	Date	January 2025
Scale:	1:10,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

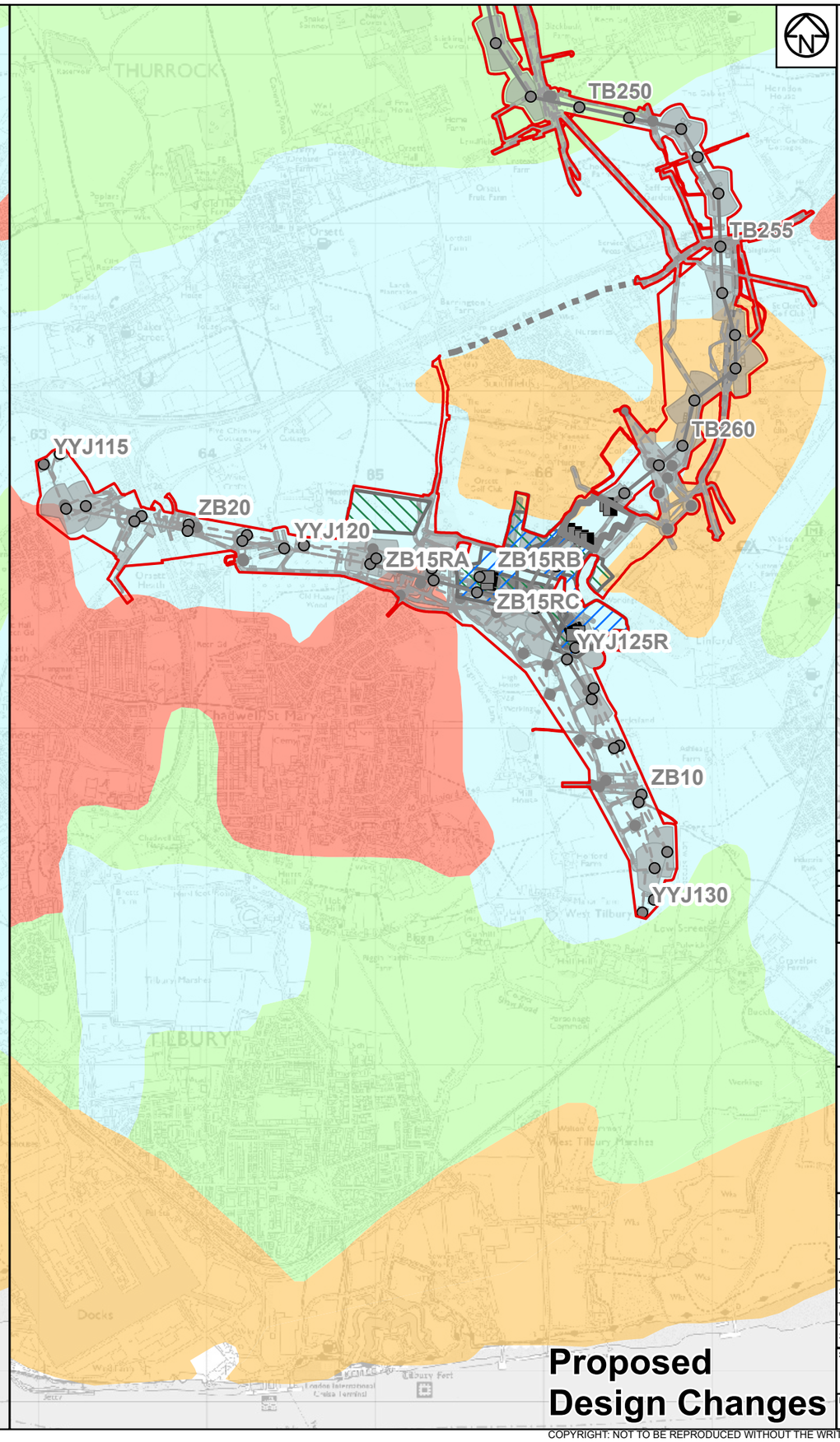
Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00403

Revision: A

Print Date: 03-14-25 15:44:29





Order limits

Proposed project design details

- Proposed full line tension gantry
- Proposed low duty gantry
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed Tilbury North Substation
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental area/ Environmental mitigation area without LTC
- Proposed environmental area/ Environmental mitigation area with LTC
- Other temporary and permanent construction and operational works
- Primary access route

Agricultural Land Classification

- Grade 2
- Grade 3
- Non Agricultural
- Urban

Rev	Date	Description	Drawn	Check	Approv
A	Jan 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 2:
Agricultural Land Classification at Tilbury

Designed	C. Banks	Date	January 2025
Drawn	S. Sarkar	Date	January 2025
Checked	A. Fell	Date	January 2025
Approved	K. Burrows	Date	January 2025
Scale:	1:30,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00403

Revision: A

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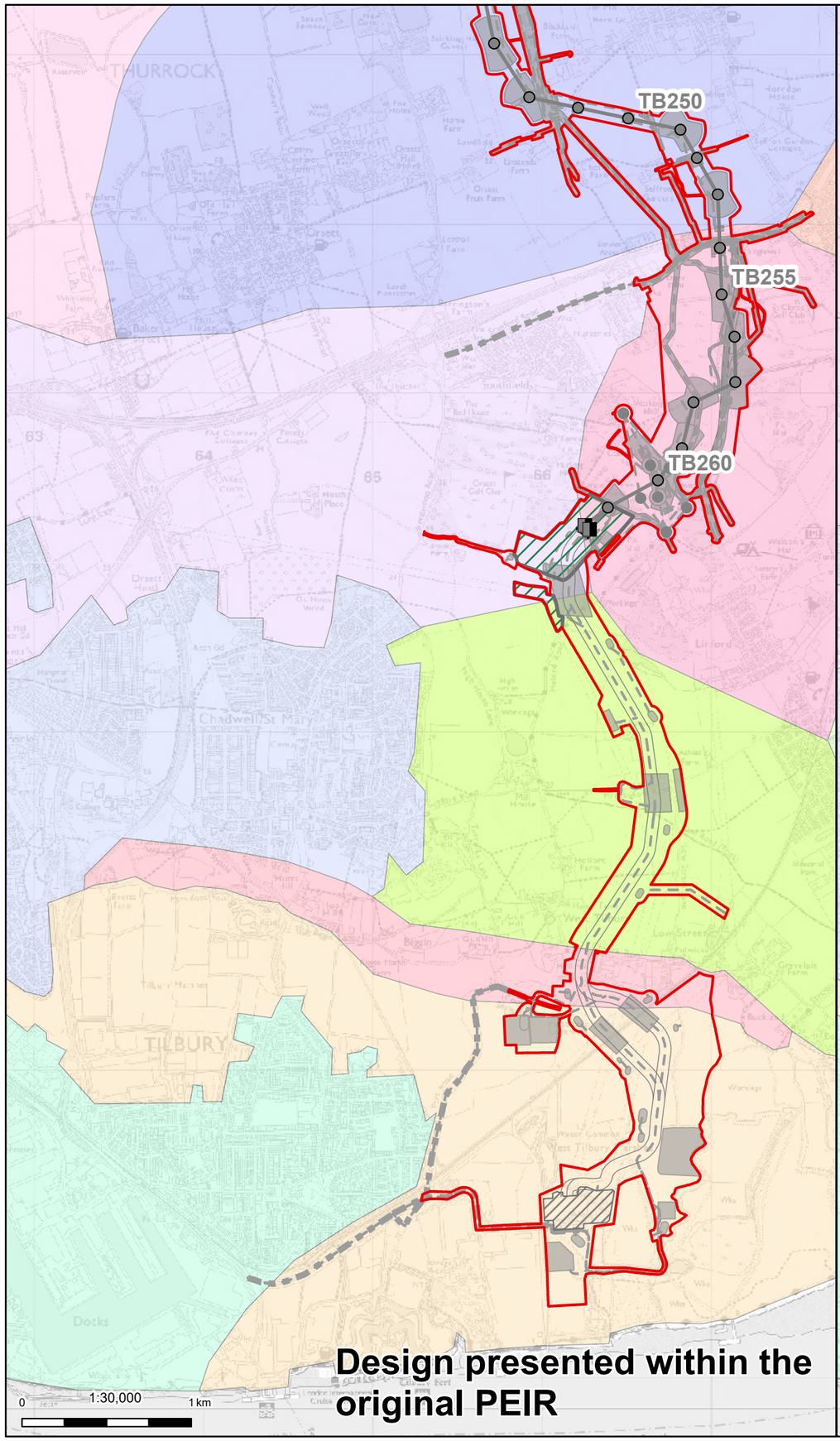

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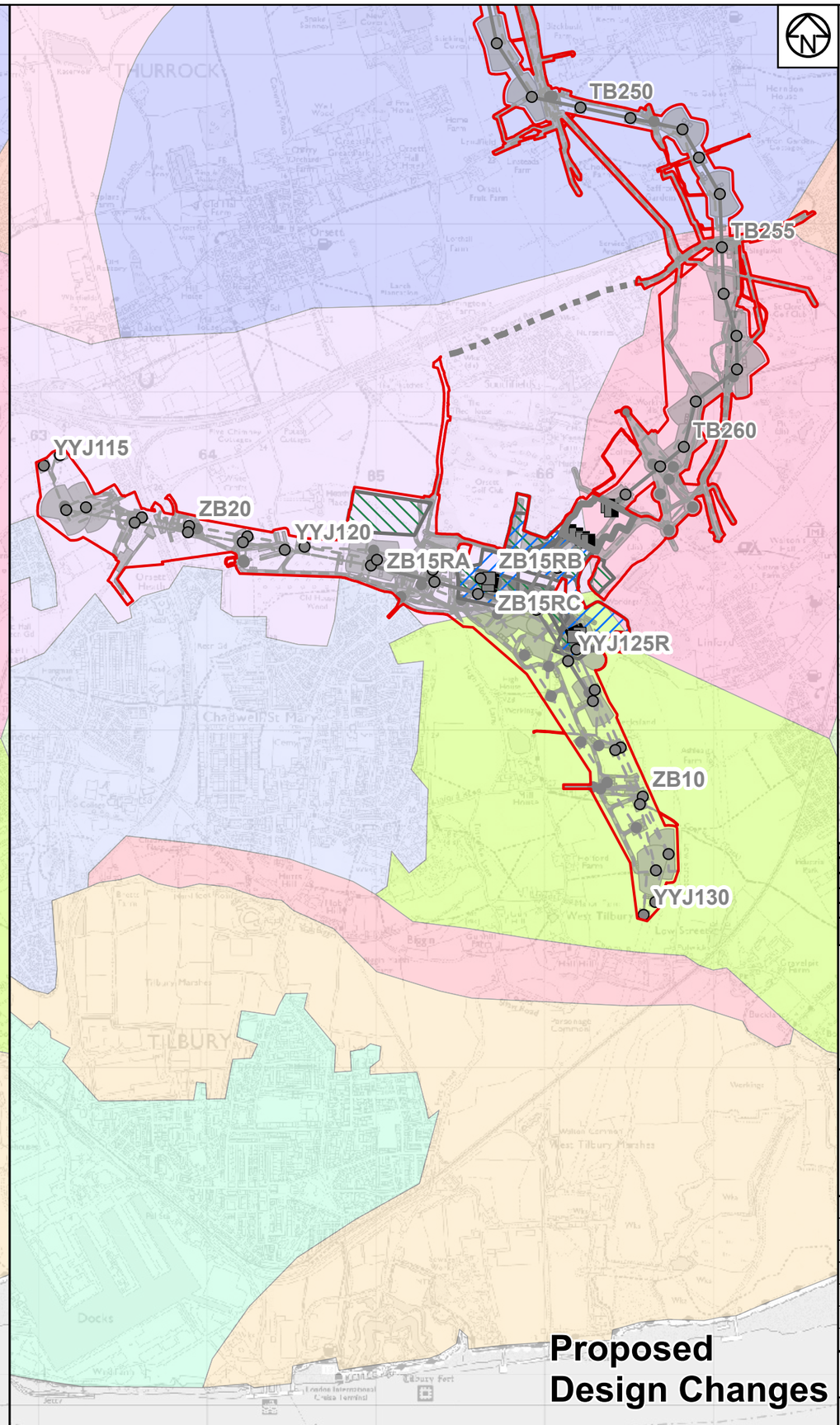

Proposed Design Changes

Order limits

Proposed project design details

- Proposed full line tension gantry
- Proposed low duty gantry
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed pylon position (S42 Design)
- Existing substation
- Proposed Tilbury North Substation
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental area/ Environmental mitigation area without LTC
- Proposed environmental area/ Environmental mitigation area with LTC
- Other temporary and permanent construction and operational works
- Primary access route

Landscape Character Areas (LCAs)

- Bulphan fenland
- Chadwell escarpment urban fringe
- Corringham/ stanford-le-hope urban area
- Grays/ chadwell st mary urban area
- Linford/ buckingham hill urban fringe
- Mucking marshes
- Sticking hill rolling farmland/ wooded hills
- Tilbury marshes
- Tilbury and docks urban area
- West tilbury urban fringe
- White crofts/ orsett heath urban fringe

Rev	Date	Description	Drawn	Check	Approv
A	Jan 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 3:
Landscape Character Areas at Tilbury

Designed	C. Banks	Date	January 2025
Drawn	S. Sarkar	Date	January 2025
Checked	A. Fell	Date	January 2025
Approved	K. Burrows	Date	January 2025
Scale:	1:30,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00405

Revision: A

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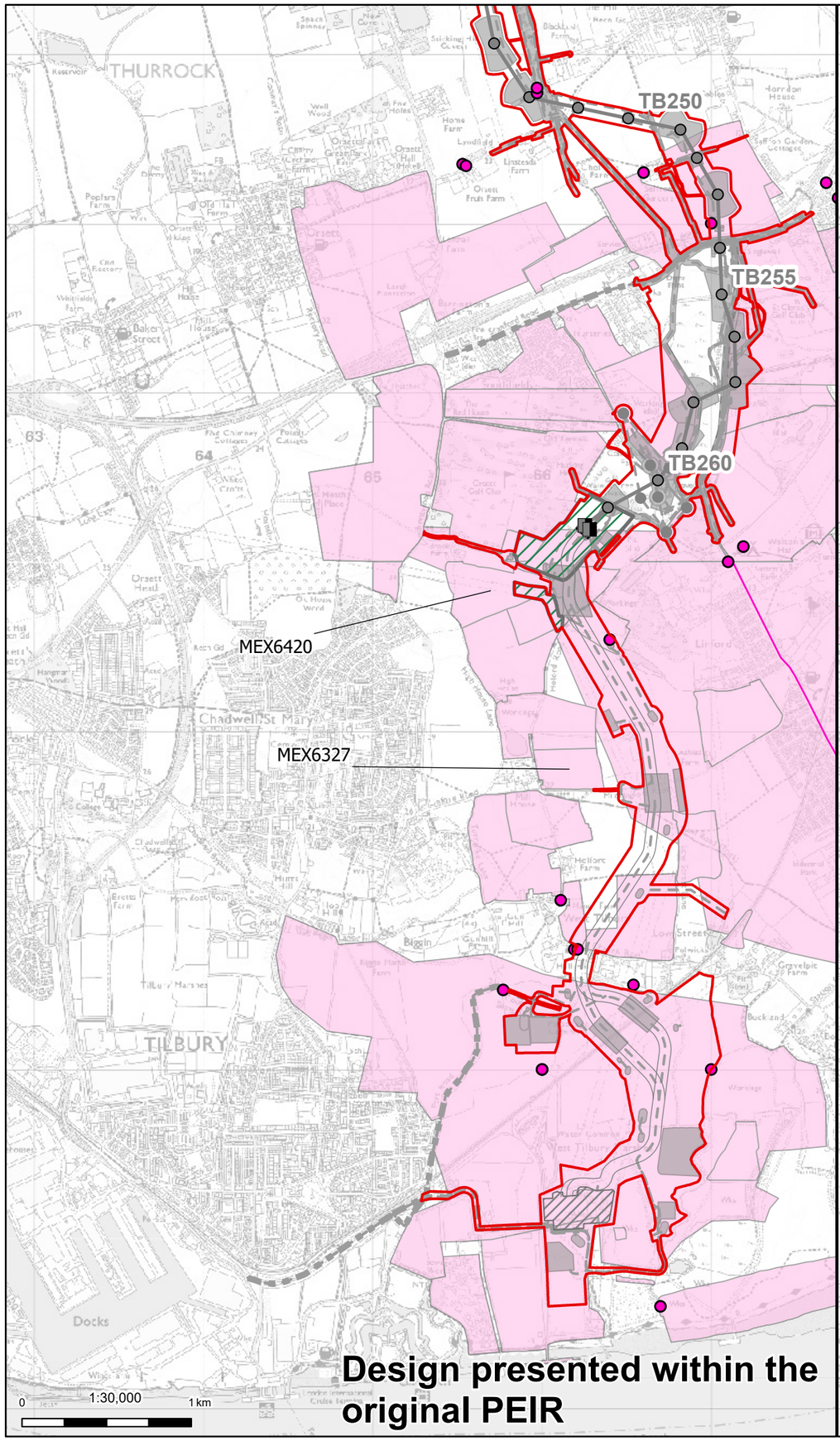

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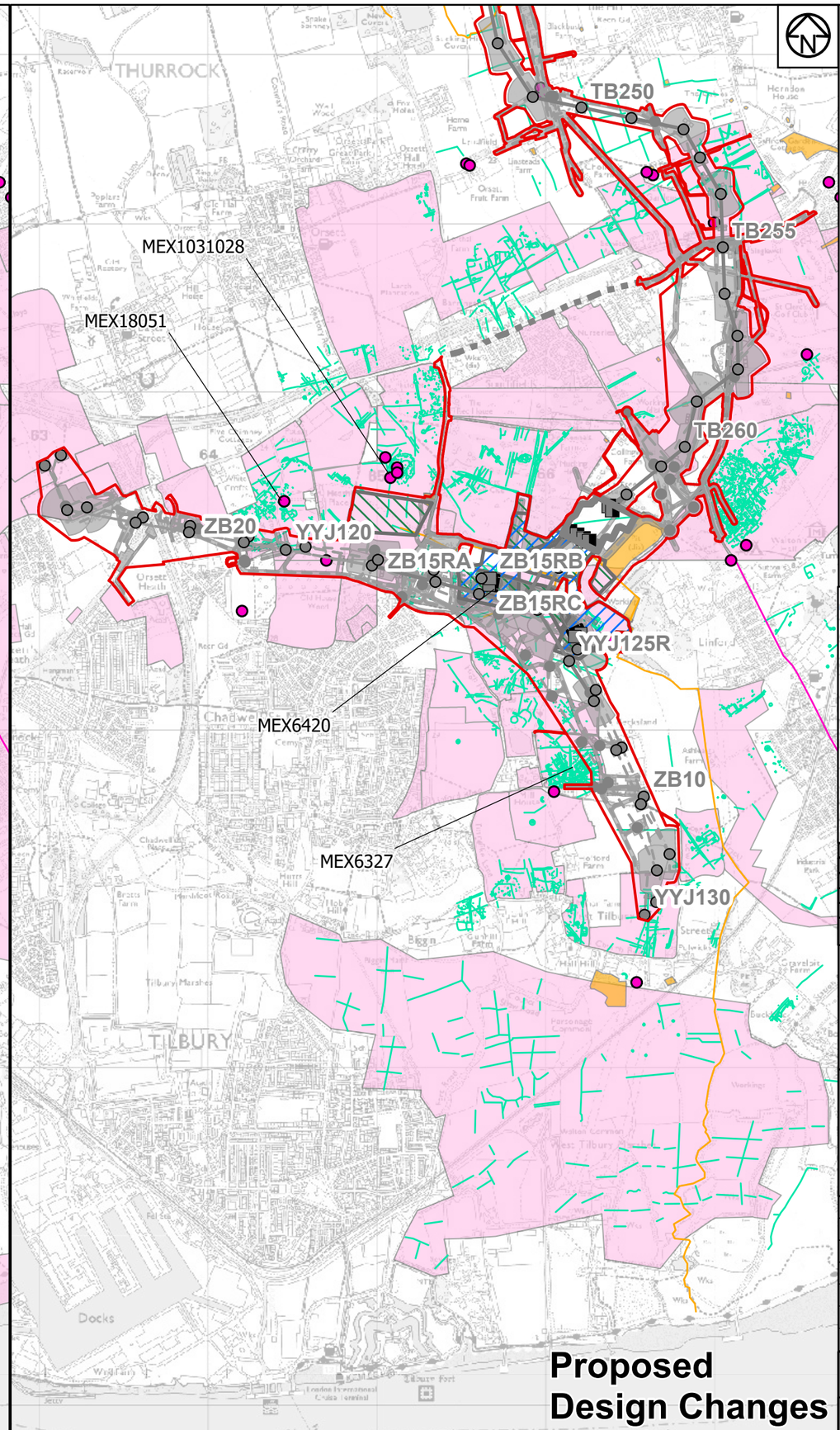

Proposed Design Changes

Order limits

Proposed project design details

- Proposed full line tension gantry
- Proposed low duty gantry
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed Tilbury North Substation
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental area/ Environmental mitigation area without LTC
- Proposed environmental area/ Environmental mitigation area with LTC
- Other temporary and permanent construction and operational works
- Primary access route
- Non-designated asset (point)
- Non-designated asset (line)
- Non-designated asset (polygon)
- Cropmarks (line)
- Historic mapping (line)
- Historic mapping (polygon)

Only assets mentioned on the EIC are labelled

Rev	Date	Description	Drawn	Check	Approv
A	Jan 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 4:
Non-Designated Heritage Assets at Tilbury

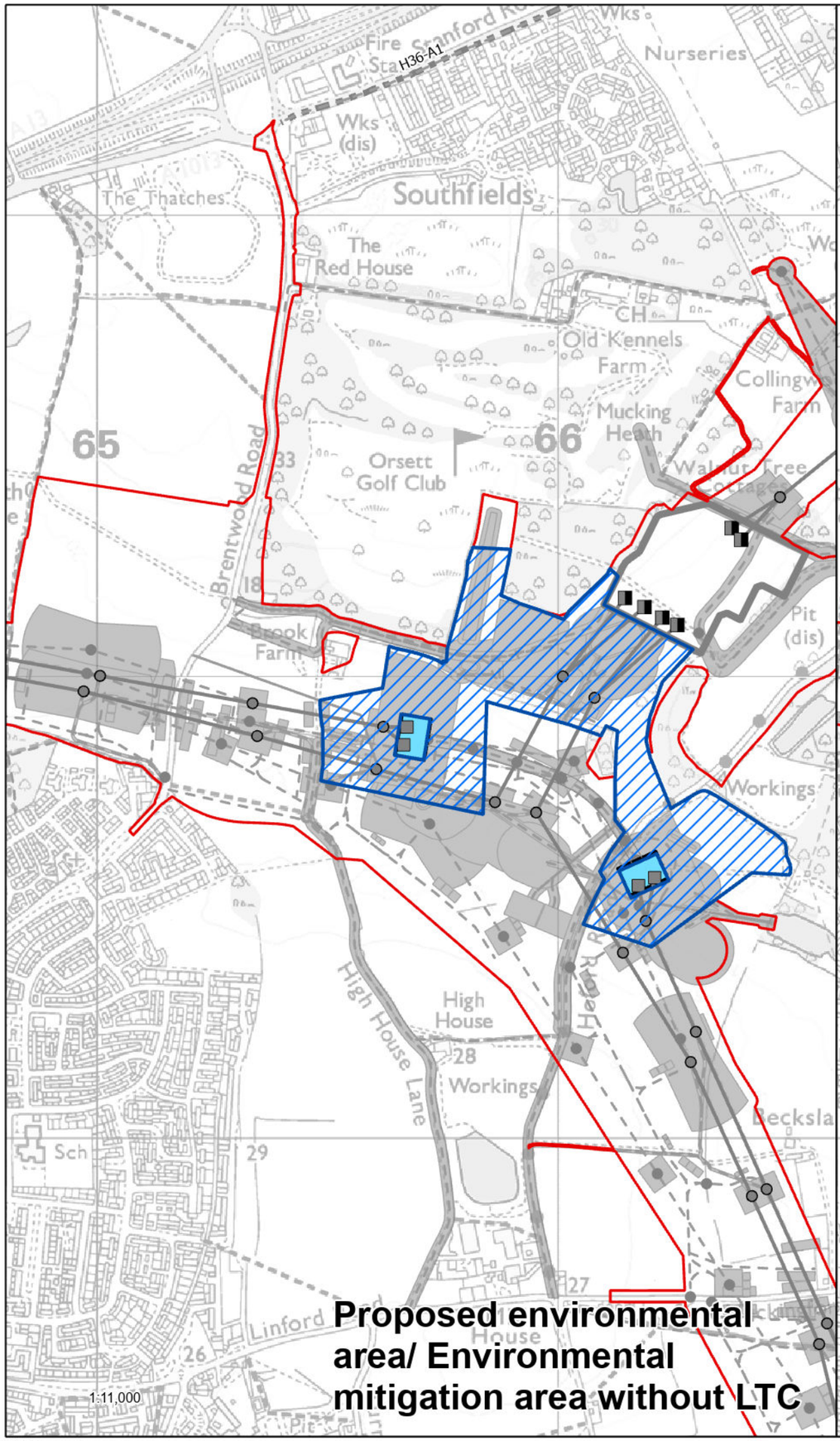
Designed	C. Banks	Date	January 2025
Drawn	K. Fischer	Date	January 2025
Checked	A. Fell	Date	January 2025
Approved	K. Burrows	Date	January 2025
Scale:	1:30,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

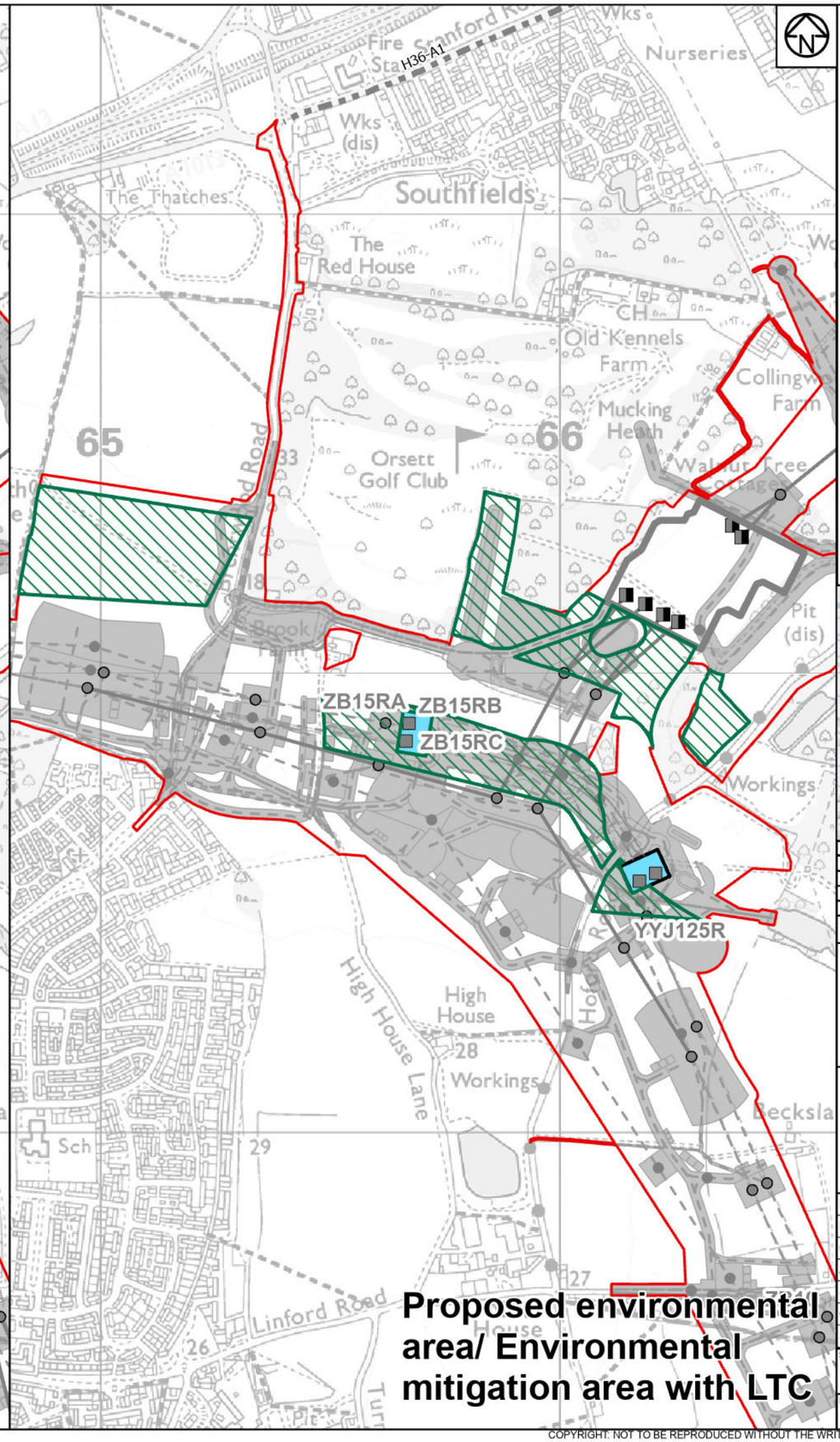
Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00403

Revision: A

Print Date: 03-14-25 15:27:38





Order limits

Proposed project design details

- Proposed full line tension gantry
- Proposed low duty gantry
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed pylon position (S42 Design)
- Proposed Tilbury North Substation
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental area/ Environmental mitigation area without LTC
- Proposed environmental area/ Environmental mitigation area with LTC
- Other temporary and permanent construction and operational works
- Primary access route

Rev	Date	Description	Drawn	Check	Approv
A	Jan 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 5: Proposed Environmental Areas/ Environmental Mitigation

Designed	C. Banks	Date	January 2025
Drawn	S. Sarkar	Date	January 2025
Checked	A. Fell	Date	January 2025
Approved	K. Burrows	Date	January 2025
Scale:	1:11,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00409-S2-P01

Revision: A

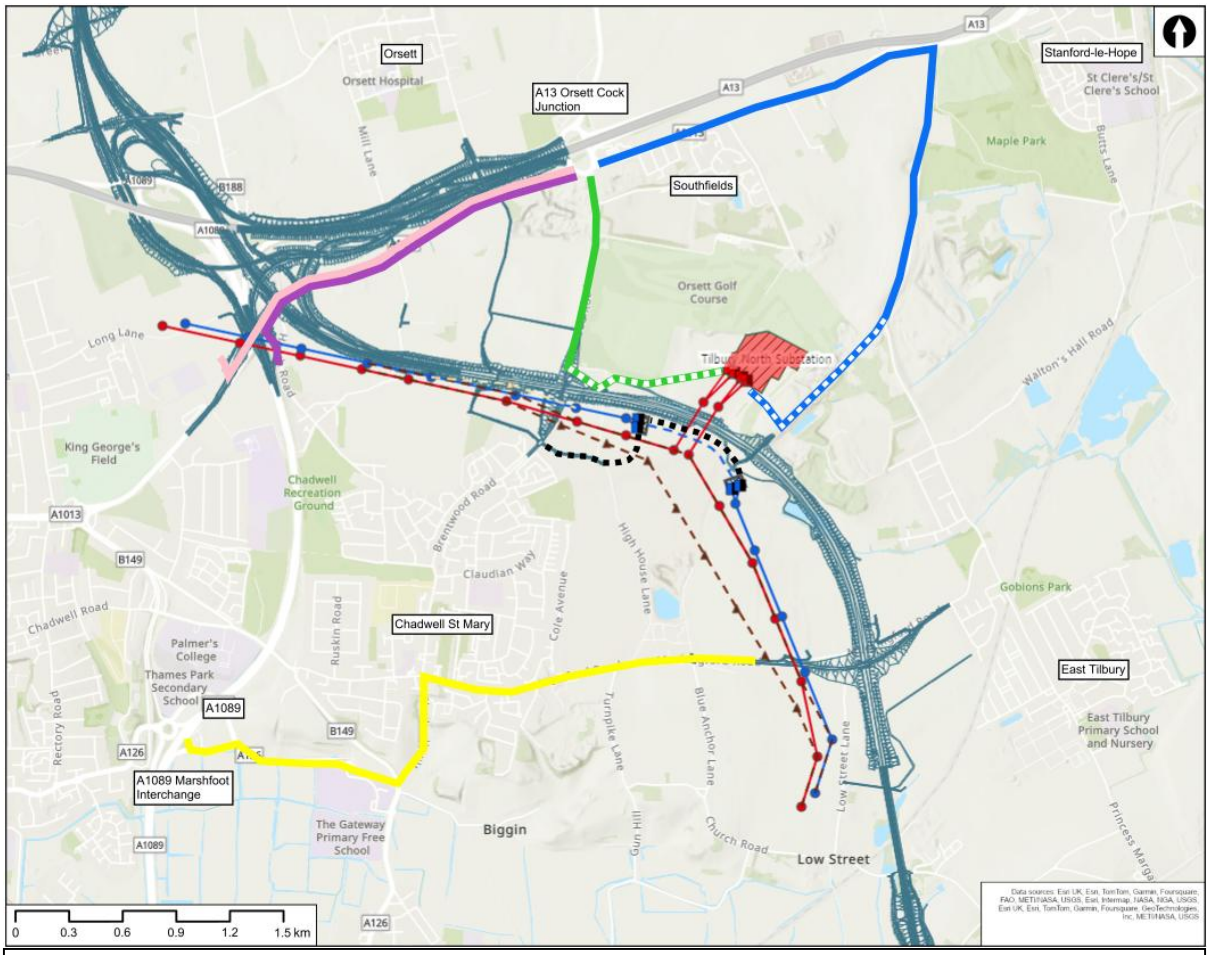
Print Date: 03-14-25 16:09:34

ANNEX B: Traffic and Access Data

This Annex provides the construction traffic and access data used in the Environmental Implications of Change (EIC) document. It also provides more detailed information regarding the access route options (Primary Access Routes (PARs), haul roads and permanent private access roads) described in section 1.3 of the EIC.

Figure B1 presents the access route options (PARs, haul roads and permanent private access roads). Note that Figure B1 is a simplified plan. The Construction Access Plans show further detail on the PARs and haul roads and the Targeted Statutory Consultation Plans show further detail on the haul roads and permanent private access roads. Both sets of plans are available on the project website: www.nationalgrid.com/norwich-to-tilbury

Figure B1 – Access Route Options specific to Proposed Changes



Key

- Access route via Brentwood Road
- Access route via Brentwood Road/permanent private access road
- Access route via Buckingham Hill Road
- Access route via Buckingham Hill Road/permanent private access road
- Access route via Stanford Road/Gammonfields Way
- Proposed A122 Lower Thames Crossing alignment submitted to the Planning Inspectorate
- Access route via Stanford Road/Heath Road
- Access route via Marshfoot Road/Muckingford Road
- Permanent private access road to cable sealing end compounds
- Existing ZB overhead line
- Existing YYJ overhead line
- Temporary realignment of YYJ overhead line
- Proposed underground cables replacing a section of the ZB overhead line

Additional Construction traffic flows (two-way movements) specific to the proposed changes are presented in Table B1 for the PARs, as an average daily traffic flow (daytime 07:00 to 19:00) for the peak construction year of 2029.

Figure Table B1 - Traffic Flows for PARs specific to Proposed Changes

Road	Peak Construction Year 2028 (PEIR)		Peak Construction Year 2029	
	HGVs	All Traffic	HGVs	All Traffic
Brentwood Road (Green Route)	0	0	232	375
A1013 Stanford Road east of Orsett Cock roundabout (Blue Route)	112	144	232	375
Buckingham Hill Road (Blue Route)	112	144	232	375
A1013 Stanford Road (Purple/Pink Route)	0	0	71	156
Heath Road (Purple Route)	0	0	69	152
Chadwell Hill (Yellow Route)	0	0	0	5
Linford Road (Yellow Route)	0	0	0	5
Muckingford Road (Yellow Route)	0	0	0	5

Further Information on Access Route Options

The proposed changes identify Brentwood Road as a Primary Access Route (PAR), which is a public road that would be used for construction vehicles and HGVs between the SRN, MRN and temporary haul roads. The Construction Access Plans Section H, published as part of the summer 2024 statutory consultation, already identified Stanford Road (east of the Orsett Cock Roundabout), Buckingham Hill Road and Hoford Road as a PAR. Land is included in the draft Order Limits to allow for potential highway mitigation measures such as localised road widening (designs to be developed) along both PARs to facilitate access for construction vehicles.

A Site Access Point would be created on each PAR to allow construction vehicles and HGVs to access the temporary haul roads connecting to the proposed Tilbury North Substation construction site. A Site Access Point is proposed on Brentwood Road approximately 45 m south of the existing junction of Brentwood Road and High House Lane and is shown as ‘Primary Access Bellmouth TN-B007A’ on the

Construction Access Plans Sheet C. A Site Access Point is proposed on Buckingham Hill Road, at the junction of Buckingham Hill Road and Hoford Road. It is shown as 'Primary Access Bellmouth TN-B014' on the Construction Access Plans Sheet E.

The proposed changes also identify alternative Site Access Points on Brentwood Road and alternative temporary haul road alignments that are co-ordinated with the LTC project, if the LTC project is consented.

Should the LTC project be consented, it would include the construction of an embankment and overbridge on Brentwood Road, which would need to be coordinated with the construction of 'Primary Access Bellmouth TN-B007A' on Brentwood Road south of its junction with High House Lane. Following engagement with the LTC project, two alternative options have been proposed for the location of this bellmouth and the temporary haul road between the bellmouth and the proposed new Tilbury North Substation construction site:

- A bellmouth (Primary Access Bellmouth TN-B007B2) located along the western side of Brentwood Road and a temporary haul road running to the south of the embankment (this is shown on the Construction Access Plans Sheet D). This option would be adopted if the LTC proposed embankment is built at the same time as construction vehicles need access to the proposed new Tilbury North Substation construction site, and
- A bellmouth (Primary Access Bellmouth TN-007B1) located along the eastern side of Brentwood Road and a temporary haul road running along the embankment (this is shown on the Construction Access Plans Sheet D). This option would be adopted if the LTC proposed embankment and overbridge on Brentwood Road were already built

The proposed changes identify Stanford Road/Heath Road, Stanford Road/Gammonfields Way and Linford Road/Muckingford Road as PARs. These are shown in Figure B1 in Annex B and the Construction Access Plans Sheets A, B and F. Land is included in the draft Order Limits to allow for potential highway mitigation measures such as localised road widening (designs to be developed) along these PARs to facilitate access for construction vehicles.

A Site Access Point is proposed to be created on each PAR to allow construction vehicles and HGVs to access the temporary haul roads. These are 'Primary Access Bellmouth TN-B004A' on Heath Road and 'Primary Access Bellmouth TN-B003A' on Gammonfields Way (as shown on the Construction Access Plans Sheet A) and Primary Access Bellmouths TN-B015 and TN-B016 on Muckingford Road (as shown on the Construction Access Plans Sheet F).

The proposed changes identify alternative Site Access Points on Heath Road and Gammonfields Way and alternative temporary haul road alignments that are co-ordinated with the LTC project, if the LTC project is consented. The alternative Site Access Points are 'Primary Access Bellmouth TN-B004B' on Heath Road and

‘Primary Access Bellmouth TN-B003B’ on Gammonfields Way (as shown on the Construction Access Plans Sheet B).

ANNEX C: Landscape Visualisations

nationalgrid

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Direction of view:	322°	Paper size:	841 x 297 mm (half A1)	Camera height:	1.5 m (above AOD)		
Nearest structure:	0.19 km	Correct printed image size:	820 x 250 mm				

Norwich to Tilbury

Viewpoint 8.05: Chadwell St Mary

nationalgrid

OS reference:	565484E 179661N	Field of view (cylindrical projection):	90° (horizontal) x 27° (vertical)	Camera:	NIKON D750	Photography Date:	07/03/2023
AOD:	25.9 m	Image enlargement factor:	96%	Lens:	50mm Fixed Focal Length	Photography Time:	16:52
Direction of view:	322°	Paper size:	841 x 297 mm (half A1)	Camera height:	1.5 m (above AOD)		
Nearest structure:	0.19 km	Correct printed image size:	820 x 250 mm				

Norwich to Tilbury

Viewpoint 8.05: Chadwell St Mary

nationalgrid

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Norwich to Tilbury

Viewpoint 8.05: Chadwell St Mary

Baseline photograph

This image provides landscape and visual context only

nationalgrid

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Norwich to Tilbury

Viewpoint 8.05: Chadwell St Mary

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Visualisation as presented at PIER.
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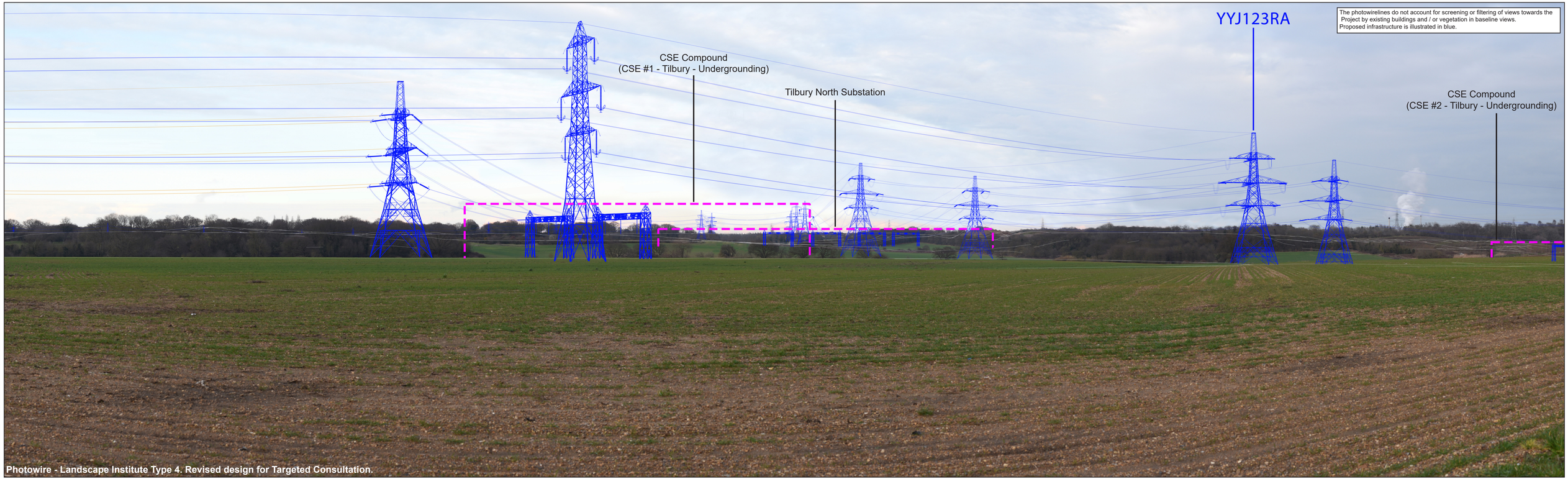
Norwich to Tilbury

Viewpoint 8.05: Chadwell St Mary



nationalgrid

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Direction of view:	52°	Paper size:	841 x 297 mm (half A1)	Camera height:	1.5 m (above AOD)		
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Norwich to Tilbury

Viewpoint 8.05: Chadwell St Mary

nationalgrid

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AOD:	25.9 m	Image enlargement factor:	96%	Lens:	50mm Fixed Focal Length	Photography Time:	16:52
Direction of view:	142°	Paper size:	841 x 297 mm (half A1)	Camera height:	1.5 m (above AOD)		
Nearest structure:	0.19 km	Correct printed image size:	820 x 250 mm				

Norwich to Tilbury

Viewpoint 8.05: Chadwell St Mary

nationalgrid

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Direction of view:	142°	Paper size:	841 x 297 mm (half A1)	Camera height:	1.5 m (above AOD)		
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Norwich to Tilbury

Viewpoint 8.05: Chadwell St Mary

nationalgrid

OS reference:	566327E 180585N	Field of view (cylindrical projection):	90° (horizontal) x 27° (vertical)	Camera:	NIKON D750	Photography Date:	30/01/2025
AOD:	30.6 m	Image enlargement factor:	96%	Lens:	50mm Fixed Focal Length	Photography Time:	13:57
Direction of view:	68°	Paper size:	841 x 297 mm (half A1)	Camera height:	1.5 m (above AOD)		
Nearest structure:	0.25 km	Correct printed image size:	820 x 250 mm				

Norwich to Tilbury

Viewpoint 8.11: PRoW near Southfields (No 42)

nationalgrid

OS reference:	566327E 180585N	Field of view (cylindrical projection):	90° (horizontal) x 27° (vertical)	Camera:	NIKON D750	Photography Date:	30/01/2025
AOD:	30.6 m	Image enlargement factor:	96%	Lens:	50mm Fixed Focal Length	Photography Time:	13:57
Direction of view:	68°	Paper size:	841 x 297 mm (half A1)	Camera height:	1.5 m (above AOD)		
Nearest structure:	0.25 km	Correct printed image size:	820 x 250 mm				

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Norwich to Tilbury

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nationalgrid

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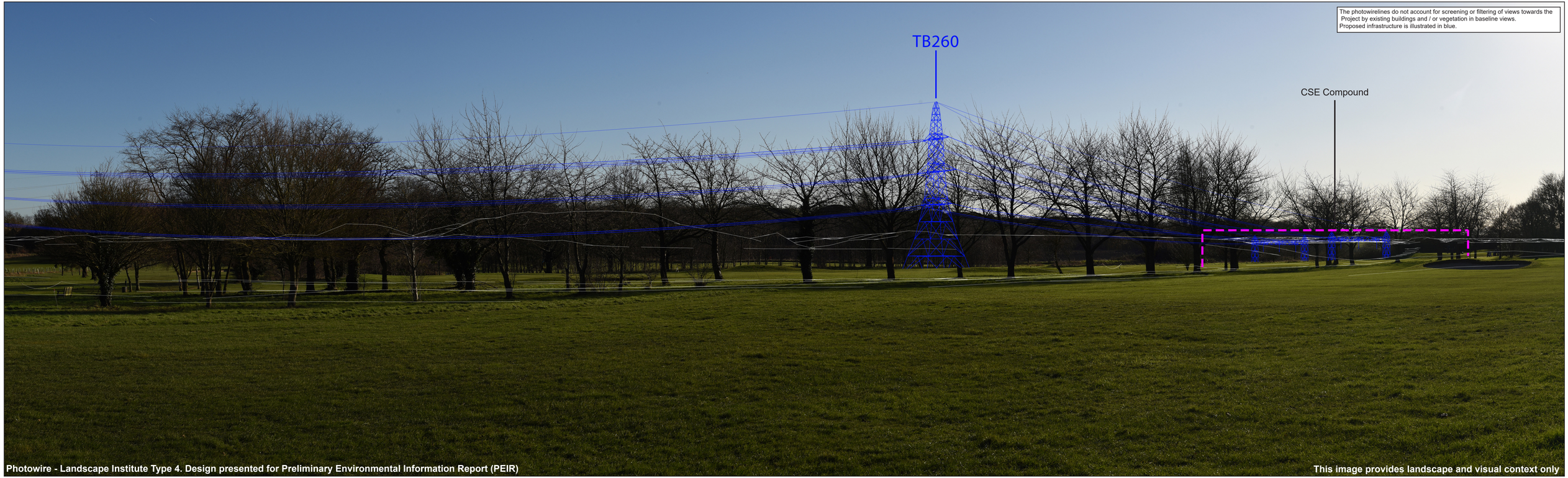
AOD:	30.6 m	Image enlargement factor:	96%	Lens:	50mm Fixed Focal Length	Photography Time:	13:57
Direction of view:	158°	Paper size:	841 x 297 mm (half A1)	Camera height:	1.5 m (above AOD)		
Nearest structure:	0.25 km	Correct printed image size:	820 x 250 mm				

Norwich to Tilbury

Viewpoint 8.11: PRoW near Southfields (No 42)



nationalgrid

OS reference:	566327E 180585N	Field of view (cylindrical projection):	90° (horizontal) x 27° (vertical)	Camera:	NIKON D750	Photography Date:	30/01/2025
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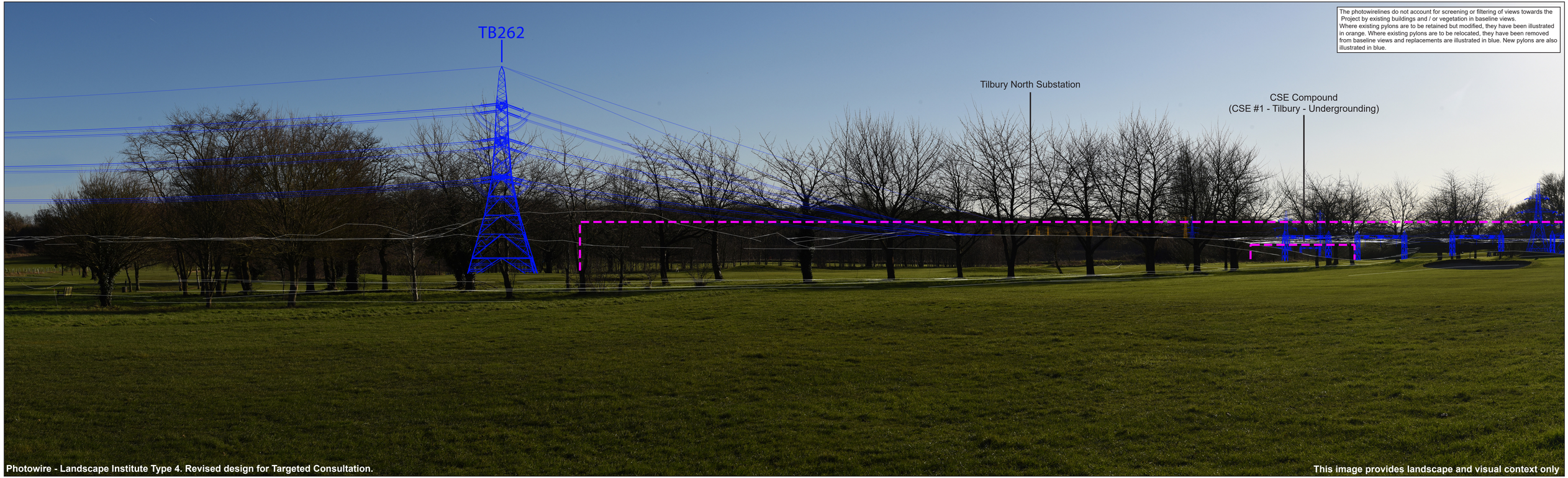

nationalgrid

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AOD:	30.6 m	Image enlargement factor:	96%	Lens:	50mm Fixed Focal Length	Photography Time:	13:57
Direction of view:	248°	Paper size:	841 x 297 mm (half A1)	Camera height:	1.5 m (above AOD)		
Nearest structure:	0.25 km	Correct printed image size:	820 x 250 mm				

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