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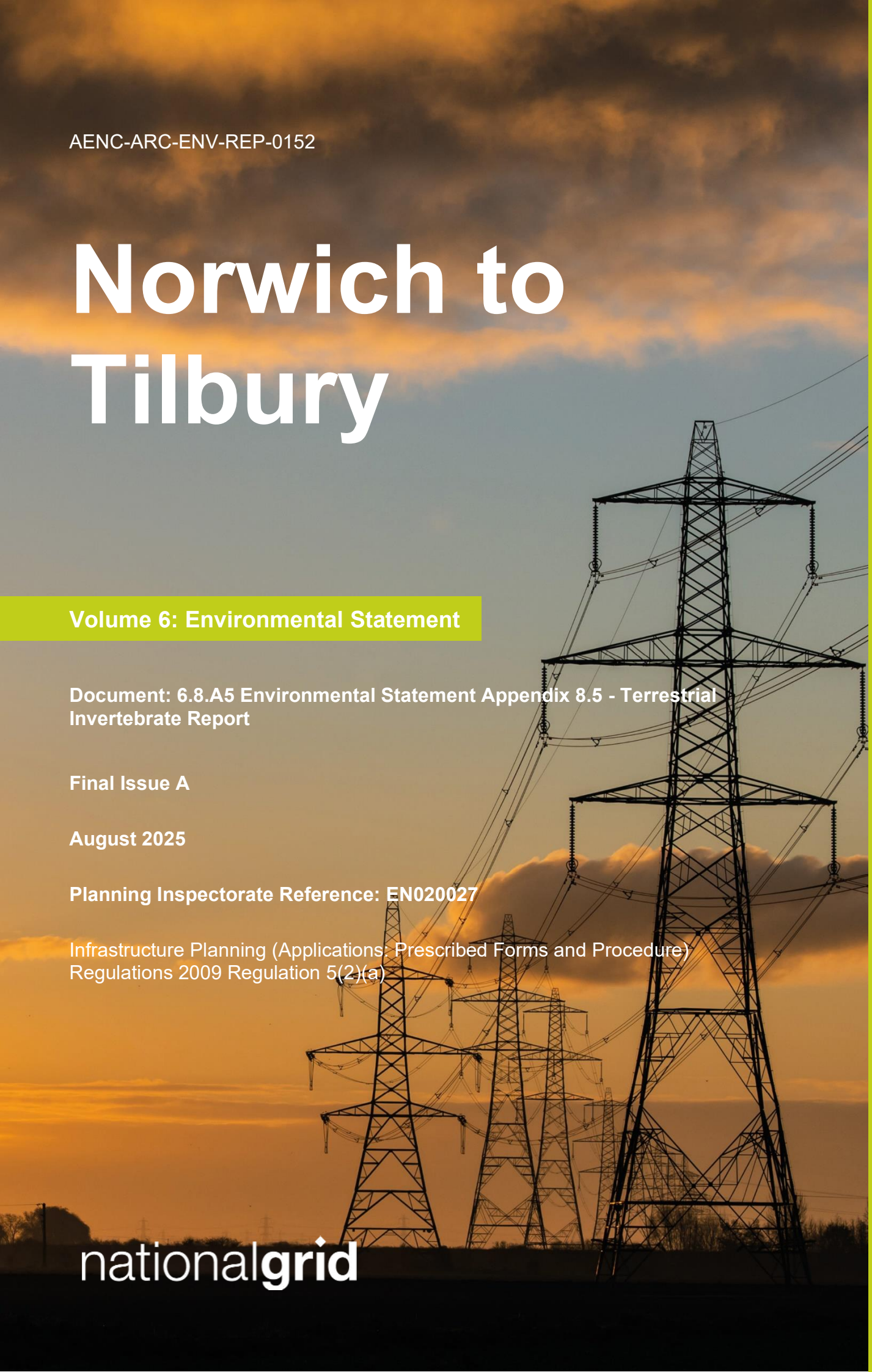

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Contents

1. Introduction

1.1 Background

1.1.1 This report has been produced as an appendix to Chapter 8: Ecology and Biodiversity (document reference 6.8) of the Environment Statement (ES) (Volume 6 of the Development Consent Order (DCO) application) for Norwich to Tilbury (the 'Project').

1.1.2 The ecological background and the scope for this report is set out in the Environmental Impact Assessment (EIA) Scoping Report (document reference 6.19) and agreed within the EIA Scoping Opinion received from the Planning Inspectorate in December 2022 (document reference 6.20).

1.1.3 The requirement for terrestrial invertebrate surveys followed the identification of suitable habitats with the potential to support important assemblages of invertebrates within the Order Limits.

1.1.4 An evaluation of the status of terrestrial invertebrates associated with the Project has been conducted which is based on a desk-based review of records and the field surveys results.

1.1.5 The Project has also been sub-divided into eight geographical sections for reader accessibility, based largely on Local Planning Authority boundaries. These are shown on Figure A8.5.1: Terrestrial Invertebrate Survey Locations and Figure A8.5.2: Terrestrial Invertebrates Desk Study Records within 2 km of the Order Limits in Annex B and comprise:

- Section A – South Norfolk Council
- Section B – Mid-Suffolk District Council
- Section C – Babergh District Council, Colchester City Council and Tendring District Council
- Section D – Colchester City Council
- Section E – Braintree District Council
- Section F – Chelmsford City Council and Brentwood District Council
- Section G – Basildon Borough Council and Brentwood Borough Council (and part of Chelmsford City Council)
- Section H – Thurrock Council.

1.1.6 Results reported in this document reference the Project Section that the site is located within.

1.2 Brief and Objectives

1.2.1 This report aims to present the overall baseline information for terrestrial invertebrates in respect to the Order Limits in support of the ES (Volume 6 of the

DCO application), including an Invertebrate Habitat Potential (IHP) survey and the results of targeted sampling surveys undertaken in 2024.

1.2.2 The terrestrial invertebrate desk study and field surveys were undertaken with the following objectives:

- To undertake a desk study to determine the number and type of invertebrate species records within the Study Area (within 2 km of the Order Limits)
- Undertake IHP surveys to identify key habitats / features within the Order Limits that are likely to be of greatest value to terrestrial invertebrates
- Sample and identify terrestrial invertebrate species within the Survey Area over spring, summer and autumn
- Assess the terrestrial invertebrate assemblage(s) of the Order Limits and evaluate the likely importance of the invertebrate assemblage(s) at a geographic scale.

1.3 Study and Survey Area

Study Area

1.3.1 A detailed desk-based study was conducted in October 2023 and subsequently updated in November 2024. The Study Area is defined as the land within the Order Limits plus a 2 km buffer from the Order Limits.

Survey Area

1.3.2 The Survey Area for the IHP survey comprised 37 sites, identified as Invertebrate Survey Areas (ISA), as shown on Figure A8.5.1: Terrestrial Invertebrate Survey Locations in Annex B. Following the IHP surveys, targeted invertebrate sampling took place on three of the ISAs identified as ISA 4 (Section A), 24 (Section C) and 29 (Section E) as these were identified as being both likely to support an important invertebrate assemblage and most likely to be directly impacted by the Project (e.g., through direct habitat loss), as explained below.

2. Relevant Legislation and Policy

2.1 Legislation

2.1.1 Surveys and assessments have been undertaken in accordance with current legislation and planning policy in the context of the Project. A summary of the relevant legislation is provided in Table A8.5.1.

Table A8.5.1 Legal compliance

Legislation	Details
Conservation of Habitats and Species Regulations 2017 (as amended in 2019) ('Habitats Regulations')	There are several terrestrial invertebrate species which have either full or partial protection in the UK under the combined measures of the Conservation of Habitats and Species Regulations 2017. Some invertebrates are protected as European protected species (EPS). These are: • Large blue butterflies *Phengaris arion* (eggs, caterpillars, chrysalises and adults) • Fisher's estuarine moths *Gortyna borelii* (eggs, caterpillars, chrysalises and adults) • Little Whirlpool Ramshorn Snail *Anisus vorticulus.* EPS are protected under the Conservation of Habitats and Species Regulations 2017. As such, it is an offence to: • Deliberately kill, injure, disturb or capture them • Deliberately destroy their eggs • Damage or destroy their breeding sites and resting places (even when invertebrates are not present) • Possess, control or transport them (alive or dead).
The Wildlife and Countryside Act 1981, as amended (WCA)	Several terrestrial invertebrate species which receive full or partial protection under Schedule 5 of the Wildlife and Countryside Act 1981. For those listed under Schedule 5, it is an offence to intentionally: kill, injure or take them, or possess or control them (alive or dead).
The Natural Environment and Rural Communities (NERC) Act 2006	This Act places a duty upon public bodies to maintain Section 41 (s41) lists of flora, fauna, and habitats and to consider these ecological features as a material consideration in planning. It also requires decision-makers to have regard to the conservation of biodiversity in England, when carrying out their normal functions. In England, there are 56 Habitats of Principal Importance and 943 Species of Principal Importance on the S41 list. These are all the habitats and species found in England that were identified as requiring action in the UK Biodiversity Action Plan (BAP) and which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. Of the 943 Species of Principal Importance,

Legislation	Details
	379 of these are terrestrial invertebrates (covering insects, arachnids and molluscs).

2.2 Planning Policy

2.2.1 Chapter 8: Ecology and Biodiversity (document reference 6.8) provides further details of relevant planning policy.

3. Methodology

3.1 Nomenclature

3.1.1 Scientific names and common names of species recorded follow those used in the 'Pantheon' database tool developed by Natural England and the Centre for Ecology and Hydrology (CEH; Webb et al., 2018).

3.2 Desk Study

3.2.1 The desk study was conducted in October 2023 and subsequently updated in November 2024 to inform the baseline in relation to terrestrial invertebrates.

3.2.2 The Study Area is defined as the land within the Order Limits plus a 2 km buffer from the Order Limits. A desk-based review of existing biological information pertaining to protected and notable terrestrial invertebrates in the Study Area to therefore inform the ISA (ISA 1 to 37, as shown on Figure A8.5.1: Terrestrial Invertebrate Survey Locations in Annex B).

3.2.3 Each ISA was then assessed for its potential to support important terrestrial invertebrate assemblages by a suitably experienced entomologist. Table A8.5.2 summarises the various sources of information, utilised for the desk study and the information obtained.

3.2.4 Survey effort was then focussed on habitats and habitat features that were most likely to be directly impacted by the Project (e.g., through direct habitat loss). Note, ISA 23 is not affected by the Project and all data relating to this site has been removed from the report.

Table A8.5.2 Sources of information

Source	Information Obtained
Google Earth (2025) aerial imagery	Review of aerial photography was undertaken to: assess habitats within the Order Limits in a wider (landscape-scale; which extended up to 2 km from the Order Limits) context; identify potential ephemeral ecological features that may not be evident on the ground during the field survey (e.g. ephemeral ponds); identify potential wildlife corridors or barriers to animal movements (e.g. road networks built development and major watercourses); and review changes to habitats over time so that an assessment of reliability/longevity can be made.
Multi-Agency Geographic Information for the Countryside (Natural England, 2025)	The location of statutory designated sites for nature conservation designated for, or with a known presence of, protected or notable invertebrates or invertebrate assemblages within 2 km of the Order Limits. As some ecological features are not always apparent on aerial photographs, relevant Ordnance Survey mapping on MAGIC was

Source	Information Obtained
	also studied to identify any high value habitats for invertebrates e.g. ancient woodlands or species-rich grasslands.
Local Environmental Record Centres (LERC)	The location of non-statutory designated sites for nature conservation designated for, or with a known presence and records of, terrestrial invertebrates within 2 km of the Order Limits were obtained from: • Norfolk Biodiversity Information Service (NBIS) • Suffolk Biodiversity Information Service (SBIS) (2023); and • Essex Field Club (EFC) (2023). Note: Only records recorded within the last 10 years were included in the desk study unless specified.

3.3 Survey Methodology

Invertebrate Habitat Potential Field Survey

3.3.1 A total of 37 separate ISAs were identified during the desk study. Each of the ISAs were subjected to an IHP survey. The IHP surveys involved using the IHP assessment to understand which of the ISAs may require further targeted sampling.

3.3.2 An invertebrate habitat potential assessment survey was undertaken in accordance with the (as yet unpublished) Invertebrate Habitat Potential Protocol (Dobson, J. & Fairclough, J., unpublished). A record was made regarding the habitats present, and features considered likely to be of significant value or potentially valuable for notable invertebrate assemblages. Such features can include areas with dense patches of flowering plants (including on roadside verges); south facing banks; patchy mosaic habitat including aggregations of bare ground; margins of scrub/woodland and substrate containing high organic content; mature or veteran trees offering standing and fallen dead wood and temporary areas of standing water (e.g., ephemeral pools and seepages) and associated terrestrial habitat (e.g. marshy grassland).

3.3.3 Table A8.5.3 and Table A8.5.4 show details of the IHP assessment protocol (Dobson, J. & Fairclough, J.), unpublished).

Table A8.5.3 Summary of eleven habitat elements assessed during the IHP survey

Habitat Element	Habitat Element (HE) Number	Comments
Decaying Wood	HE1	In all its forms; from decaying wood on/in large trees to woodland floor debris.
Rotational Management	HE2	Planned or serendipitous; and whether for nature conservation of other purposes.
Nectar Resources	HE3	As a proxy for nectar- and pollen resources, as assessment of pollen resources is impracticable on a walk-through survey.

Habitat Element	Habitat Element (HE) Number	Comments
Wet Substrates	HE4	Including marginal, marshy, muddy and seasonally inundated habitats, as well as flushes.
Open Water Habitats	HE5	The Open Water element of rivers, lakes, ponds, streams, ditches etc.
Structural Patchwork	HE6	Habitat Mosaics, including, but by no means restricted to open mosaic habitats on previously developed land.
Still Air (S)	HE7	Suntraps and still-air microclimates in open situations. The term *'still air'* is used in preference to *'wind breaks'* as many rigid wind breaks are likely to produce turbulent air in their lee.
Still Air (H)	HE8	Humid still-air microclimates in sheltered and shaded situations.
Connectivity	HE9	Landscape-scale connectivity between the site and external habitats.
Ecoclines	HE10	A graded transition between two or more broad habitats.
Bare Earth	HE11	Unshaded bare or sparsely vegetated well-drained substrate, regardless of soil type.

Table A8.5.4 Grading system applied to habitat elements

Grade	Description
Negligible / Absent (E)	Habitat element is absent or of insignificant (barely perceptible) quantity.
Minor (D)	Habitat element is present but is insufficient quality to qualify as Moderate or above. For example, it may be of extremely limited extent, or very sparsely dispersed. Likely to support common and widespread, generalist species.
Moderate (C)	A clear example of the habitat element is present, but which does not qualify as Major. Likely to be of sufficient quality to support a characteristic invertebrate fauna.
Major (B)	Good quality examples of each habitat element which do not meet the criteria for Exceptional. Likely to be a predominant factor in supporting characteristic and specialised invertebrate assemblages. Considerations might include the extent, maturity and historic- and current connectivity of the element.
Exceptional (A)	Very high-quality examples of the habitat element, including but not restricted to those of potential regional significance. This may be for

Grade	Description
	reasons of intrinsic quality, rarity, vulnerability, or the perceived importance of its position in the wider landscape.

3.3.4 To enable a baseline characterisation of the Survey Area for invertebrates, the habitat assessment included observations of features that might limit invertebrate interest, as well as those which might be of value for invertebrates.

3.3.5 The distribution and extent of features of potential value informed the design of targeted terrestrial invertebrate surveys that were subsequently conducted within the Survey Area.

3.3.6 This survey revealed distinct areas of terrestrial habitat (all geographically separated from each other) with potential to support valuable invertebrate assemblages. Each area was allocated unique parcel numbers ISA 1 to 37 as shown on Figure A8.5.1: Terrestrial Invertebrate Survey Locations in Annex B.

Targeted Invertebrate Sampling Surveys

3.3.7 The IHP survey revealed 37 distinct areas of terrestrial habitat with potential to support valuable invertebrate assemblages, these are labelled ISA 1 to 37 as shown on Figure A8.5.1: Terrestrial Invertebrate Survey Locations in Annex B. In 2024, targeted sampling for invertebrates took place at three of these ISAs in spring (April), summer (June) and late summer/early autumn (August/September).

3.3.8 The ISAs selected for targeted sampling were ISA 4 (Section A), 24 (Section C) and 29 (Section E). These ISAs support various habitats including woodland (deciduous and mixed i.e., both conifer and broadleaved), woodland edge (with scrub and grassland), hedgerows (and their margins), marshy grassland and neutral grassland with dense patches of flowering plants. The targeted survey was designed to target data collection of key indicator groups associated with such habitats. This approach relates to the guidance set out in Drake et al. (2007); which lists many of the target taxa of field layer and arboreal assemblages and their value in assessment. Coleoptera (beetles), aculeate Hymenoptera (bees, ants and wasps), Lepidoptera (butterflies and moths), Hemiptera (true bugs) and Orthoptera (grasshoppers and crickets) are four orders that are strongly represented in such assemblages. Certain families (and suborders) of the order Diptera (flies) (e.g., Syrphidae (hoverflies) and other families of the larger Brachycera were also targeted. Observations of other invertebrate taxa were also recorded.

3.3.9 The following sampling methods were employed at each ISA: pan traps, pitfall traps, window traps, light traps, sweep-netting, beating and grubbing. These methods are described below.

Pan traps

3.3.10 Clusters of three to five pan (or water) traps were set out in flower-rich areas in May (spring sampling), June (summer sampling) and August / September 2024 (late summer/early autumn sampling). The pan traps comprised a mixture of yellow, blue and white plastic trays into which a small amount of water was poured (along with a few drops of detergent to break the surface tension). Such traps mimic large flowers and attract flying insects of many groups' especially aculeate Hymenoptera and

certain Diptera, which become trapped in the fluid and can be collected later. During each visit the traps were set at the start of the survey and collected in at the end of the survey; each trap collected invertebrates for a period of at least 36 hours.

Pitfall traps

3.3.11 Pitfall traps were set out in clusters of three in suitable habitats to target ground dwelling invertebrates e.g. carabid beetles. Pitfall trapping involved the use of circular plant pot trays (24 cm diameter x 5 cm depth) sunk into an excavated circular hole with the tray rims flush with the surrounding ground level. Preserving fluid (and a drop of detergent to break the surface tension) was poured into the trays until they were half full. Lastly, a piece of mesh was secured over the tray to prevent the capture of small mammals, amphibians and reptiles. Traps were operational during the periods 14 May to 17 May 2024 (spring sampling) and 2 July to 5 July 2024 (summer sampling).

Window Flight Interception Traps

3.3.12 Three window flight interception traps (referred to hereafter as ‘window trap’) were set out to target the dead wood fauna of veteran and over mature trees. Each trap comprised four 2 litre plastic drink bottles securely locked in place at the base using a circular plant pot tray (24 cm diameter x 5 cm depth). The tray also shielded the trap from excessive rainwater.

3.3.13 Wire fittings were used to bind the four bottles to the circular tray. An outward facing rectangular hole (the ‘window’) was cut out of each bottle. The constructed trap was inverted and suspended from its base using a tree/shrub branch. Approximately 30 millilitres (ml) of preserving fluid, comprising 1-part ethylene glycol (antifreeze) to 2 parts water was poured into each bottle via the ‘windows.

3.3.14 In ISA 4 (Section A), one trap was positioned on a willow tree on the boundary to Roydon Fen. In ISA 24 (Section C), a trap was positioned on a branch next to exposed heartwood of a large pedunculate oak. In ISA 29 (Section E), a trap was placed on the branch of a large mature oak with a cavity showing exposed heartwood decay. These traps remained on site for the duration of the survey (May to September 2024).

Light Trapping

3.3.15 In 2024, nocturnal moth surveys were undertaken on the night of 2 July at ISA 4 (Section A), 6 August at ISA 24 (Section C) and 12 September at ISA 29 (Section E). On each night a single generator-powered 125-Watt Robinson moth trap was used, fitted with a mercury vapour bulb to attract moths within the vicinity of the trap. The light was switched on at dusk and was checked throughout the night, into the early hours of the morning to record all visiting moths.

Sweep Netting

3.3.16 Sweep netting involved walking at a steady pace through the vegetation and passing an entomologist’s sweep net back and forth through vegetation in a figure of eight motion. Sweep netting was accompanied by ‘spot-sweeping’ where individual invertebrates (e.g., butterflies and day flying moths) were targeted and collected via a single sweep. Sweep netting was conducted during all three seasonal survey events (May, July and September 2024), within all habitats.

Beating

3.3.17 Beating is a useful technique for extracting arboreal invertebrates from overhanging branches. This method involves placing a beating tray beneath a branch before delivering several sharp blows to the branch, sending any dislodged invertebrates into the beating tray for inspection. Beating was conducted during all three seasonal survey events (May, July and September 2024), targeting scrub edge habitat and lower reaches of woodland canopies within all suitable habitats.

Hand Searching (Grubbing)

3.3.18 Grubbing is the name generally applied to the extraction of invertebrates by hand from a variety of media such as dead wood, or fungi and under bark; from moist cracked ground in seasonally inundated habitats; in dung, or from dense aggregations of leaf matter and detritus (e.g., base of grass tussocks, fern shuttlecocks and leafy / woody deposits). If appropriate, to assist in the detection of small beetles, material was sieved or placed in a bucket of water to capture invertebrates moving to the surface. Grubbing from such media took place during all three seasonal survey events (May, July and September 2024), within areas of suitable habitat that supported suitable sources (i.e. dung, decaying wood, leaf litter and grass tussocks).

Sample sorting and Identification

3.3.19 For all surveys, whilst some species could be identified in the field, most specimens were stored in 70% Industrial Methylated Spirit (IMS) for later identification, using a stereoscopic microscope with the aid of identification literature. For all target groups identification was taken down to species level.

3.4 Dates of Survey and Personnel

3.4.1 IHP surveys were conducted in February, March and July 2024. Targeted sampling surveys took place in May, July, August and September 2024. All targeted sampling survey visits were conducted during the 'optimum' survey months, considered to be between April and September, during suitable weather conditions.

3.4.2 The lead surveyor was an associate ecologist (BSc, MSc, Member of Chartered Institute of Ecology and Environmental Management (MCIEEM)) with extensive experience undertaking invertebrate surveys and assessment across a variety of sites in the United Kingdom.

3.4.3 The invertebrate identification specialist (MSc) is a Fellow of the Royal Entomological Society (FRES) and Curator of Natural Science at Bolton Museum. He specialises in invertebrate identification, particularly Coleoptera, and has carried out work for a wide range of clients across the UK over the last 10 years.

3.5 Data Analysis

3.5.1 The results and discussion section places a value on the rare and notable invertebrates found at the Site dependent on their current national status. Further information on status definitions and criteria of invertebrate groups can be found in Appendix D of this report.

Pantheon Assemblage Analysis

3.5.2 The list of species derived from the targeted invertebrate surveys (at ISA 4, ISA 24 and ISA 29) was analysed using the 'Pantheon' database tool developed by Natural England and the CEH (Webb et al., 2018). For each species recognised by Pantheon, various attributes relating to associated habitats and resources, assemblage types and habitat fidelity scores are placed against them. Reports can then be generated including those that provide:

- Information on each individual species entered into the database
- A list of species belonging to different feeding guilds (e.g. xylophagous, saprophagous, nectivorous)
- A list of species with different associations (e.g. to certain groups of plant, fungi or animal)
- A summary of the number of species within the sample that have a particular score or fidelity and, if relevant an overall score that provides insight into the quality of the site that the sample has come from
- Summary tables that assess where species live and what assemblages they are associated with.

3.5.3 In the context of this assessment, it is the report that Pantheon provides relating to where species live and with which assemblages they are associated, that is considered most useful in evaluating the relative importance of a site for its invertebrates. This considers the habitats and resources used by an invertebrate species at various hierarchical levels, from broad biotopes (e.g. tree associated, wetland, coastal) at the highest level, down to specific habitats (e.g. tall sward and scrub, decaying wood, arboreal, marshland) at a mid-level, and resources (e.g. sapwood & bark decay, heart-rot and fungal fruiting bodies all associated with the decaying wood habitat) at the finest level. The assessment also considers the 'ISIS' (Invertebrate Species-habitat Information System) assemblage types that had previously been developed by Natural England (Drake et al., 2007). The original Specific Assemblage Types (SATs) are therefore carried forward in their original form, although 'Habitats' have replaced the ISIS Broad Assemblage Types (BATs).

3.5.4 SATs include only habitat specific species, which are normally faithful to a single habitat or resource, which are often closely associated with sites of higher conservation value. Analysis of SATs is helpful to inform the determination of the nature conservation value of a site for invertebrates; sites with high-scoring SATs are considered to have good quality invertebrate assemblages.

3.5.5 The original role of ISIS was to guide Natural England on assessing the conservation value of Sites of Special Scientific Interest (SSSIs) for their invertebrate assemblages (especially for the purposes of Common Standards Monitoring) (Drake et al., 2007). This was done by identifying whether an assemblage associated with a site was in a *'favourable condition'* (i.e. where it was considered to be of sufficient condition to meet the threshold criteria for an assemblage of SSSI-level value).

3.5.6 However, whilst the condition assessment function is still retained within Pantheon, it is not the sole use. Accordingly, the analysis may be used in other situations (e.g. by nature reserve managers or those assessing the effects of a development) to help understand which assemblages (SATs) within a site are considered likely to be of value.

3.5.7 A useful measure of the quality of a site for its invertebrate assemblage is to count and assign scores that are more heavily weighted towards the rarer species. The Species Quality Index (SQI) is a numerical scoring system contained within Pantheon that does exactly this. Each species recorded from a sample is given a Species Quality Score (SQS) based on their conservation status. The SQI is the sum of all SQSs divided by the number of species in that sample. This score is multiplied by 100 to give a 3-figure value without decimal places (e.g.100 rather than a 1.00). This SQI score is preferred to the SQS since it eliminates, to a greater extent the effect of recorder effort. Notwithstanding this, sites where little effort has been made to record the common species could result in overly amplified SQI scores. There is presently no published guidance on what SQI score might be classed as *'good'* or *'average'* as this might vary between habitats and regions (e.g. northern vs. southern England). However, as a rule of thumb, based on the experience of the author, a habitat with an SQI score exceeding 125 is likely to be of some value and merit further consideration.

3.6 Notes and Limitations

3.6.1 Standard survey methodology (Drake *et al.,* 2007) was followed for all surveys undertaken. Surveys were generally carried out on sunny, clear days with light wind. Weather was not considered to be a limiting factor to the overall study results. The data collected during surveys is considered to be a good representation of the species present. An objective measure of site value could be determined from these results which is deemed sufficient for the purposes of the assessment.

3.6.2 This report should be read in full, and excerpts may not be representative of the findings.

3.6.3 This report has been prepared exclusively for National Grid and no liability is accepted for any use or reliance on the report by third parties.

3.6.4 It was not possible to obtain access to survey the following sites in 2024:

- ISA 2 and 3 (Section A)
- ISA 8 (Section B)
- ISA 35 (Section H).

3.6.5 It is considered that sufficient information was collected to inform the impact assessment.

4. Results

4.1 Overview

4.1.1 The terrestrial invertebrate surveys, as discussed within Section 3 above were undertaken between the months of January and September 2024. The results below present the findings of the desk study, invertebrate habitat potential survey and targeted sampling surveys.

4.1.2 All desk study results (including LERC records, previous Nationally Significant Infrastructure Projects (NSIP) and Local Planning Authority Projects results) are shown on Figure A8.5.2: Terrestrial Invertebrates Desk Study Records within 2 km of the Order Limits in Annex B. Figure A8.5.3: Terrestrial Invertebrate Targeted Sampling Survey Location in Annex B shows the targeted survey results. Annex C provides the desk study records, Annex D lists the species identified during the targeted sampling surveys, Annex E provides photographs of habitat suitable for invertebrates on the ISAs, Annex F provides definitions for invertebrate conservation status.

4.2 Desk Study Results

Local Environmental Record Centres

4.2.1 The desk study information obtained from NBIS, SBIS and EFC, identified the presence of terrestrial invertebrates within the Order Limits and the wider 2 km Study Area. Further desk study information is shown on Figure A8.5.2: Terrestrial Invertebrate Desk Study Records within 2 km of the Order Limits in Annex B.

4.2.2 The desk study returned 2,065 records of protected and/or notable species within 2 km of the Order Limits. These records comprise 391 species from the following taxonomic groups *coleoptera, dermaptera diptera, hemiptera, hymenoptera, lepidoptera, mollusc, odonata*, and spider. These records are summarised below with full details presented in Annex C. Protected and/or notable species include species listed under:

- Schedule 5 of the WCA 1981
- Section 41 of the NERC Act 2006
- Nationally scarce or rare
- Nationally notable
- Red listed as vulnerable or above (including data deficient and insufficient data)
- Essex red list.

Section A

4.2.3 Within 2 km of the Order Limits in Section A, the desk study returned 523 records relating to:

- 43 species of moth (for detail see Annex C).

Section B

4.2.4 Within 2 km of the Order Limits in Section B, the desk study returned 194 records relating to:

- 65 species of moth (for detail see Annex C)
- One species of butterfly (small heath *Coenonympha pamphilus*)
- One species of dragonfly (scarce chaser *Libellula fulva*)
- One species of true bug (*Ribautodelphax angulosa*).

Section C

4.2.5 Within 2 km of the Order Limits in Section C, the desk study returned 322 records relating to:

- Three species of butterfly (small heath, white admiral *Limenitis camilla*, and white-letter hairstreak *Satyrium w-album*)
- One species of dragonfly (scarce chaser)
- Three species of bee (hawksbeard mining bee *Andrena fulvago*, lobe-spurred furrow bee *Lasioglossum pauxillum*, ashy furrow bee *Lasioglossum sexnotatum*)
- One species of ant (brown tree ant *Lasius brunneus*)
- 81 species of moth (for detail see Annex C)
- One species of earwig (European earwig *Apterygida media*)
- One species of true fly (leaf-miner fly *Agromyza anthracina*)
- One species of mollusc (copse snail *Arianta arbustorum*).

Section D

4.2.6 Within 2 km of the Order Limits in Section D, the desk study returned 238 records relating to:

- One species of beetle (stag beetle *Lucanus cervus*)
- One species of butterfly (white admiral)
- 161 species of moth (for detail see Annex C)
- Two species of true flies (*Odontomyia tigrine*, and *Rondaniola bursaria*).

Section E

4.2.7 Within 2 km of the Order Limits in Section E, the desk study returned 17 records relating to:

- One species of butterfly (small heath)
- 14 species of moth (for detail see Annex C)
- One species of mollusc (large black slug *Arion ater*).

Section F

4.2.8 Within 2 km of the Order Limits in Section F, the desk study returned 279 records relating to:

- One species of bee (lobe-spurred furrow bee)
- 175 species of moth (for detail see Annex C).

Section G

4.2.9 Within 2 km of the Order Limits in Section G, the desk study returned 174 records relating to:

- One species of butterfly (grizzled skipper *Pyrgus malvae*)
- 92 species of moth (for detail see Annex C).

Section H

4.2.10 Within 2 km of the Order Limits in Section H, the desk study returned 318 relating to:

- 17 species of beetle (for detail see Annex C)
- Two species of butterfly (small heath and wall *Lasiommata megera*)
- One species of dragonfly (scarce emerald damselfly *Lestes dryas*)
- 13 species of bee (for detail see Annex C)
- Two species of ant (*Lasius platythorax*, and large velvet ant *Mutilla europaea*)
- One species of wasp (cuckoo wasp *Pseudospinolia neglecta*)
- 134 species of moth (for detail see Annex C)
- One species of earwig (common earwig *Forficula lesnei*)
- Seven species of true bug (Fallen's leatherbug *Arenocoris fallenii*, cryptic leatherbug *Bathysolen nubilis*, slender-horned leatherbug *Ceraleptus lividus*, *Chlamydatus evanescens*, *Deraeocoris olivaceus*, scarce tortoise shieldbug *Eurygaster maura*, and *Raglius alboacuminatus*)
- 27 species of true flies (for detail see Annex C)
- Two species of spider (*Ballus chalybeius, and Sibianor aurocinctus*).

Invertebrate Habitat Potential Desk Study

4.2.11 A desk study was undertaken whereby 37 ISAs were identified, within and adjacent to the Order Limits, for walkover survey to further assess the habitats present at each.

4.2.12 These ISAs were identified for their potential to support Species of Principal Importance (SPI), Red Data Book (RDB) species, or are Habitat of Principal Importance (HPI) or mosaics of features that may suggest a rich and varied invertebrate assemblage could be present. The ISAs are listed in Table A8.5.5 below.

Table A8.5.5 Invertebrate survey areas identified at the desk study stage

Project Section	ISA	Description	Habitats Identified
A	1	Land south of Bunwell Hill, Norwich, Norfolk	Woodland, floodplain grazing marsh, lowland fens (part of a County Wildlife Site)
A	2	Land north of Heywood Road, Diss, Norfolk	Woodland edge and field margins
A	3	Land east of Shelfanger Road, Diss, Norfolk	Good quality semi-improved grassland, woodland edge
A	4	Land north of Ling Road, Diss, Norfolk	Floodplain grazing marsh, river corridor and woodland
B	5	Land north of Lion Road, Palgrave, Suffolk	Woodland edge, scrub and grassland
B	6	Land east of Mellis Road, Mellis, Suffolk	Woodland and pond
B	7	Land adjacent to Wickham Road, Finningham, Suffolk	Plantation woodland and river corridor
B	8	Land north of Stowmarket Road, Creeting St Peter, Suffolk	Farmland, mature trees and river bankside
B	9	Land south of Badley Lane, Needham Market, Suffolk	Woodland, scrub, river corridor
B	10	Land south of Badley Lane, Needham Market, Suffolk	Woodland and hedgerow
B	11	Land north of Hascot Hill, Battisford, Suffolk	Hedgerow and field margin
B	12	Land at Hascot Hill, Battisford, Suffolk	Hedgerows either side of road (hardstanding)
B	13	Land south of Hascot Hill, Battisford, Suffolk	Hedgerow (single)
B	14	Land south of Hascot Hill, Battisford, Suffolk	Hedgerow (single)
B	15	Land west of Barking Road, Barking, Suffolk	Woodland, scrub and river corridor
B	16	Land off Bildeston Road, Offton, Suffolk	Field boundary and set-aside, hedgerow with trees
B	17	Land north of Bullen Lane, Bramford, Suffolk	Arable fields, set aside and field margins

Project Section	ISA	Description	Habitats Identified
B	18	Land south of Bullen Lane, Bramford, Suffolk	Ancient woodland and field margin
B	19	Land east of Church Hill, Burstall, Suffolk	Ancient woodland and parkland
C	20	Land north of Pigeon's Lane, Hintlesham, Suffolk	Floodplain grazing marsh, hedgerows and scrub
C	21	Land south-east of Lower Barn Road, Chattisham, Suffolk	Open grassland with veteran trees and water course
C	22	Land west of Higham Road, Stratford St Mary, Suffolk	Floodplain grazing marsh, river corridor and lakes
C	23	Site outside the Order Limits	Data removed
C	24	Land east of Nightingale Hill, Langham, Essex	Woodland and grassland
C	25	Land west of Ipswich Road, Langham, Colchester, Essex	Woodland, grassland and scrub
D	26	Land adjacent to London Road, Little Horkesley, Colchester, Essex	Grassland, hedgerows and woodland
D	27	Land west of Mill Road, Fordham, Colchester, Essex	Woodland and river corridor
E	28	Land south-west of Coggeshall Road, Feering, Colchester, Essex	Woodland, scrub and river corridor
E	29	Land west of Cressing Road, Witham, Essex	Woodland and river corridor
F	30	Land south of Mashbury Road, Chelmsford, Essex	Grassland, hedgerows and woodland
F	31	Land west of Margaretting Road, Chelmsford, Essex	Woodland corridor connecting ancient woodland complex
F	32	Land west of Writtle Road, Margaretting, Essex	Line of mature trees alongside minor road
F	33	Land north of Ivy Barns Lane, Margaretting, Essex	Hedgerows, set-aside field margin and scrub
G	34	Land south of Old Church Lane, Mountnessing, Essex	Plantation woodland, rough grassland, scrub, river corridor, open mosaic, hardstanding
G	35	Land adjacent to the railway, Dunton, Essex	Woodland, scrub and grassland

Project Section	ISA	Description	Habitats Identified
G	36	Land adjacent to Buckingham Hill Road, Orsett, Essex	Scattered scrub, woodland and open mosaic
G	37	Land at Rainbow Wood and Ashen Shaw	Woodland and scrub

4.3 Invertebrate Habitat Potential Field Survey

4.3.1 The results of the IHP field survey are outlined below, with reference to the Project Section in which they are located with survey locations shown on Figure A8.5.1: Terrestrial Invertebrate Survey Locations in Annex B.

Section A

ISA 1 – Land south of Bunwell Hill, Norwich, Norfolk

4.3.2 Situated partly within Brick Kiln Lane, Bunwell Hill County Wildlife Site (CWS), the Survey Area comprised wet woodland, rough grassland, mixed scrub, and coastal floodplain and grazing marsh.

4.3.3 Approximately half of ISA 1 is an enclosed, fenced field, surrounded by lines of trees, woodland and scrub (identified to be coastal floodplain and grazing marsh on MAGIC) is currently grazed by Dexter cattle. At the time of the survey, the ground was heavily poached by the cattle, and very wet from winter rainfall. Wet ditches surrounded the field and connected to the River Tas to the south. Some of these areas were well vegetated with common reed (*Phragmites australis*), various species of rush (*Juncus* spp.) and horsetail (*Equisetum* spp.).

4.3.4 The rest of ISA 1 comprised woodland, supporting a variety of tree species including, but not limited to, oak (*Quercus* sp.), ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), elder (*Sambucus nigra*) and alder (*Alnus glutinosa*). Many trees are clad in ivy (*Hedera helix*) and some had fallen as a result of strong winds over the winter period. Ground flora recorded here included dog's-mercury (*Mercurialis perennis*), pignut (*Conopodium majus*), lords-and-ladies (*Arum maculatum*), and common nettle (*Urtica dioica*). Much of the woodland is currently managed for conservation by a local landowner, including evident coppicing (within the woodland) and mowing (within the rough grassland). Dead and decaying wood was frequently observed throughout the woodland, consisting of not only fallen logs and trees but also standing and aerial deadwood features. Many of the trees were of a good quality and age range, and situated along ancient ditch and boundary features, with standing (or sluggish flowing) water present. A variety of still-air and humid air niches are likely to be present, partly due to the cover the woodland and bordering scrub provide, but also the damp conditions throughout the woodland and its edges.

4.3.5 Some scrub exists along the woodland edge and in the north-east of ISA 1, which meets with the footpath on the northern boundary. The scrub included patches of bramble (*Rubus fruticosus* agg.), as well as blackthorn (*Prunus spinosa*) and hawthorn (*Crataegus monogyna*), some of the blackthorn was in flower during the initial IHP survey. The soil was generally sandy and likely very suitable for ground

nesting insects, in those places where bare, exposed earth is located, such as along the public footpath.

4.3.6 ISA 1 is well connected to the River Tas corridor, which meanders through the landscape, which is predominantly agricultural, but with numerous pockets of semi-natural habitat such woodland, scrub and rough grassland. The Survey Area and its adjacent habitats exemplify an interesting mosaic and good range of ecoclines, with woodland edge transitioning into scrub and grassland, all connected by linear vegetated features, such as trees and hedgerows with wet ditches. The CWS immediately to the west also has an area of lowland fen as well as calcareous grassland habitat (identified from desk mapping), the current condition of these habitats is currently unknown.

4.3.7 The IHP assessment is detailed in Table A8.5.6 below.

Table A8.5.6 Invertebrate survey area 1 – IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	C	B	C	C	C	C	C	C	C	C	C

B = Major Habitat Element, C = Moderate Habitat Element

4.3.8 The findings of the IHP assessment indicate that ISA 1 provides moderate to high value habitats and interesting habitat features, and although relatively confined, may support assemblages of species that are rare, notable, or threatened. The adjacent (and connecting) CWS provides additional interest, and the habitats here are only likely to contribute further to the variety of invertebrate life within this locality.

4.3.9 As such, it is possible the ISA may support an important invertebrate assemblage, and therefore it is recommended for further targeted sampling.

4.3.10 This site was scoped out from further survey work due to minimal potential impacts to this ISA (no significant loss of habitat of potential value to terrestrial invertebrates) as a result of the Project. As such ISA 1 was not taken forward for further targeted sampling.

ISA 2 – Land north of Heywood Road, Diss, Norfolk

4.3.11 Due to land access restrictions the site was not accessed; no survey undertaken. Woodland site was selected on the basis that it could support notable butterflies and stag beetle. Impacts to habitats suitable for these species would be minimal with suitable habitats retained. No further survey required.

ISA 3 – Land east of Shelfanger Road, Diss, Norfolk

4.3.12 Due to land access restrictions the site not accessed; no survey undertaken. Grassland site with trees and hedgerow. Site was selected on the basis that it could support notable butterflies, stag beetle. Impacts to habitats suitable for these species would be minimal with suitable habitats retained. No further survey required.

ISA 4 – Land north of Ling Road, Diss, Norfolk

4.3.13 A large area of predominantly open fields within the floodplain of the River Waveney.

4.3.14 Floodplain grazing marsh habitat covers most of the ISA. At the time of survey, the fields were generally very boggy and waterlogged from heavy rain, over the winter months, and were heavily poached by livestock movement. The sward is likely to be relatively species-poor and has an appearance of an enriched or fertilised modified grassland from observations of the species that were present on the day of survey, including frequent common nettle (*Urtica dioica*) and thistles (*Cirsium* spp.). A small section of grassland had been identified as *'good quality semi-improved grassland'* from online mapping.

4.3.15 The River Waveney runs through the centre of the floodplain habitat and connects many wet ditches, which are situated along the boundaries of most, if not all, of the fields. Some of the ditches were heavily vegetated with rush, sedge and reeds. The water of the River Waveney was brown in appearance, with a high sediment load, and likely to be nutrient-rich from nearby farming operations. There were areas of bare earth along the banksides, which may be suitable for nesting insects.

4.3.16 There were multiple mature trees along the ditch network including alder (*Alnus gluitinosa*), oak, ash, willow (*Salix* spp.) and poplar (*Populus* spp.). The southern parts of the ISA connect with woodland and scrub habitat, which support a variety of tree species. A large area of woodland associated with Roydon Fen is located to the north of the ISA, and other smaller pockets of woodland and scrub habitat were present in the southern part of ISA 4, which connects to Wortham SSSI to the south. The connectivity of the ISA to other habitats of higher value is good, which increases the value of the floodplain habitat and ditch network across the Survey Area.

4.3.17 The IHP assessment is detailed in Table A8.5.7Table A8.5.7 below.

Table A8.5.7 Invertebrate survey area 4 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	C	C	C	C	D	D	B	D	D

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element

4.3.18 The findings of the IHP assessment indicate that this ISA, although having some lower gradings for some categories, e.g. decaying wood, is well connected to Roydon Fen Nature Reserve and Wortham Ling SSSI. The ISA is therefore perhaps an important area linking the high value habitats of the two nearby designated nature sites and may contribute to supporting an important invertebrate assemblage.

4.3.19 As such, it is possible that ISA 4 may support an important invertebrate assemblage, and therefore it is recommended for further targeted sampling.

Section B

ISA 5 – Land north of Lion Road, Palgrave, Suffolk

4.3.20 An area of set-aside land, surrounded by arable fields and immediately adjacent to woodland habitat.

4.3.21 The Survey Area upon observation, looks largely to be species-poor and likely to be modified grassland. There were patches of bramble scrub and other woody species such as blackthorn and hawthorn on the Survey Area perimeter. Part of the Survey Area was fenced off, for what looks to be a chicken enclosure. An old static caravan was present within the northern part of the Survey Area. Tree species within the boundary vegetation include ash, oak and willow.

4.3.22 The IHP assessment is detailed in Table A8.5.8 below.

Table A8.5.8 Invertebrate survey area 5 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	C	E	D	D	D	D	D	D	D

C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.23 The findings of the IHP assessment indicate that this ISA, although of higher biodiversity value than the adjacent arable land, is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 6 – Land east of Mellis Road, Mellis, Suffolk

4.3.24 An isolated area of woodland habitat, with a pond and a wet ditch, surrounded by arable land.

4.3.25 The woodland was relatively small in extent and located between mainly arable fields in an agricultural landscape. The trees within the woodland were of similar age and species include oak, field maple (*Acer campestre*) and willow. The woodland is connected in a limited way to some hedgerow habitat and other field margins.

4.3.26 The IHP assessment is detailed in Table A8.5.9 below.

Table A8.5.9 Invertebrate survey area 6 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	D	E	D	D	D	D	D	D	D

D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.27 The findings of the IHP assessment indicate that this ISA, although of higher biodiversity value than the adjacent arable land, is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 7 – Land adjacent to Wickham Road, Finningham, Suffolk

4.3.28 An area of plantation woodland off Wickham Road, surrounded by an arable landscape.

4.3.29 The woodland predominantly comprised poplar trees, all trees are of a similar age (roughly 40-50 years), and many were clad in ivy. A watercourse runs through the woodland, a tributary of the River Dove. The watercourse had patches of bramble on its banks and tall herbs (from the previous year) were present. Other ground flora throughout the woodland includes cow parsley (*Anthriscus sylvestris*) and common nettle. A defunct hawthorn hedgerow bounds the woodland to the north, it had been cut low.

4.3.30 The IHP assessment is detailed in Table A8.5.10 below.

Table A8.5.10 Invertebrate survey area 7 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	C	D	C	D	D	D	D	D	E

C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.31 The findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 8 – Land north of Stowmarket Road, Creeting St Peter, Suffolk

4.3.32 Due to land access restrictions, the site was not accessed; no survey undertaken. Grassland site with patches of woodland and trees. Site selected on the basis that it could support notable butterflies and saproxylic beetles, impacts to habitats suitable for these species have been minimised and further survey not required.

ISA 9 – Land south of Badley Lane, Needham Market, Suffolk

4.3.33 Two small areas of predominantly woodland and scrub habitat along a river corridor, surrounded by arable fields.

4.3.34 A set-aside area between arable fields, left uncultivated supporting trees and scrub. Many of the trees were willow and of a good age diversity, some provided deadwood features and still-air niches. Ivy was present on some trees.

4.3.35 The grassland was not cut or grazed and taller in places with tall herbs present and likely to offer some opportunities for pollinators in spring and summer.

4.3.36 The IHP assessment is detailed in Table A8.5.11 below.

Table A8.5.11 Invertebrate survey area 9 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	C	D	D	D	C	D	D	D	C	D	D

C = Moderate Habitat Element, D = Minor Habitat Element

4.3.37 The findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 10 – Land south of Badley Lane, Needham Market, Suffolk

4.3.38 A relatively narrow strip of woodland used for rearing and shooting pheasant (*Phasianus colchicus*) from the evidence at the Survey Area. All or most trees were of a similar age, and virtually no regenerating trees or saplings were present. Some trees were clad in ivy, and at least one tree had fallen on its side providing some decaying wood habitat.

4.3.39 The IHP assessment is detailed in Table A8.5.12 below.

Table A8.5.12 Invertebrate survey area 10 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	D	E	E	D	D	D	D	E	D

D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.40 The findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 11 – Land north of Hascot Hill, Battisford, Suffolk

4.3.41 A line of trees between arable fields, part of which contains a very steep sided wet ditch.

4.3.42 A boundary feature containing trees but not managed as a hedgerow. One of the trees was mature and possibly veteran, but the vast majority were not old and do not possess high-value decaying wood features. Species include ash, oak, hazel and holly (*Ilex aquilifolium*). Some of the trees were clad in ivy and bramble was present in small quantities. A ditch was present within the boundary, part of which is very steep sided, ground flora here included periwinkle (*Vinca* sp.) and dog's-mercury.

4.3.43 The IHP assessment is detailed in Table A8.5.13 below.

Table A8.5.13 Invertebrate survey area 11 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	D	E	D	D	D	D	D	D	D

D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.44 The findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 12 – Land at Hascot Hill, Battisford, Suffolk

4.3.45 The Survey Area is made up of Hascot Hill Road, which has a narrow hedgerow and line of trees either side.

4.3.46 The hedgerow and trees supported several species, including, oak, blackthorn, hawthorn and field maple. These species would provide some limited nectar and pollen resources at certain times of year. Small quantities of fallen deadwood branches were present in places along the hedgerow, but no major sources exist here. There was bramble scrub within the thicker sections of the field margin. The vegetation along the field and road facing sides are likely flailed or cut back on annual basis. A wet ditch was present on the southern side of the road, likely waterlogged due to recent heavy rainfall, but likely dries in the warmer months of the year. No habitat mosaic is present here and distinct ecotones are virtually absent. Some shelter would be provided, again in a limited way and bare earth habitat is virtually absent.

4.3.47 The IHP assessment is detailed in Table A8.5.14 below.

Table A8.5.14 Invertebrate survey area 12 – IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	D	E	E	E	D	D	D	E	E

D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.48 The findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 13 – Land south of Hascot Hill, Battisford, Suffolk

4.3.49 A single hedgerow between two fields used for grazing livestock, part of which has been recently planted, but generally offering very few features to support an important invertebrate assemblage, in and of itself.

4.3.50 The IHP assessment is detailed in Table A8.5.15 below.

Table A8.5.15 Invertebrate survey area 13 – IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	E	D	D	D	E	E	D	D	D	E	E

D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.51 The findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 14 – Land south of Hascot Hill, Battisford, Suffolk

4.3.52 A hedgerow between two large open fields used for grazing livestock. The hedgerow contained a younger component which has been planted recently, had little to no dead and decaying wood, and likely flailed or cut annually by the landowner. The trees and shrubs would blossom and provide nectar for a short window of time, while the surrounding modified grassland would not provide many opportunities for pollinators.

4.3.53 The IHP assessment is detailed in Table A8.5.16 below.

Table A8.5.16 Invertebrate survey area 14 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	D	E	E	E	D	D	D	E	E

D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.54 The findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 15 – Land west of Barking Road, Barking, Suffolk

4.3.55 A sloping area of wooded habitat between arable fields, with a watercourse intersecting and a range of trees and shrubs present.

4.3.56 The Survey Area contained fallen and aerial deadwood throughout, with a variety of tree species, such as oak, ash, hazel, willow, and field maple. The area sloped south and south-west, with some boggy ground nearer to the watercourse and the bottom of the slopes. Although the Survey Area was mostly dominated by trees and some scrub, there was also bracken (*Pteridium aquilinum*) and rough grassland. Evidence of burrowing mammals such as rabbit (*Oryctolagus cuniculus*) and badger (*Meles*

meles) was recorded. The Survey Area is limited in its connectivity and only linked to the wider landscape by tree-lined arable margins and narrow hedgerows, in a predominantly farmed landscape.

4.3.57 The IHP assessment is detailed in Table A8.5.17 below.

Table A8.5.17 Invertebrate survey area 15 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	C	D	C	D	D	D	D	C	D	E	D

C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.58 The findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 16 – Land off Bildeston Road, Offton, Suffolk

4.3.59 An uncultivated field supporting rough grassland to the south of Bildeston Road, a line of trees to the north, and some hedgerow with trees habitat, next to an arable field.

4.3.60 The Survey Area was predominantly an area of rough grassland, to the east of St Mary's Church in Offton. The grassland was relatively species poor and adjacent to an open arable field. A line of trees follows Bildeston Road to the north, along a river corridor, known as The Channel. Almost of all the trees were clad in ivy.

4.3.61 The Survey Area extends along the arable field edge next to a hedgerow associated with a property. The hedgerow was well maintained with species present such as blackthorn and hawthorn. Bramble was also present, and there were several semi-mature trees along its length, one of the trees (an oak) is particularly mature.

4.3.62 The IHP assessment is detailed in Table A8.5.18 below.

Table A8.5.18 Invertebrate survey area 16 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	D	E	D	D	D	D	D	D	E

D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.63 The findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 17 – Land north of Bullen Lane, Bramford, Suffolk

4.3.64 An area of predominantly arable fields to the north of the existing Bramford Substation.

4.3.65 The Survey Area comprised primarily arable land and arable field boundaries, with a hedgerow and tree line along the northern boundary, with a few mature standards and composed of native, common woody species i.e., hawthorn and oak. The arable fields were planted with cereal barley crop.

4.3.66 The field boundaries were relatively well-maintained and short-mown, and include common ruderal species such as thistle, nettles and mayweed.

4.3.67 The IHP assessment is detailed in Table A8.5.19 below.

Table A8.5.19 Invertebrate survey area 17 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	C	D	E	D	E	D	D	D	E	D

C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.68 The findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 18 – Land south of Bullen Lane, Bramford, Suffolk

4.3.69 An area of ancient woodland (Bullen Wood) and vegetated field boundary habitat, adjacent to arable fields and the existing Bramford Substation.

4.3.70 The Survey Area comprised mature deciduous woodland (listed on the ancient woodland inventory) with a mix of native tree species including; oak, ash and hazel. Other tree species include sycamore (*Acer pseudoplatanus*), holly and hornbeam (*Carpinus betulifolius*). The woodland supports a variety of dead and decaying wood niches, such as standing, aerial and fallen deadwood. There is abundant still air micro-habitats within the woodland and some evidence of glades and rides, but generally the woodland is largely closed canopy and cluttered with many regenerating woody species present throughout.

4.3.71 The ISA extends out to the west, around the perimeter of Bramford Substation, following the arable field boundary. Trees and shrubs are present along this boundary, along with abundant bramble and a mix of tall ruderal species, such as hemlock (*Conium maculatum*), hogweed (*Heracleum sphondylium*) and wild teasel (*Dipsacus fullonum*).

4.3.72 The IHP assessment is detailed in Table A8.5.20 below.

Table A8.5.20 Invertebrate survey area 18 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	B	D	C	D	E	D	C	C	C	E	D

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.73 The findings of the IHP assessment indicate that this ISA provides high value habitats (e.g. ancient woodland and parkland) and many beneficial habitat features (e.g. high value dead and decaying wood), which in turn, may support notable, rare, or protected invertebrates.

4.3.74 As such, it is possible the ISA may support an important invertebrate assemblage, and therefore it was recommended for further targeted sampling.

4.3.75 This site was scoped out from further survey work due to minimal potential impacts to this ISA (no significant loss of habitat of potential value to terrestrial invertebrates) as a result of the Project. As such ISA 18 was not taken forward for further targeted sampling.

ISA 19 – Land east of Church Hill, Burstall, Suffolk

4.3.76 An area of ancient woodland (Round Wood and Elms Grove) and parkland habitat with many veteran (and possibly ancient) trees.

4.3.77 The woodland contained many trees with a wide variety of dead and decaying wood features, such as standing, aerial and fallen wood. There was a distinct ride (open linear space) within the woodland (presumably due to the overhead lines), which supported good-quality scrub and woodland edge habitat. The ground flora within the woodland included bluebell (*Hyacinthoides non-scripta*), lords-and-ladies and dog's-mercury. Some trees were clad in ivy, with oak and ash forming the canopy trees and hazel and holly the understorey. Bramble scrub was present. There were areas of standing water within the woodland, as well as muddy, marshy grassland, particularly around the woodland and field edge, which had been exacerbated by recent heavy rainfall. Many micro-climatic / still air niches were present within the ancient woodland.

4.3.78 The parkland formed an area of rough grazing pasture, with several scattered veteran trees, some of which were of an age and contained features that would classify them as possibly ancient trees. The parkland is likely grazed at certain times of year, although no livestock were present during the survey. A wet ditch was present around the perimeter of the parkland. Some of the grassland was partly flooded. One tree had a barn owl (*Tyto alba*) box attached to it, with barn owl present.

4.3.79 The Survey Area is connected to other ancient woodland by hedgerows and open tracks. The open tracks contained bare earth and rutted ground, some of which may be highly suitable for ground-nesting insects. The woodland, scrub, parkland and grassland within the parcel all blend into each other and show good examples of graduation between each i.e. ecoclines.

4.3.80 The IHP assessment is detailed in Table A8.5.21 below.

Table A8.5.21 Invertebrate survey area 19 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	B	C	C	C	D	C	B	B	D	C	C

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element

4.3.81 The findings of the IHP assessment indicate that this ISA provides high value habitats (e.g. ancient woodland and parkland) and many beneficial habitat features (e.g. high value dead and decaying wood), which in turn, may support notable, rare, or protected invertebrates.

4.3.82 As such, it is possible the ISA may support an important invertebrate assemblage, and therefore it is recommended for further targeted sampling.

4.3.83 This site was scoped out from further survey work due to minimal potential impacts to this ISA (no significant loss of habitat of potential value to terrestrial invertebrates) as a result of the Project. As such ISA 19 was not taken forward for further targeted sampling.

Section C

ISA 20 – Land north of Pigeon's Lane, Hintlesham, Suffolk

4.3.84 A large area of multiple habitats including floodplain and grazing marsh, grassland, open mixed scrub on sloping land, hedgerows, lines of trees (some of which are mature with plenty of deadwood) and small areas of woodland and reedbed.

4.3.85 The southern part of ISA 20 was mostly open rough grassland, with patches of scrub and hedgerow habitat. The grassland was grazing pasture, but no livestock were present during the survey. The land sloped in a north-west direction towards a small stream, which during the time of survey had burst its banks and the area was subsequently flooded. This watercourse eventually joins with Belstead Brook further south-west.

4.3.86 The north side of the watercourse within the Survey Area comprised predominantly floodplain grazing marsh, with hedgerows forming the field boundaries, some of which contain large, mature trees. The floodplain grazing marsh was heavily flooded, with many stands of rush present within the sward, but generally considered to be low in botanical species-richness.

4.3.87 The Survey Area extended into the north, into a smaller area to the north-west of Hintlesham fisheries, supporting reedbed habitat, with stands of mature willow trees. Some bramble scrub was present. The most northerly part of this area transitioned into a woodland habitat, with some deadwood features present.

4.3.88 The IHP assessment is detailed in Table A8.5.22 below.

Table A8.5.22 Invertebrate survey area 20 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	C	C	C	B	C	C	D	D	D	C	D

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element

4.3.89 The findings of the IHP assessment indicate that this ISA provides high value habitats (e.g. a mosaic of scrub, woodland floodplain grassland) and several beneficial habitat features (e.g. a variety of wet substrates), which in turn, may support notable, rare, or protected invertebrates.

4.3.90 As such, it is possible the ISA may support an important invertebrate assemblage, and therefore it is recommended for further targeted sampling.

4.3.91 This site was scoped out from further survey work due to minimal potential impacts to this ISA (no significant loss of habitat of potential value to terrestrial invertebrates) as a result of the Project. As such ISA 20 was not taken forward for further targeted sampling.

ISA 21 – Land south-east of Lower Barn Road, Chattisham, Suffolk

4.3.92 An open area of sloping grassland, with a few scattered veteran trees, tree lined boundaries and a watercourse.

4.3.93 The open area of grassland was species-poor, possibly modified, or enriched from historic agricultural use and at the time of survey did not have any grazing livestock present. The Survey Area was like parkland habitat but is not listed as such (from online records). The field boundaries were lined with trees, some of which were mature and / or veteran in appearance. There were two trees along the northern boundary of the Survey Area which were largely dead and supported large quantities of decaying wood. There was a fallen willow tree providing further sources of decaying wood adjacent to the watercourse.

4.3.94 The watercourse was a small brook in the northern part of the Survey Area that crossed the Survey Area in a broadly south to north direction. There was rush and celandine on its banks with patches of bramble. Some of the banksides of the watercourse had bare earth habitat, suitable for ground nesting invertebrates e.g. mining Hymenoptera.

4.3.95 The IHP assessment is detailed in Table A8.5.23 below.

Table A8.5.23 Invertebrate survey area 21 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	B	C	D	D	C	D	D	D	C	D	C

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element

4.3.96 The findings of the IHP assessment indicate that this ISA may support rare, notable or protected invertebrates, due to the high-quality dead and decaying wood habitats present. As such, it is possible the ISA may support an important invertebrate assemblage.

4.3.97 On further review of the construction impacts, the site was scoped out from further survey work due to minimal potential impacts to this ISA (no significant loss of habitat of potential value to terrestrial invertebrates). As such ISA 21 was not taken forward for further targeted sampling.

ISA 22 – Land west of Higham Road, Stratford St Mary, Suffolk

4.3.98 A large area of predominantly floodplain grazing marsh, open water bodies and a watercourse on the border of Essex and Suffolk.

4.3.99 The River Stour corridor crossed the Survey Area which is surrounded by floodplain grazing marsh habitat. The banksides of the river corridor were vegetated with mainly reedbed habitat which grew along the length of the riverbank. There were semi-mature planted trees adjacent to the river along the banksides, mostly willow and alder, only supporting limited dead and decaying wood opportunities. Some of the larger, more mature trees were clad in ivy. Blackthorn scrub was present along the edge of the footpath, flowering at the time of survey.

4.3.100 The open areas of floodplain were very wet and boggy, as a result of recent heavy rainfall in the area. The grassland was species-poor, dominated by common species, such as cock's-foot (*Dactylis glomerata*), false oat-grass (*Arrhenatherum elatius*) and Yorkshire-fog (*Holcus lanatus*), with forb species such as common nettle, common hogweed and cow parsley present.

4.3.101 The IHP assessment is detailed in Table A8.5.24 below.

Table A8.5.24 Invertebrate survey area 22 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	D	C	B	D	D	D	C	E	E

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.102 Although the habitats do provide certain valuable features, such as still and slow-flowing aquatic habitat, and wet substrates that together with the surrounding landscape may provide valuable habitat for invertebrates, particularly those species belonging to the Odonata order of insects, the findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 24 – Land east of Nightingale Hill, Langham, Essex

4.3.103 An area of woodland, grassland and pine woodland plantation next to a large property.

4.3.104 The southern half of the Survey Area comprised semi-natural woodland, with many native deciduous species and some planted non-native trees, such as cherry laurel. A property was located within the centre of the Survey Area which is excluded from the ISA boundary. The woodland connects to the Black Brook River corridor, and also to an adjacent Survey Area (ISA 25). There were some interesting bog-like features on the south-facing sloping land within the woodland, much of which cannot be walked, due to the soft ground giving way underfoot. In areas within the woodland, lacking tree cover, bracken tended to dominate.

4.3.105 The grassland in the northern part of the Survey Area was lowland dry acid grassland, with a short sward due to rabbit grazing. Grassland was dominated by red fescue (*Festuca rubra*), sheep's-fescue (*Festuca ovina*), sheep's sorrel (*Rumex acetosella*) and dove's-foot crane's-bill (*Geranium mollis*), with mosses and lichen, such as *Cladonia portentosa*. There were patches of bare earth suitable for nesting invertebrates.

4.3.106 The landscape within the Survey Area was hilly and comprised areas of different elevation, i.e., the woodland at the bottom of the valley, with bog-like features on the slope of the hill, and a dry acid grassland on the top of the hill, with evident transition in the vegetation from indicators of neutral soil in the lower areas, i.e. nettle and bramble, to indicators of acidic soil conditions in the upper areas, i.e. bracken, sheep's sorrel and lichen. These transitional ecoclines provide a variety of microclimates.

4.3.107 A shelter belt of planted pine trees was present in the northern part of the ISA. The trees here were almost all scots pine (*Pinus sylvestris*) and of a similar age.

4.3.108 The IHP assessment is detailed in Table A8.5.25 below.

Table A8.5.25 Invertebrate survey area 24 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	B	D	C	C	D	D	C	C	C	D	C

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element

4.3.109 The findings of the IHP assessment indicate that this ISA may support rare, notable or protected invertebrates, mainly due to the high-quality dead and decaying wood habitats present.

4.3.110 As such, it is possible the ISA may support an important invertebrate assemblage, and therefore it was recommended for further targeted sampling.

ISA 25 – Land west of Ipswich Road, Langham, Colchester, Essex

4.3.111 A small area of predominantly woodland habitat, part of which consists of planted evergreen trees.

4.3.112 The woodland within the southern portion of the Survey Area was largely deciduous, secondary woodland, with various species of trees present, most of which were willow trees. This area was on a slope, facing south, which at the bottom joined a

large lake waterbody used for hobby fishing, labelled Irrigation Reservoir, which connects with Black Brook. Some still-air niches are likely to exist within the woodland on the slope. Other blocks of woodland habitat surround the site in the wider area.

4.3.113 The IHP assessment is detailed in Table A8.5.26 below.

Table A8.5.26 Invertebrate survey area 25 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	C	D	D	D	D	D	C	D	D

C = Moderate Habitat Element, D = Minor Habitat Element

4.3.114 The dead and decaying wood features are of note and together with the wider surrounding habitats are valuable features, particularly for saproxylic invertebrates. However, the findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys were recommended.

Section D

ISA 26 – Land adjacent to London Road, Little Horkesley, Colchester, Essex

4.3.115 Two fields used for horse grazing, surrounded by woodland and divided in the centre by a hedgerow. The woodland (a 'D' shaped area of the ISA) did have some examples of dead and decaying wood features.

4.3.116 The two horse-grazed fields were fenced around their perimeter. A hedgerow with trees divided the two fields, which supported blackthorn, hawthorn and willow. A gravel track was on the southern edge of the fields.

4.3.117 ISA 26 included a ‘D’ shaped area of woodland habitat, which during the survey was observed and seen to have a few dead and decaying wood features of note, such as an overturned tree trunk and log piles. There was a wet ditch between the gravel track and the woodland to the south. There was woodland in the westernmost part of the ISA which is composed of young, immature plantation woodland trees.

4.3.118 The IHP assessment is detailed in Table A8.5.27 below.

Table A8.5.27 Invertebrate survey area 26 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	C	D	D	D	D	D	C	D	D	E	E

C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.119 The dead and decaying wood features are of note and together with the wider surrounding habitats are valuable features, particularly for saproxylic invertebrates. However, the findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 27 – Land west of Mill Road, Fordham, Colchester, Essex

4.3.120 An area of predominantly willow and poplar woodland within the River Colne corridor.

4.3.121 There were some good examples of fallen and standing dead and decaying wood within the ISA, most of which were large willow trees that were fallen or upright, and dead or in the process of decaying. There was bramble scrub around the edge of the willow and poplar trees. One or two trees are clad in ivy.

4.3.122 The grassland was modified appearance and likely nutrient-rich from adjacent farming practices. The surrounding landscape was dominated by agriculture, with the main connecting habitat being that of the River Colne corridor.

4.3.123 The IHP assessment is detailed in Table A8.5.28 below.

Table A8.5.28 Invertebrate survey area 27 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	C	D	D	D	C	E	D	D	D	D	E

C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.124 The dead and decaying wood features are of note and together with the wider surrounding habitats are valuable features, particularly for saproxylic invertebrates. However, the findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

Section E

ISA 28 – Land west of Coggeshall Road, Feering, Colchester, Essex

4.3.125 A floodplain area with planted trees, scrub and adjacent farmland with fields growing blackcurrant (*Ribes nigrum*) crops.

4.3.126 This ISA is predominantly a floodplain area associated with the River Blackwater, which at the time of survey had been heavily flooded in the week prior the survey, and signs of water saturation within the ground were still evident. There were large willow trees, with one of them fallen on its side, providing a high-quality decaying wood resource. The vegetation comprised reeds, sedges and rushes, with various planted trees, of a relatively young age, although some are mature. There was a

large quantity of blackthorn flower in blossom. Other scrub species included hawthorn and dog-rose (*Rosa canina agg*.).

4.3.127 The Survey Area extended south-west across an area of scattered scrub habitat. The species were predominantly hawthorn and blackthorn shrubs. This scrub habitat surrounded a large reservoir.

4.3.128 A small triangular section of the ISA covered an area of poplar and ash woodland which has developed between the fields. The adjacent fields were planted with commercial blackcurrant crops. The ISA is connected to the River Blackwater corridor.

4.3.129 The IHP assessment is detailed in Table A8.5.29 below.

Table A8.5.29 Invertebrate survey area 28 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	C	C	C	C	B	D	D	D	D	C	D

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element

4.3.130 The findings of the IHP assessment indicate that this ISA may support rare, notable or protected invertebrates, mainly due to the high-quality dead and decaying wood habitats present, but also due to the availability of nectar resources in the area. As such, it is possible the ISA may support an important invertebrate assemblage.

4.3.131 On further review of the construction impacts, the site was scoped out from further survey work due to minimal potential impacts to this ISA (no significant loss of habitat of potential value to terrestrial invertebrates). As such ISA 28 was not taken forward for further targeted sampling.

ISA 29 – Land west of Cressing Road, Witham, Essex

4.3.132 Two areas of predominantly woodland habitat, the western area was associated with a river corridor (the River Brain), and the eastern area was part woodland and part open field likely used for grazing livestock.

4.3.133 The western woodland supported oak, ash, alder and hazel. Ground flora species included colt's-foot (*Tussilago farfara*), ground ivy (*Glechoma hederacea*) and lords-and-ladies. There was dead and decaying wood in the form of fallen tree trunks and logs, with aerial deadwood on some of the larger mature trees. The River Brain corridor had burst its banks due to heavy rainfall and so much of the western area and beyond was flooded. There were stands of mature hazel and alder, as well as poplar along the banksides of the river. Still within the woodland, but outside of the Order Limits, were more mature trees, fallen deadwood, a small brook joining the River Brain and a pond.

4.3.134 The eastern area was mostly wooded and partly flooded (at the time of survey) from heavy rainfall. The area was on a slope facing west, with many large and mature trees, most of which are oak. Modified grassland formed the remaining part of this

area, most likely grazed from its appearance, and generally lacking features of value to invertebrates.

4.3.135 The IHP assessment is detailed in Table A8.5.30 below.

Table A8.5.30 Invertebrate survey area 29 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	B	C	C	D	C	D	D	C	C	D	D

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element

4.3.136 The findings of the IHP assessment indicate that this ISA may support rare, notable or protected invertebrates, mainly due to the high-quality dead and decaying wood habitats present, but also due to the quality of the woodland present and the variety of still-air niches and nectar resources.

4.3.137 As such, it is possible the ISA may support an important invertebrate assemblage, and therefore it is recommended for further targeted sampling.

Section F

ISA 30 – Land south of Mashbury Road, Chelmsford, Essex

4.3.138 A large area of open and exposed grassland on a hill. The area was part of an historic or former landfill site with a small area of woodland to the south.

4.3.139 The neutral grassland had some interesting areas on the south-facing slope, and the lower parts of site which are marshy, with some rushes, sedges and mosses present within the sward. Heavy recent rainfall had left some of this grassland quite boggy in places. The area may be mown frequently throughout the year closely grazed by rabbits (signs of rabbit grazing were evident, in the form of droppings). Spring and summer flowering grassland plants would be present within the sward, but the survey could not identify many species due to the time of year (February). There were hedgerow features along some of the north and south boundaries. Woody species within the hedgerows included blackthorn and hawthorn.

4.3.140 The woodland south of the main grassland area was on a shallow slope facing north-west and composed of trees all of which are similar in age. Tree species included ash, elder (*Sambucus nigra*) and oak, with ground flora including lesser celandine (*Ficaria verna*), ground ivy and colt's-foot. A small stream bordering the woodland to the north flowed into the River Can. Fallen dead and decaying wood was present, with some aerial deadwood. Some shelter and still air niches may exist, but the woodland is limited in its extent and so subsequently still air habitat is also likely to be limited. The woodland is connected to wider landscape by a small tree-lined stream and hedgerow habitat.

4.3.141 The IHP assessment is detailed in Table A8.5.31 below.

Table A8.5.31 Invertebrate survey area 30 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	C	C	D	D	D	D	D	D	E	D

C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.142 The dead and decaying wood features are of note and together with the wider surrounding habitats are valuable features, particularly for saproxylic invertebrates. However, the findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 31 – Land west of Margaretting Road, Chelmsford, Essex

4.3.143 A woodland belt linking two larger areas of woodland together, immediately adjacent to arable fields to the north-west and south-east.

4.3.144 There were plenty of deadwood features throughout woodland, including fallen trees, log-piles, aerial and standing decaying wood features. The trees within the woodland were of different age groups, some younger trees were present, and many older, mature and likely veteran trees also present. Species included oak and ash, many of the trees would flower in spring and early summer, some were clad in ivy which flowers late summer, which would provide nectar at different times of year. Some woodland management likely to take place infrequently by landowner. The woodland did have some minor areas of standing water and wet, muddy substrates present. A wet ditch and stream were present within the woodland. Bare earth habitat was available across the woodland floor, but soil conditions were clay-like, and no sandy substrates were present here. There was plenty of tree cover within the woodland and there is likely to be a variety of still air and humid air niches.

4.3.145 The IHP assessment is detailed in Table A8.5.32 below.

Table A8.5.32 Invertebrate survey area 31 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	B	D	C	D	C	E	C	C	B	D	C

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.146 The findings of the IHP assessment indicate that this ISA may support rare, notable or protected invertebrates, mainly due to the high-quality dead and decaying wood habitats present, and the connectivity to other mixed, deciduous and ancient

woodland habitats nearby. It is possible the ISA may support an important invertebrate assemblage.

4.3.147 On further review of the construction impacts, this site was scoped out from further survey work due to minimal potential impacts to this ISA (no significant loss of habitat of potential value to terrestrial invertebrates). As such ISA 31 was not taken forward for further targeted sampling.

ISA 32 – Land west of Writtle Road, Margaretting, Essex

4.3.148 A minor road leading to a farm with planted mature trees and adjacent to arable fields to the north and south.

4.3.149 Most of the trees were planted mature and veteran horse-chestnut (*Aescullus hippocastanum*), well-managed and exhibiting high quality dead and decaying wood features. The trees appeared to have Tree Preservation Orders (TPO) upon them. There was also oak, holly and some evergreen trees present. The ground flora consists of planted ornamental flowers such as daffodil (*Narcissus* spp.) and snowdrop (*Galanthus nivalis*). There was bramble between the trees and the arable fields and smaller shrubs forming a hedgerow on either side adjacent to the fields.

4.3.150 The IHP assessment is detailed in Table A8.5.33 below.

Table A8.5.33 Invertebrate survey area 32 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	C	D	D	E	E	E	C	D	C	E	D

C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.151 The dead and decaying wood features are of note and together with the wider surrounding habitats are valuable features, particularly for saproxylic invertebrates. However, the findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

ISA 33 – Land north of Ivy Barns Lane, Margaretting, Essex

4.3.152 A relatively small area of uncultivated land surrounded by arable land. Tall herbs (from the year previous) were present within the grassland, such as wild teasel and wild carrot (*Daucus carota*) with patches of bramble. There was an intact hawthorn hedge within thin the Survey Area. Woodland outside of the Survey Area immediately to the east supports a variety of dead and decaying wood features and more interesting habitats features for invertebrates. A large block of blackthorn shrubs was in flower to the east, during the survey.

4.3.153 The gradings of the IHP assessment are detailed in Table A8.5.34 below.

Table A8.5.34 Invertebrate survey area 33 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	D	D	D	E	D	D	D	D	D	D	D

D = Minor Habitat Element, E = Negligible/absent Habitat Element

4.3.154 The habitat is well-connected to woodland and rough grassland to the east which has a variety of dead and decaying wood features of note and together with the wider surrounding habitats are valuable features, particularly for saproxylic invertebrates. However, the findings of the IHP assessment indicate that this ISA is unlikely to support an important invertebrate assemblage intrinsically. As such, no further surveys are recommended.

Section G

ISA 34 – Land south of Old Church Lane, Mountnessing, Essex

4.3.155 A large Survey Area supporting multiple habitat types, including grassland, scrub, woodland, a river and hardstanding.

4.3.156 The southern section comprised predominantly modified grassland of low species richness, likely used for grazing livestock at certain times of year, with no livestock present during the survey. There were several mature trees located along the eastern edge of the field, with some aerial dead and decaying wood evident. A stream crossed through the northern field and along the eastern edge of the southern field. A railway bounds the Survey Area to the south.

4.3.157 The northern section of the Survey Area supported a broader range of habitat types. Rabbit-grazed grassland covered most of the area that was bounded to the west by bramble scrub. A Conrad Energy compound was located immediately south of the river. Another small compound was located just east of the access road, which comprised predominantly of hardstanding with patches of rough grassland. Small trees and shrubs (mostly blackthorn) were present along the boundary of this compound. A newly planted area of plantation woodland was present across the western sections of the Survey Area, named ‘Little Cowbridge Wood’. A sign stated that around 22,734 native tree species had been planted here, including oak, willow and dogwood (*Cornus sanguinea*) amongst others. Recent heavy rains had resulted in standing water covering parts of the plantation, particularly along the footpaths. The river was also quite swollen with high and fast flowing water. Vegetation along the river included mostly blackthorn hedging.

4.3.158 The gradings of the IHP assessment are detailed in Table A8.5.35 below.

Table A8.5.35 Invertebrate survey area 34 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	C	C	C	D	C	B	C	C	D	C	D

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element

4.3.159 The findings of the IHP assessment indicate that this ISA may support rare, notable or protected invertebrates, mainly due to the mosaic of woodland, scrub and grassland habitats present and range of dead and decaying wood features present.

4.3.160 As such, it is possible the ISA may support an important invertebrate assemblage, and therefore it is recommended for further targeted sampling.

4.3.161 This site was scoped out from further survey work due to minimal potential impacts to this ISA (no significant loss of habitat of potential value to terrestrial invertebrates) as a result of the Project. As such ISA 34 was not taken forward for further targeted sampling.

ISA 35 – Land adjacent to the railway, Dunton, Essex

4.3.162 Due to land access restrictions the site not accessed; no survey undertaken. Grassland and scrub, site selected on the basis that it could be of value to butterflies, part of a much larger feature on the side of a railway. Impact to the habitat have been minimised as far as possible with most of the suitable habitat not affected. No further survey required.

Section H

ISA 36 – Land adjacent to Buckingham Hill Road, Orsett, Essex

4.3.163 A very large area supporting multiple habitats but made up predominantly of mixed and scattered scrub on rough, horse-grazed grassland, particularly all the land on the west side of Buckingham Hill Road.

4.3.164 The western half of the ISA was a large area of rough grassland, most of which has been heavily grazed (by a mix of rabbits and horses), on a raised embankment, which had a sloping gradient to the east and west. There were areas of standing water (from recent heavy rains), and the grassland was tussocky and more thatched in places where less grazing has taken place. Scattered scrub was present throughout this area, with many stands of blackthorn, hawthorn and dog-rose as well as numerous patches of bramble observed across the landscape. The scrub was denser along the boundaries of the Survey Area and there were a variety of trees present such as willow, oak and ash. There were some spots of bare ground, composed of sandy soils and the odd instance of a fallen tree, providing some minor decaying wood opportunities.

4.3.165 The eastern part of the ISA (to the east of Buckingham Hill Road) supported predominantly open mosaic habitat, where quarrying activity is taking place. In this area there were many areas of open grassland habitat, with disturbed ground from

quarrying operations, with plenty of bare earth niches, some of which could be highly suitable for nesting insect life. However, the ISA boundary did not extend to the areas of habitat which look to be the most valuable, out to the east.

4.3.166 The southern extents of the ISA cover mainly woodland habitat, which surrounds another quarry (owned by a company named Clearserve). Some of this habitat bordered Orsett Golf Course to the north-west, and part of the Survey Area covered a hedgerow and tree boundary along the golf course northern boundary. The hedgerow supported predominantly hawthorn and blackthorn. There were several large mature trees, which were of a good age and supported a variety of dead and decaying wood features.

4.3.167 The gradings of the IHP assessment are detailed in Table A8.5.36 below.

Table A8.5.36 Invertebrate survey area 36 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	C	D	C	D	D	C	D	D	C	C	B

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element

4.3.168 The findings of the IHP assessment indicate that this ISA may support rare, notable or protected invertebrates, mainly due to the sheer size of the ISA which covers a large area of scrubland and grassland, but also pockets of woodland with large mature and veteran trees present. The open mosaic habitat also adds value, with sandy bare earth features which are likely to be used by nesting insects. It is possible the ISA may support an important invertebrate assemblage.

4.3.169 On further review of the construction impacts, the site was scoped out from further survey work due to minimal potential impacts to this ISA (no significant loss of habitat of potential value to terrestrial invertebrates). As such ISA 36 was not taken forward for further targeted sampling.

ISA 37 – Land at Rainbow Wood and Ashen Shaw

4.3.170 Two areas of woodland known as Rainbow Wood and Ashen Shaw[1], to the north-west of Holford Road.

4.3.171 Rainbow Wood is the larger of the two woodlands, it supported a variety of trees of different ages, some of which are quite mature, possibly veteran with good examples of dead and decaying wood throughout the woodland. Species include oak, ash and hazel, with ground flora species such as bluebell, lords-and-ladies and common nettle. Many trees here are clad in ivy, and patches of bramble particularly along the western-facing woodland edge. There are likely to be many still-air niches and humid air traps within the woodland in the warmer months of the year.

[1] Rainbow Wood and Ashen Wood are not mapped as ancient woodland on the national ancient woodland inventory, however, surveys undertaken for the Lower Thames Crossing project determined that these woodlands were ancient woodland

4.3.172 Ashen Shaw is located to the west of Rainbow Wood and is the smaller of the two woodland habitats. The woodland supported a variety of deadwood features and ivy clad trees, although not as many examples as Rainbow Wood. There was a wet ditch along its eastern boundary which culminates in a wet, boggy area and a small pond in its north-eastern corner.

4.3.173 There was a footpath linking the two woodlands to the south which features many stands of Alexanders (*Smyrnium olusatrum*), which during the survey, was in flower and several solitary bees were observed visiting the flowers.

4.3.174 The gradings of the IHP assessment are detailed in Table A8.5.37 below.

Table A8.5.37 Invertebrate survey area 37 - IHP assessment results

Habitat Element	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
IHP Grading	B	D	C	D	D	D	C	C	D	D	D

B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element

4.3.175 The findings of the IHP assessment indicate that this ISA provides high value habitats (e.g. ancient woodland and parkland) and many beneficial habitat features (e.g. high value dead and decaying wood), which in turn, may support notable, rare, or protected invertebrates. It is possible the ISA may support an important invertebrate assemblage.

4.3.176 On further review of the construction impacts, the site was scoped out from further survey work due to minimal potential impacts to this ISA (no significant loss of habitat of potential value to terrestrial invertebrates). As such ISA 37 was not taken forward for further targeted sampling.

4.4 Invertebrate Habitat Potential Survey Summary

4.4.1 A summary of the ISAs identified during the desk study stage, taken forward for IHP assessment and targeted sampling are provided in Table A8.5.38 below. The surveys were undertaken in February, March, May and July 2024. Full details of the IHP results can be found in Annex A.

Table A8.5.38 Invertebrate habitat potential survey site summary

	Identified at Desk Study Stage	IHP Assessment	Proposed for Targeted Sampling	Sites Taken Forward for Targeted Survey Following Review of Construction Impacts
Invertebrate Survey Area Number	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 and 37	1, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36 and 37	1, 4, 18, 19, 20, 21, 24, 28, 29, 31, 34, 36 and 37	4, 24 and 29

4.5 Invertebrate Species Assemblage

4.5.1 The following Survey Areas were subject to further targeted sampling following a review of the construction impacts as a result of the Project. Survey locations are shown on Figure A8.5.3: Terrestrial Invertebrate Targeted Sampling Survey Location in Annex B.

ISA 4 - Land north of Ling Road, Diss, Norfolk (Section A)

4.5.2 The results of the targeted terrestrial invertebrate surveys provide an indication of the relative species diversity within the targeted groups of invertebrates. Over 180 specimens were collected or recorded over the course of the surveys, allowing 148 species to be identified from ISA 4.

4.5.3 Of the target groups, Coleoptera was the dominant order, with 62 species recorded. Lepidoptera was the second most recorded order with 30 species recorded; Hemiptera was represented by 14 species; Hymenoptera was represented by 13 species and Diptera by 10 species.

4.5.4 Of the species recorded, 118 (approximately 80 %) are without any recognised conservation status, being widely distributed and common, and exhibiting little habitat specificity; and 23 species (approximately 15 %) are regarded as locally common or locally scarce. A total of 7 of the species recorded (approximately 5 %) are currently regarded as Nationally Rare or Scarce. The full list of invertebrates recorded within ISA 4 is displayed in tabular format in Annex D. Further information on status definitions and criteria of invertebrate groups, detailed below, can be found in Annex F.

4.5.5 Further information relating to species which were recorded with an assessed status, is provided below.

Coleoptera (beetles)

Carabidae (ground beetles) - Amara montivaga

UK Status: Nationally Scarce, International Union for Conservation of Nature (IUCN) Least Concern

4.5.6 According to Duff, A.G. (2012) this species is typically found in litter on dry sandy or calcareous soils with ruderal vegetation between March and December. It is local to very local in south-east, east and south-west England, central Wales and Scotland. The surveyed area seems to be stronghold for the species.

4.5.7 This beetle was previously without a conservation status but has recently been reviewed and upgraded in Telfer, M.G. (2016).

4.5.8 One specimen was identified from a pan trap sample dated 17 May 2024.

Curculionidae (true weevils) - Oxeye Daisy Weevil Microplontus campestris

UK Status: Nationally Scarce [NbB]

4.5.9 This species can be found on oxeye daisy Leucanthemum vulgare between April and August and is widely distributed but local in central and southern England (Duff, A.G. (2016) .

4.5.10 One specimen was identified from a sweep/beat sample dated 03 July 2024.

Nitidulidae (sap beetles) - Cryptarcha strigata

UK Status: Nationally Scarce

4.5.11 This species is usually found at sap runs, particularly those caused by *Cossus* goat moth larvae, under bark or occasionally on fungi in broad-leaved woodland. Recorded from most months of the year and local in north-west, central & south-eastern England and generally scarce (Duff, A.G. (2020). Listed as a saproxylic species in Alexander (2004) but without a Continuity Grade.

4.5.12 One specimen was identified from a pitfall trap sample dated 26 September 2024.

Diptera (true flies)

Asilidae (robber flies) - Spring Heath Robberfly Lasiopogon cinctus

UK Status: Nationally Scarce

4.5.13 According to the website of the Soldier Flies and Allies Recording Scheme (CEH, 2021) this stout species can be found in '*any sandy heathland, dune system or other sandy habitat. Look for sheltered spots and south-facing banks with bare ground or stones for basking. Although Surrey has the greatest number of records, there are scattered sites in many counties across England and Wales and the blank areas on*

the map may represent under-recording more than absence'. The map on the site shows several records in the area surveyed[2].

4.5.14 One specimen was identified from a pan trap sample dated 17 May 2024.

Hymenoptera (bees, wasps, ants & sawflies)

Apidae (bees) - Blue Carpenter Bee Ceratina cyanea

UK Status: Red Data Book 3 (RDB3)

4.5.15 This small but distinctively bluish bee was regarded as very rare, then found to be quite common in some areas of south-east England[3].

4.5.16 It has been recorded from south facing chalk escarpments, heathland and disused sand quarries. Females excavate nesting burrows in dead, dry, broken woody or herbaceous stems, typically in bramble *Rubus fruticosus* agg. It feeds on a wide variety of flowers including bulbous buttercup *Ranunculus bulbosus*, tormentil *Potentilla erecta*, burnet rose *Rosa spinosissima*, thyme *Thymus* sp., wild basil *Clinopodium vulgare* and rough hawkbit *Leontodon hispidus*.

4.5.17 Three specimens in total identified from a pan trap and sweep/beat samples dated 03 July 2024.

Crabronidae (wasps) - Bee Wolf Philanthus Triangulum

UK Status: Nationally Rare

4.5.18 The relevant Bees, Wasps & Ants Recording Society (BWARS) page has '*less than 20 years ago, this magnificent wasp, was considered to be one of the great aculeate rarities in Britain. Records for the last few years indicate that currently the species is locally common to abundant in a steadily increasing number of sites in southern England. It was regarded as Vulnerable in Falk (*Falk, S. (1991) *and* Falk, S. (1991a)*). In view of the recent expansion of its range, this status should be revised*'.

4.5.19 It is usually found in '*sand dunes and lowland heaths although nesting aggregations have recently been found in a park in Ipswich, Suffolk, and on the Battersea Bridge roundabout, Greater London*'.

4.5.20 One was observed during daylight hours, out in the field in the southern portion of the ISA, bordering Wortham Ling.

Mellitidae (blunthorn bees) - Pantaloon Bee Dasypoda hirtipes

UK Status: Nationally Scarce [Nb]

4.5.21 This distinctive species appears to be largely coastal, preferring sandy heaths and dunes. Females dig long burrows in sparsely vegetated level ground between late June and early September and some sites may contain large nest aggregations. It is known to visit various yellow Asteraceae flowers.

[2] [online] Available at: https://soldierflies.brc.ac.uk/spring_heath

[3] [online] Available at: https://bwars.com/bee/apidae/ceratina-cyanea

4.5.22 One was observed during daylight hours, out in the field in the southern portion of the ISA, bordering Wortham Ling.

Zygaenidae (burnet moths) - The Forester Adscita statices

UK Status: Section 41 Species of Principal Importance (SPI) in England

4.5.23 Superficially similar to the Scarce Forester *A. globulariae* and Cistus Forester *A. geryon*, care being needed to separate these species. Often found feeding at flowers, such as those of Devil's-bit Scabious, Field Scabious and Marsh Thistle.

4.5.24 Overwinters as a larva. At first mines the leaves, then feeding exposed on the lower leaves. Pupates in a cocoon spun near the ground and concealed amongst vegetation.

4.5.25 One species was observed during the daytime visiting ragwort on Site.

ISA 24 - Land east of Nightingale Hill, Langham, Essex (Section C)

4.5.26 The results of the targeted terrestrial invertebrate surveys provide an indication of the relative species diversity within the targeted groups of invertebrates. Over 200 specimens were collected or recorded over the course of the surveys, allowing 166 species to be identified from ISA 24.

4.5.27 Of the target groups, Coleoptera was the dominant order, with 68 species recorded. Hymenoptera was the second most recorded order with 37 species recorded; Hemiptera was represented by 18 species; Lepidoptera was represented by 11 species, Diptera by eight species and Orthoptera by three species.

4.5.28 Of the species recorded, 133 (approximately 80 %) are without any recognised conservation status, being widely distributed and common, and exhibiting little habitat specificity; and 20 species (approximately 12 %) are regarded as locally common or locally scarce. A total of 12 of the species recorded (approximately 7 %) are currently regarded as Nationally Rare or Scarce. The full list of invertebrates recorded within the Survey Area is displayed in tabular format in Annex D. Further information on status definitions and criteria of invertebrate groups can be found in Annex G.

4.5.29 Further information relating to species which were recorded with an assessed status, is provided below.

Coleoptera (beetles)

Carabidae (ground beetles) - Amara montivaga

UK Status: Nationally Scarce, IUCN Least Concern

4.5.30 According to Duff, A.G. (2012) this species is typically found in litter on dry sandy or calcareous soils with ruderal vegetation between March and December. It is local to very local in south-east, east and south-west England, central Wales and Scotland. The surveyed area seems to be stronghold for the species.

4.5.31 This beetle was previously without a conservation status but has recently been reviewed and upgraded in Telfer, M.G. (2016).

4.5.32 One specimen was identified from a pan trap sample dated 09 August 2024.

Rhynchitidae (tooth-nosed snout weevils) - Lasiorhynchites cavifrons

UK Status: Nationally Scarce [Nb]

4.5.33 According to Duff, A.G. (2016) this is usually found on Quercus oak species and only adventitiously on other trees, in broad-leaved woodland. It has been recorded between April and August and is local in central and south-west England and very local in the rest of England and Wales widely distributed but local in central and southern England.

4.5.34 One specimen was identified from a pitfall trap sample dated 31 May 2024.

Hymenoptera (bees, wasps, ants & sawflies)

Andrenidae (mining bees) - Red-backed Mining Bee Andrena russula

UK Status: Nationally Scarce [Nb]

4.5.35 Falk has this species [as *A. similis*] as scarce and widespread in the southern half of Britain. It can be found in a variety of legume-rich habitats such as calcareous grassland and soft rock cliffs. It is rarely numerous at a site and has apparently declined (Falk, S. (2015)).

4.5.36 One specimen identified from a pan trap sample dated 15 May 2024.

Chrysididae (jewel wasps) - Hedychrum niemelai

UK Status: Nationally Rare [RDB3]

4.5.37 This species has been recorded widely across south-east and south-west England with many records in Norfolk.

4.5.38 Prefers disturbed open sandy localities such as lowland heaths, coastal dunes, cliffs with sandy deposits, sandpits, footpaths and railway cuttings. It is known to feed on clary Salvia spp., goldenrod *Solidago virgaurea*, woundwort *Stachys* spp., and yarrow *Achillea millefolium*.

4.5.39 It is extremely similar to, and only recently separated from, *Hedychrum nobile*.

4.5.40 Four specimens were identified from a pan trap sample dated 09 August 2024 and a sweep / beat sample dated 27 September 2024.

Crabronidae (digger or sand wasps) - Small-spurred Digger Wasp Nysson dimidiatus

UK Status: Nationally Scarce [Nb]

4.5.41 This distinctive wasp has been recorded widely across England and Wales as far north as Yorkshire, is very scarce in most districts and never been regarded as common in the past (BWARS).

4.5.42 A kleptoparasite of the crabronid wasp *Harpactus tumidus* (Panzer) and found in habitats favoured by its host such as sparsely-vegetated or short-cropped areas on

dry sandy or clayey soils fully exposed to the sun such as heathland and coastal dunes and has been recorded between June and September.

4.5.43 One specimen was identified from a pan trap sample dated 09 August 2024.

Crabronidae (digger or sand wasps) - Nysson trimaculatus

UK Status: Nationally Scarce [Nb]

4.5.44 This species has been recorded widely across England as far north as Yorkshire, from where it was unrecorded in the 1970's. It is a kleptoparasite of several *Gorytes* species of wasp, but is often scarcer than the hosts. It tends to be found in open habitats '*on light soils, including heathland, dry grassland and scrub and soft rock cliffs, quarries and other post-industrial sites and occasionally heavily urbanised locations' on sparsely-vegetated ground or low herbage*' (BWARS) from early June to early September.

4.5.45 Three specimens were identified from a pan trap sample dated 09 August 2024.

Formicidae (ants) - Brown Tree Ant Lasius brunneus

UK Status: UK Status: Nationally Scarce [Na]

4.5.46 According to the BWARS account *'within its current range, it is now locally common and easy to find. Although found in other trees, occasionally in dead wood and even in the timber of buildings, L. brunneus seems to prefer living oak (Quercus sp.) and in particularly large, old trees with some damaged parts. In fact, in areas where it is now common, it is hard to find a tree of this type without finding some L. brunneus workers scurrying deep in the crevices of the bark'.* This suggests that the ant would be downgraded in a future review.

4.5.47 One specimen (worker caste) was identified from a pitfall trap sample dated 28 August 2024.

Halictidae (base-banded furrow bees) - Sharp-collared Furrow Bee Lasioglossum malachurum

UK Status: Nationally Scarce [Nb]

4.5.48 This species was regarded as scarce but is now widespread in southern England and extending its range into the midlands. It can be very numerous, forming huge colonies along well-trodden paths and sparsely vegetated south facing slopes (Falk, S. (2015)).

4.5.49 Due to the large number of recent records, the bee does not deserve its current status derived from Falk (Falk, S. (1991) and Falk, S. (1991a)) and is likely to be downgraded in any future review. The BWARS site shows many records and comments '*this species is not regarded as being scarce or threatened*'.

4.5.50 Five specimens were identified from a pan trap sample dated 15 May 2024.

Halictidae (base-banded furrow bees) - Lobe-spurred Furrow Bee Lasioglossum pauxillum

UK Status: Nationally Scarce [Na]

4.5.51 Although formerly regarded as scarce this small bee is now one of the most common *Lasioglossum* species in southern England (Falk, S. (2015)) and has been recorded as far as Yorkshire.

4.5.52 It can be found in a range of open habitats, favouring chalk downland and calcareous brownfield sites (Falk, S. (2015)) and visits plants of various families including buttercups, Asteraceae and blackthorn. Due to the large number of recent records, the bee does not deserve its current status and is likely to be downgraded in any future review.

4.5.53 Two specimens were identified from a pan trap sample dated 19 August 2024.

Halictidae (base-banded furrow bees) - Four-spotted Furrow Bee Lasioglossum quadrinotatum

UK Status: Nationally Scarce [Na]

4.5.54 This species is considered widespread across England but most records from the south and south-east, with many records from Norfolk. It can be found on heathland, open woodland and calcareous grassland. It visits various flowers especially Asteraceae.

4.5.55 Five specimens were identified from a pan trap sample dated 15 May 2024.

Halictidae (base-banded furrow bees) - Little Sickle-jawed Blood Bee Sphecodes longulus

UK Status: Nationally Scarce [Na]

4.5.56 One of the smallest members of a genus of bees that are parasitoids of other small bees. This species preys on Lasioglossum species such as *L. leucopus* and *L. morio*, both of which are recorded from the site. Found in a wide variety of open sandy habitats including heathland, acid grassland, soft rock cliffs and sandpits and very scarce and local in south-east England and south Wales. It visits flowers of Apiaceae and Asteraceae (Falk, S. (2015)).

4.5.57 One specimen was recorded from a pan trap sample dated 09 August 2024.

Vespidae (social wasps) - Median Wasp Dolichovespula media

UK Status: Nationally Scarce [Na]

4.5.58 This large wasp was recorded new to the UK in 1980. Although Pantheon and the National Biodiversity Network (NBN) Atlas show it as being Nationally Scarce the BWARS site says '*this species is now quite common and widely distributed so that the statuses allocated in Shirt (1987) - RDB3, and Falk (Falk, S. (1991) and Falk, S. (1991a)) - Na, no longer apply*'. Now it is '*virtually ubiquitous in lowland areas, though the majority of nest records are from private gardens, sometimes in large cities*'.

4.5.59 One specimen was identified from a pitfall trap sample dated 27 September 2024.

Nymphalidae (brush-footed butterflies) - Small Heath Coenonympha pamphilus

UK Status: Vulnerable (VU)

4.5.60 This relatively widespread butterfly can occupy a range of habitat types and, although its range has changed little, many colonies have disappeared in recent decades. Widespread in Britain and Ireland.

4.5.61 Several species were observed during targeted sampling surveys on Site.

ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)

4.5.62 The results of the targeted terrestrial invertebrate surveys provide an indication of the relative species diversity within the targeted groups of invertebrates. Over 190 specimens were collected or recorded over the course of the surveys, allowing 144 species to be identified from ISA 29.

4.5.63 Of the target groups, Coleoptera was the dominant order, with 65 species recorded. Hemiptera was the second most recorded order with 20 species recorded; Diptera and Lepidoptera were both represented by 14 species, Hymenoptera represented by 11 species and Orthoptera by three species.

4.5.64 Of the species recorded, 115 (approximately. 80 %) are without any recognised conservation status, being widely distributed and common, and exhibiting little habitat specificity; and 24 species (approximately 17 %) are regarded as locally common or locally scarce. A total of 4 of the species recorded (approximately 3 %) are currently regarded as Nationally Rare or Scarce. The full list of invertebrates recorded within the Survey Area is displayed in tabular format in Annex D. Further information on status definitions and criteria of invertebrate groups can be found in Annex G.

4.5.65 Further information relating to species which were recorded with an assessed status, is provided below.

Coleoptera (beetles)

Curculionidae (true weevils) - Liparus coronatus

UK Status: Nationally Scarce [Nb]

4.5.66 According to Duff, A.G. (2012) this species is typically found '*on the roots of cow parsley Anthriscus sylvestris and possibly other Apiaceae, in open grassland, often on calcareous soils*'. It has been recorded between April and August and is '*local in south-east England, very local in the rest of England and south Wales*'.

4.5.67 One specimen identified from a sweep / beat sample dated 14 May 2024.

Hymenoptera (bees, wasps, ants and sawflies)

Formicidae (ants) - Brown Tree Ant Lasius brunneus

UK Status: Nationally Scarce [Na]

4.5.68 According to the BWARS account *'within its current range, it is now locally common and easy to find*. *Although found in other trees, occasionally in dead wood, L. brunneus seems to prefer living oak (Quercus sp.) particularly large, old trees with some damaged parts. In areas where it is now common, it is hard to find a tree of this type without finding some L. brunneus'.* This suggests that the ant would be downgraded in a future review.

4.5.69 One specimen (worker caste) was identified from a pitfall sample dated 28 August 2024.

Halictidae (base-banded furrow bees) - Lobe-spurred Furrow Bee Lasioglossum pauxillum

UK Status: Nationally Scarce [Na]

4.5.70 Although formerly regarded as scarce this small bee is now one of the most common *Lasioglossum* species in southern England (Falk, S. (2015)) and has been recorded as far as Yorkshire.

4.5.71 It can be found in a range of open habitats, favouring chalk downland and calcareous brownfield sites (Falk, S. (2015)) and visits plants of various families including buttercups, Asteraceae and blackthorn. Due to the large number of recent records, the bee does not deserve its current status and is likely to be downgraded in any future review.

4.5.72 Four specimens were identified from a sweep sample dated 07 August 2024 and a pan trap sample dated 08 August 2024.

Vespidae (social wasps) - Median Wasp Dolichovespula media

UK Status: Nationally Scarce [Na]

4.5.73 This large wasp was recorded new to the UK in 1980. Although Pantheon and the NBN Atlas show it as being Nationally Scarce the BWARS site says '*this species is now quite common and widely distributed so that the statuses allocated in Shirt (1987) - RDB3, and Falk (Falk, S. (1991) and Falk, S. (1991a)) - Na, no longer apply'*. Now it is '*virtually ubiquitous in lowland areas, though the majority of nest records are from private gardens, sometimes in large cities*'.

4.5.74 One specimen was identified from a pitfall trap sample dated 27 September 2024.

4.6 Pantheon Analysis

4.6.1 The following presents the results of the Pantheon Analysis at the Survey Areas which were subject to further targeted survey.

4.6.2 The Pantheon analysis of the species list adds weight to the suggestion that the value of ISA 4 is within its open habitats and to a lesser extent, the tree-associated habitats.

4.6.3 On a landscape (broad biotope) level, the greatest number of recorded species by far was attributed to the *'Open habitats'* classification, with 95 recognised species. 28 and six species were *'tree-associated'* and '*wetland-associated'* respectively. Proportionately, the *'Open habitats'* classification supports a greater number of species than both of the other two assemblages combined in terms of the national pool of species attributed in the Pantheon database. However, the representation of this entire species pool, was 2% percent compared to <1% of the national species pools represented from the survey data for the wetland and tree-associated assemblages, respectively at a biotope level. See Table A8.5.39 below.

Table A8.5.39 ISA 4 Broad biotopes

Broad Biotope	No. of Species	% Representation	SQI	Species with Conservation Status	Conservation Status
Open habitats	95	2	113	8	2 NS; 1 S41 PS – research only; 1 [RDB 3]; 2 [Nb]; 1 [RDB 2]; 1 S41 PS
Tree-associated	28	<1	111	1	1 Nb
Wetland	6	<1	100	-	-

4.6.4 On the Pantheon *'habitat'* level tier, there were only two assemblages attributed with enough species recognised in ISIS to be considered robust. 72 species were attributed to the *'tall sward and scrub'* assemblage, which includes species associated with taller grassland and scrub edge habitats. 23 species were attributed to the *'short sward and bare ground'* assemblage.

4.6.5 Of these habitat level assemblages, *'tall sward and scrub'* assemblage supported a fauna of relatively high conservation value with a SQI score of 104. If compared with the threshold score set in ISIS for an assemblage to be considered in *'Favourable Condition'* (FC), i.e. equivalent to an assemblage of National importance, a score of 104 falls short of the threshold target of 160.

4.6.6 The score for the *'short sward and bare ground'* assemblage of 139, against an FC target of 160, also indicate an assemblage of some conservation value, even if the threshold score for an assemblage of national importance was not reached. See Table A8.5.40 below.

Table A8.5.40 ISA 4 habitats

Broad Biotope	Habitat	No. of Species	% Representation	SQI	Species with Conservation Status	Conservation Status
Open habitats	Tall sward and scrub	72	3	104	3	1 S41 PS – research only; 1 [RDB 3]; 1 S41 PS
Open habitats	Short sward and bare ground	23	2	139	5	2 NS; 2 [Nb]; 1 [RDB 2]
Tree-associated	Arboreal	13	<1	100	-	-
Tree-associated	Decaying wood	8	<1	138	1	1 Nb
Tree-associated	Shaded woodland floor	8	<1	100	-	-
Wetland	Marshland	4	<1	100	-	-
Wetland	Acid and sedge peats	2	<1	100	-	-

4.6.7 In conservation assessment SATs are generally regarded as the most valuable metrics for assessing site quality. This is because SATs are made up of species with a high degree of habitat specialisation. Such species tend to be both uncommon and representative of sites supporting habitat of quality in terms of conservation value. However, SATs often require targeted sampling of specific habitat features and are not always well represented in broad-brushstroke surveys designed to gain an overall, or baseline assessment of a site's value.

4.6.8 Of the output from Pantheon, the SAT with the highest SQI was '*scrub edge',* although the number of species associated was not quite high enough to provide a reliable SQI result. The Other SAT (with the same number of species associated) is *'rich flower resource'*. See Table A8.5.41 below.

Table A8.5.41 ISA 4 specific assemblage types

Broad Biotope / Habitat/ SAT	No. of Species	% Representation	SQI	Species with Conservation Status	Conservation Status	Code	Reported Condition
Open habitats scrub edge	8	4	138	1	1 NS	F001	Unfavourable (8 species, 11 required)
Open habitats rich flower resource	8	3	138	2	1 [RDB 3]; 1 [Nb]	F002	Unfavourable (8 species, 15 required)
Tree-associated decaying wood bark and sapwood decay	6	1	150	1	1 Nb	A212	Unfavourable (6 species, 19 required)
Open habitats short sward and bare ground bare sand and chalk	6	1	200	3	1 [Nb]; 2 NS	F111	Unfavourable (6 species, 19 required)
Open habitats scrub-heath and moorland	2	<1	100	-	-	F003	Unfavourable (2 species, 9 required)
Open habitats short sward and bare ground open short sward	2	1	100	-	-	F112	Unfavourable (2 species, 13 required)

ISA 24 - Land east of Nightingale Hill, Langham, Essex (Section C)

4.6.9 The Pantheon analysis of the species list adds weight to the suggestion that the value of ISA 24 is within its open habitats and to a lesser extent, the tree-associated habitats.

4.6.10 On a landscape (broad biotope) level, the greatest number of recorded species by far was attributed to the *'Open habitats'* classification, with 112 recognised species.

4.6.11 Furthermore, 31, eight and one species were *'tree-associated', 'wetland-associated' and 'shaded woodland floor-associated'* respectively. Proportionately, the *'Open habitats'* classification supports a greater number of species than the other three assemblages combined in terms of the national pool of species attributed in the Pantheon database. However, the representation of this entire species pool, was 3% percent compared to <1% of the national species pools represented from the survey data for the wetland and tree-associated assemblages, respectively at a biotope level. See Table A8.5.42 below.

Table A8.5.42 ISA 24 broad biotopes

Broad Biotope	No. of Species	% Representation	SQI	Species with Conservation Status	Conservation Status
Open habitats	112	3	113	12	1 RDB 3; 1 S41 PS – research only; 1Nb; 4[Na]; 1 NS; 1 S41 PS; 1 VU; 2 [Nb]; 1 [RDB 3]
Tree-associated	31	<1	119	4	2 [Na]; 1 [Nb]; 1 Nb
Wetland	8	<1	100	-	-
Shaded woodland floor	1	33	100	-	-

4.6.12 On the Pantheon 'habitat' level tier, there were only two assemblages attributed with enough species recognised in ISIS to be considered robust. 75 species were attributed to the *'tall sward and scrub'* assemblage, which includes species associated with taller grassland and scrub edge habitats. 35 species were attributed to the 'short sward and bare ground' assemblage.

4.6.13 Of these habitat level assemblages*, 'tall sward and scrub'* assemblage supported a fauna of relatively high conservation value with a SQI score of 100. If compared with the threshold score set in ISIS for an assemblage to be considered in FC, i.e. equivalent to an assemblage of National importance, a score of 100 falls short of the threshold target of 160.

4.6.14 However, the score for the '*short sward and bare ground'* assemblage was higher at 142, against an FC target of 160, which also indicates an assemblage of some conservation value, even if the threshold score for an assemblage of national importance was not reached. See Table A8.5.43 below.

Table A8.5.43 ISA 24 habitats

Broad Biotope/ Habitat	No. of Species	% Representation	SQI	Species with Conservation Status	Conservation Status
Open habitats tall sward and scrub	75	3	100	2	1 RDB 3; 1 S41 PS – research only
Open habitats short sward and bare ground	35	3	142	10	1 S41 PS; 1 VU; 1 NS; 2 [Nb]; 1 [RDB 3]; 3 [Na]; 1 RDB 3; 1 Nb
Tree-associated shaded woodland floor	13	1	100	1	1 [Nb]
Tree-associated arborea	11	<1	127	2	1 [Na]; 1 Nb
Tree-associated decaying wood	8	<1	138	1	1 [Na]
Wetland marshland	4	<1	100	-	-
Wetland acid and sedge peats	3	<1	100	-	-
Wetland running water	1	<1	100	-	-
Tree-associated wet woodland	1	<1	100	-	-
Open habitats upland	1	<1	100	-	-

4.6.15 In conservation assessment SATs are generally regarded as the most valuable metrics for assessing site quality. This is because SATs are made up of species with a high degree of habitat specialisation. Such species tend to be both uncommon and representative of sites supporting habitat of quality in terms of conservation value. However, SATs often require targeted sampling of specific habitat features and are not always well represented in broad-brushstroke surveys designed to gain an overall, or baseline assessment of a site's value.

4.6.16 Of the output from Pantheon, the only SAT which has generated a *'Reported Condition'* of *'Favourable'* was the *'rich flower resource'*. This assemblage was

represented by 19 species (which has reached the threshold of 15 required) and generated an SQI score of 132, which can be considered a reliable SQI result. See Table A8.5.44 below.

Table A8.5.44 ISA 24 specific assemblage types

Broad Biotope/ Habitat/ SAT	No. of Species	% Representation	SQI	Species with Conservation Status	Conservation Status	Code	Reported Condition
Open habitats rich flower resource	19	8	132	5	2 [Na]; 1 Nb; 1 RDB 3; 1 [Nb]	F002	Favourable (19 species, 15 required)
Open habitats scrub edge	6	3	100	1	1 Na	F001	Unfavourable (6 species, 11 required)
Open habitats short sward and bare ground bare sand and chalk	6	1	143	1	1 NS	F111	Unfavourable (6 species, 19 required)
Tree-associated decaying wood heartwood decay	3	2	200	1	1 [Na]	A211	Unfavourable (3 species, 6 required)
Tree-associated decaying wood bark and sapwood decay	3	<1	100	-		A212	Unfavourable (3 species, 19 required)
Open habitats short sward and bare ground open short sward	3	2	100	1	1 S41 PS; 1 VU	F112	Unfavourable (3 species, 13 required)

ISA 29 - Land west of Cressing Road, Witham, Essex

4.6.17 The Pantheon analysis of the species list adds weight to the suggestion that the value of ISA 24 is within its open habitats and to a lesser extent, the tree-associated habitats.

4.6.18 On a landscape (broad biotope) level, the greatest number of recorded species by far was attributed to the '*Open habitats'* classification, with 82 recognised species.

4.6.19 Furthermore, 32, 15 and one species *were 'tree-associated', 'wetland-associated'* and *'shaded woodland floor-associated'* respectively. Proportionately, the *'Open habitats'* classification supports a greater number of species than the other three assemblages combined in terms of the national pool of species attributed in the Pantheon database. However, the representation of this entire species pool, was 2% percent compared to <1% of the national species pools represented from the survey data for the wetland and tree-associated assemblages, respectively at a biotope level. See Table A8.5.45 below.

Table A8.5.45 ISA 29 broad biotopes

Broad Biotope	No. of Species	% Representation	SQI	Species with Conservation Status	Conservation Status
Open habitats	82	2	104	3	2 [Na]; 1 Nb
Tree-associated	32	<1	109	3	1 S41 PS – research only; 2 [Na]
Wetland	15	<1	100	-	-
Shaded woodland floor	1	33	100	-	-

4.6.20 On the Pantheon *'habitat'* level tier, only one assemblage was attributed with enough species recognised in ISIS to be considered robust. 66 species were attributed to the 'tall sward and scrub' assemblage, which includes species associated with taller grassland and scrub edge habitats.

4.6.21 Of these habitat level assemblages, *'tall sward and scrub'* assemblage supported a fauna of relatively high conservation value with a SQI score of 105. If compared with the threshold score set in ISIS for an assemblage to be considered in FC, i.e. equivalent to an assemblage of National importance, a score of 100 falls short of the threshold target of 160.

4.6.22 The remaining assemblages do not have enough species associated to generate reliable SQI scores. See Table A8.5.46 below.

Table A8.5.46 ISA 29 habitats

Broad Biotope/ Habitat	No. of Species	% Representation	SQI	Species with Conservation Status	Conservation Status
Open habitats tall sward and scrub	66	2	105	1	1 Nb
Tree-associated arboreal	12	<1	100	2	1 S41 PS – research only; 1 [Na]
Open habitats short sward and bare ground	11	<1	100	1	1 [Na]
Tree-associated shaded woodland floor	10	<1	100	-	-
Tree-associated decaying wood	10	<1	130	1	1 [Na]
Wetland marshland	7	<1	100	-	-
Wetland acid and sedge peats	5	<1	100	-	-
Wetland running water	3	<1	100	-	-
Tree-associated wet woodland	3	1	100	-	-
Wetland wet woodland	2	<1	100	-	-

4.6.23 In conservation assessment SATs are generally regarded as the most valuable metrics for assessing site quality. This is because SATs are made up of species with a high degree of habitat specialisation. Such species tend to be both uncommon and representative of sites supporting habitat of quality in terms of conservation value. However, SATs often require targeted sampling of specific habitat features and are not always well represented in broad-brushstroke surveys designed to gain an overall, or baseline assessment of a site's value.

4.6.24 Of the output from Pantheon, the SAT with the highest SQI was '*scrub edge'*, although the number of species associated was not quite high enough to provide a reliable SQI result. See Table A8.5.47 below.

Table A8.5.47 ISA 29 specific assemblage types

Broad Biotope/ Habitat/ SAT	No. of Species	% Representation	SQI	Species with Conservation Status	Conservation Status	Code	Reported Condition
Open habitats scrub edge	8	4	100	1	1 [Na]	F001	Unfavourable (8 species, 11 required)
Tree-associated decaying wood bark and sapwood decay	5	<1	100	-	-	A212	Unfavourable (5 species, 19 required)
Open habitats rich flower resource	5	2	100	1	1 [Na]	F002	Unfavourable (5 species, 15 required)
Open habitats short sward and bare ground bare sand and chalk	2	<1	100	-	-	F111	Unfavourable (2 species, 19 required)
Open habitats short sward and bare ground open short sward	2	1	100	-	-	F112	Unfavourable (2 species, 13 required)
Tree-associated decaying wood heartwood decay	1	<1	400	1	1 [Na]	A211	Unfavourable (1 species, 6 required)
Open habitats scrub-heath and moorland	1	<1	100	-	-	F003	Unfavourable (1 species, 9 required)

5. Conclusion

5.1.1 Terrestrial invertebrate surveys were undertaken between January and October 2024. The surveys involved using standardised IHP survey and targeted sampling methods and protocols. The invertebrate fauna of three sites (ISA 4 within Section A, ISA 24 within Section C and ISA 29 within Section E) was studied with subsequent identification of material and analysis of the results using the Pantheon analytical tool developed by Natural England and the CEH.

5.1.2 The targeted sampling at ISA 4, 24 and 29 in 2024 identified 148, 166 and 144 invertebrate species respectively. The Pantheon tool identified invertebrate species with a conservation status at all three sites, with ISA 24 being the site with the most species associated with having a scarce or rarity status. Table A8.5.48 below summarises the results for each ISA.

Table A8.5.48 Summary of targeted sampling results

Invertebrate Survey Area (ISA)	4	24	29
Total no. of species	148	166	144
Total no. of species with a UK conservation status	7 (2 NS, 3 Nb, 1 RDB3 and 1 RDB2)	13 (1 NS, 5 Na, 5 Nb, 1 RDB3, 1 VU)	4 (3 Na, 1 Nb)
S41 Priority Species (NERC Act 2006)	2 (1 for research only)	2 (1 for research only)	1 (1 for research only)
Best represented Broad Biotope	Open habitats	Open habitats	Open habitats
Best represented Habitat	Tall sward and scrub	Tall sward and scrub	Tall sward and scrub
Best represented Specific Assemblage Type	Scrub edge (Unfavourable - reported condition)	Rich flower resource (Favourable - reported condition)	Scrub edge (Unfavourable - reported condition)

5.1.3 In terms of invertebrates, the principal value of each site lies in its open habitats (tall sward and scrub), with *'scrub edge'* being best represented at ISA 4 and ISA 29, and *'rich flower resource'* being best represented at ISA 24. It should be noted that the SAT of *'rich flower resource'* at ISA 24 achieved an FC. The quality of any assemblage type can be measured by the number of the specialist species that occur within it, and for *'rich flower resource'* ISA 24 has met the threshold of 15 species required (achieving a total of 19 species) meaning this category is well-represented and therefore likely to be important or of high value for invertebrates.

5.1.4 The results indicate that ISA 24 is likely to be of county value (medium importance) where due to the habitats and invertebrate species recorded, the assemblage here is

likely to form part of a wider population at this scale. ISA 4 and 29 are more likely to be of Local (low importance) as these sites displayed fewer rarities and had assemblages composed of far greater number of common and widespread species. And finally, all other sites that were subject to the IHP assessment (and not flagged for further targeted sampling) are only likely to support an invertebrate assemblage considered to be of site value i.e. low to negligible importance. However, it should be noted that this has only been estimated on the results of the IHP assessments.

Abbreviations

Abbreviation	Full Reference
BAP	Biodiversity Action Plan
BAT	Broad Range Assemblage Types
BSc	Bachelor of Science
BWARS	Bees, Wasps & Ants Recording Society
CEH	Centre for Ecology and Hydrology
CIEEM	Chartered Institute of Ecology and Environmental Management
CWS	County Wildlife Site
DCO	Development Consent Order
EFC	Essex Field Club
EIA	Environmental Impact Assessment
EPS	European protected species
ES	Environmental Statement
FC	Favourable Condition
FRES	Fellow of the Royal Entomological Society
HE	Habitat elements
HPI	Habitats of Principal Importance
IHP	Invertebrate Habitat Potential
IMS	Industrial Methylated Spirit
ISA	Invertebrate survey area
ISIS	Invertebrate Species-habitat Information System.
IUCN	International Union for Conservation of Nature
LERC	Local Environmental Record Centre
MAGIC	Multi-Agency Geographic Information for the Countryside
MCIEEM	Member of Chartered Institute of Ecology and Environmental Management
MSc	Master of Science
Na	Notable A
Nb	Notable B

Abbreviation	Full Reference
NBIS	Norfolk Biodiversity Information Service
NBN	National Biodiversity Network
NERC	Natural Environment and Rural Communities
NR	Nationally Rare
NS	Nationally Scarce
NSIP	Nationally Significant Infrastructure Project
RDB	Red Data Book
RDB 2	Red Data Book Category 2 (Vulnerable)
RDB 3	Red Data Book category 3 (Rare)
S41	Section 41
SAT	Specific Assemblage Type
SBIS	Suffolk Biodiversity Information Service
SPI	Species of Principal Importance
SQI	Species Quality Index
SQS	Species Quality Score
SSSI	Sites of Special Scientific Interest
TPO	Tree Preservation Order
VU	Vulnerable
WCA	Wildlife and Countryside Act

Glossary

Term	Description
Ancient Woodland	Land that has been continually wooded since at least 1600 in England. Regarded as 'irreplaceable habitat' in national planning guidance. Ancient woodland greater than 2 ha is recorded on the Natural England Ancient Woodland Inventory.
Assemblage	The collection of species, of a particular group, which occur in the same habitat or area.
Annex 1 Priority habitat	Annex 1 habitats are natural habitats identified by the European Union's Habitats Directive 1992 as needing special conservation efforts. These habitats are either at risk of disappearing, have a limited natural range, or are outstanding examples of their natural environment.
Biodiversity	The variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.
County Wildlife Site	Non-designated areas of land important for their wildlife and nature conservation value.
Ecosystem	A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.
Entomology	The scientific study of invertebrates
Environmental Statement (ES)	The main output from the EIA process, an ES is the report required to accompany an application for development consent (under the Infrastructure Planning (EIA) Regulations 2017) to inform public and stakeholder consultation and the decision on whether a project should be allowed to proceed. The EIA Regulations set out specific requirements for the contents of an ES for Nationally Significant Infrastructure Projects.
European Protected Species	Animals and plants listed under the Habitats Directive and protected under the Conservation of Habitats and Species Regulations 2017, as amended.
Fauna	All the animals in a given area.
Flora	The plants within a particular habitat or region.
Habitat	The natural home or environment of an animal, plant, or other organism.
Habitat of Principal Importance	A habitat which has been deemed to be of principal importance for the purpose of conserving biodiversity, currently adopted under Section 41 of the Natural Environment and Rural Communities Act 2006, formerly listed in the UK Biodiversity Action Plan.

Term	Description
Invertebrate	An animal with no spine.
Local Planning Authority	The public authority whose duty it is to carry out specific planning functions for a particular area.
Local Wildlife Site	Non-designated areas of land important for their wildlife and nature conservation value.
Mitigation	The action of reducing the severity and magnitude of change (impact) to the environment. Measures to avoid, reduce, remedy or compensate for significant adverse effects.
Non-Statutory Designated Site	Areas which are recognised for their ecological importance but do not have the same level of legal protection as statutory designated sites. These are typically identified at a local or regional level through non-legally binding agreements, policies, or planning frameworks.
Nationally Significant Infrastructure Project (NSIP)	Typically a large scale development of national importance that requires development consent from the Secretary of State, under the Planning Act 2008.
Order Limits	The maximum extent of land within which the authorised development may take place.
Priority species	Species identified as of principal importance in England, in accordance with requirements of the Natural Environment and Rural Communities Act 2006. These are based on the UK Biodiversity Action Plan Priority Species.
Project Section	Geographical ‘sections’ have been identified that break the Project down into smaller units for ease of description within the documentation. These Project Sections are broken down into eight sections based largely on local authority boundaries.
Sites of Special Scientific Interest (SSSI)	SSSIs are protected by law under the Wildlife and Countryside Act 1981. They are important because they support rare or endangered fauna and flora, and they represent the United Kingdom’s best wildlife and geological sites.
Species	A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.
Statutory Designated Site	An area that has been legally designated and protected for its importance to biodiversity.

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Annex A. Invertebrate Habitat Potential Assessment

nationalgrid

Annex A: Invertebrate Habitat Potential Assessment

A. 1. Provided below are the results of the desk-based assessment augmented by the field survey results, for each Invertebrate Survey Area (ISA) with the relevant Habitat Element (HE), as described in Table A8.5.4.

Table A8.5.49 Summary of invertebrate habitat potential assessment

IHP Assessment	Decaying wood	Rotational Management	Nectar Resources	Wet Substrates	Open Water Habitats	Structural Patchwork	Still Air (S)	Still Air (H)	Connectivity	Ecoclines	Bare Earth
ISA	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
Project Section A											
1	C	B	C	C	C	C	C	C	C	C	C
2	x	x	x	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x	x	x
4	D	D	C	C	C	C	D	D	B	D	D
Project Section B											
5	D	D	C	E	D	D	D	D	D	D	D
6	D	D	D	E	D	D	D	D	D	D	D
7	D	D	C	D	C	D	D	D	D	D	E
8	x	x	x	x	x	x	x	x	x	x	x
9	C	D	D	D	C	D	D	D	C	D	D
10	D	D	D	E	E	D	D	D	D	E	D

IHP Assessment	Decaying wood	Rotational Management	Nectar Resources	Wet Substrates	Open Water Habitats	Structural Patchwork	Still Air (S)	Still Air (H)	Connectivity	Ecoclines	Bare Earth
ISA	**HE1**	**HE2**	**HE3**	**HE4**	**HE5**	**HE6**	**HE7**	**HE8**	**HE9**	**HE10**	**HE11**
11	D	D	D	E	D	D	D	D	D	D	D
12	D	D	D	E	E	E	D	D	D	E	E
13	E	D	D	D	E	E	D	D	D	E	E
14	D	D	D	E	E	E	D	D	D	E	E
15	C	D	C	D	D	D	D	C	D	E	D
16	D	D	D	E	D	D	D	D	D	D	E
17	D	C	D	E	D	E	D	D	D	E	D
18	B	D	C	D	E	D	C	C	C	E	D
19	B	C	C	C	D	C	B	B	D	C	C
Project Section C											
20	C	C	C	B	C	C	D	D	D	C	D
21	B	C	D	D	C	D	D	D	C	D	C
22	D	D	D	C	B	D	D	D	C	E	E
23	Data removed										
24	B	D	C	C	D	D	C	C	C	D	C
25	D	D	C	D	D	D	D	D	C	D	D
Project Section D											
26	C	D	D	D	D	D	C	D	D	E	E

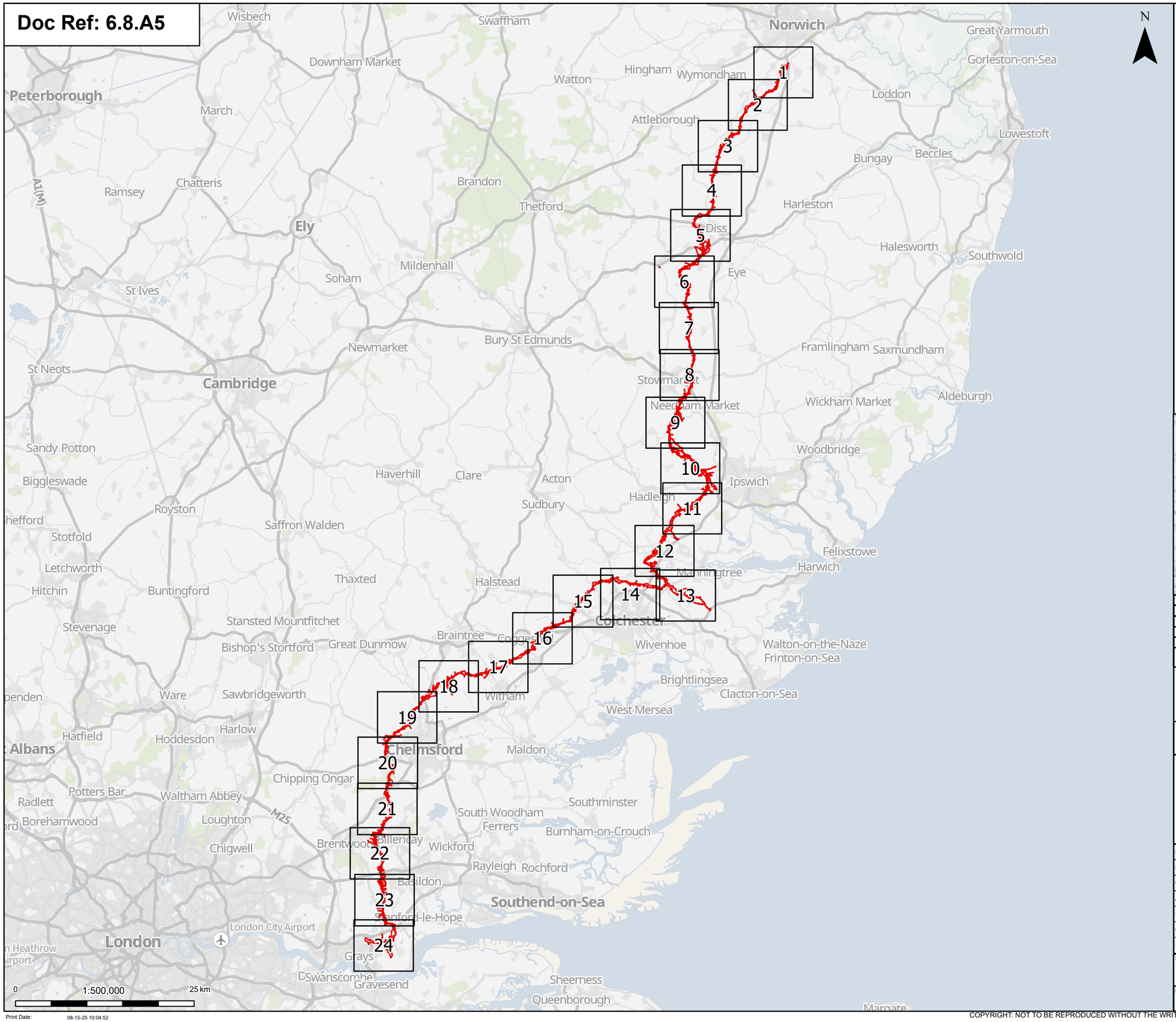
IHP Assessment	Decaying wood	Rotational Management	Nectar Resources	Wet Substrates	Open Water Habitats	Structural Patchwork	Still Air (S)	Still Air (H)	Connectivity	Ecoclines	Bare Earth
ISA	**HE1**	**HE2**	**HE3**	**HE4**	**HE5**	**HE6**	**HE7**	**HE8**	**HE9**	**HE10**	**HE11**
27	C	D	D	D	C	E	D	D	D	D	E
Project Section E											
28	C	C	C	C	B	D	D	D	D	C	D
29	B	C	C	D	C	D	D	C	C	D	D
Project Section F											
30	D	C	C	D	D	D	D	D	D	E	D
31	B	D	C	D	C	E	C	C	B	D	C
32	C	D	D	E	E	E	C	D	C	E	D
33	D	D	D	E	D	D	D	D	D	D	D
Project Section G											
34	C	C	C	D	C	B	C	C	D	C	D
35	x	x	x	x	x	x	x	x	x	x	x
36	C	D	C	D	D	C	D	D	C	C	B
37	B	D	C	D	D	D	C	C	D	D	D

A = Exceptional Habitat Element, B = Major Habitat Element, C = Moderate Habitat Element, D = Minor Habitat Element, E = Negligible/absent Habitat Element

Annex B. Figures

nationalgrid

Doc Ref: 6.8.A5



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations Overview

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
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Approved	K. Burrows	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Doc Ref: 6.8.A5

Norwich Main Substation Extension (Future Baseline)

Norwich Main Substation

RG1

RG5

RG10

RG15

RG20

FOR CONTINUATION SEE PAGE 2

0 1:25,000 1 km

Print Date: 08-15-25 10:04:57

N

- Order limits
- Sheet index cutline

Proposed project design details

- Proposed full line tension gantry
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Norwich Main Substation
- Norwich Main Substation Extension (future baseline)
- Environmental area
- Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
Page 1 of 24

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
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Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Doc Ref: 6.8.A5

RG10
RG15
RG20
RG25
RG30
RG35

FOR CONTINUATION SEE PAGE 1

FOR CONTINUATION SEE PAGE 3

0 1:25,000 1 km

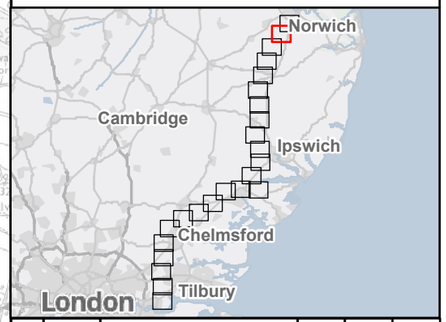
Print Date: 08-15-25 10:05:03

- Order limits
- Sheet index cutline

Proposed project design details

- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Environmental mitigation
- Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations Page 2 of 24

Designed	C. Horley	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Doc Ref: 6.8.A5

RG35

RG40

RG45

RG50

RG55

1

FOR CONTINUATION SEE PAGE 2

FOR CONTINUATION SEE PAGE 4

N

0 1:25,000 1 km

Print Date: 08-15-25 10:05:08

Order limits

Sheet index cutline

Proposed project design details

Proposed standard lattice pylon location

Proposed overhead line alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations Page 3 of 24

Designed	C. Horley	Date	21 Aug 25
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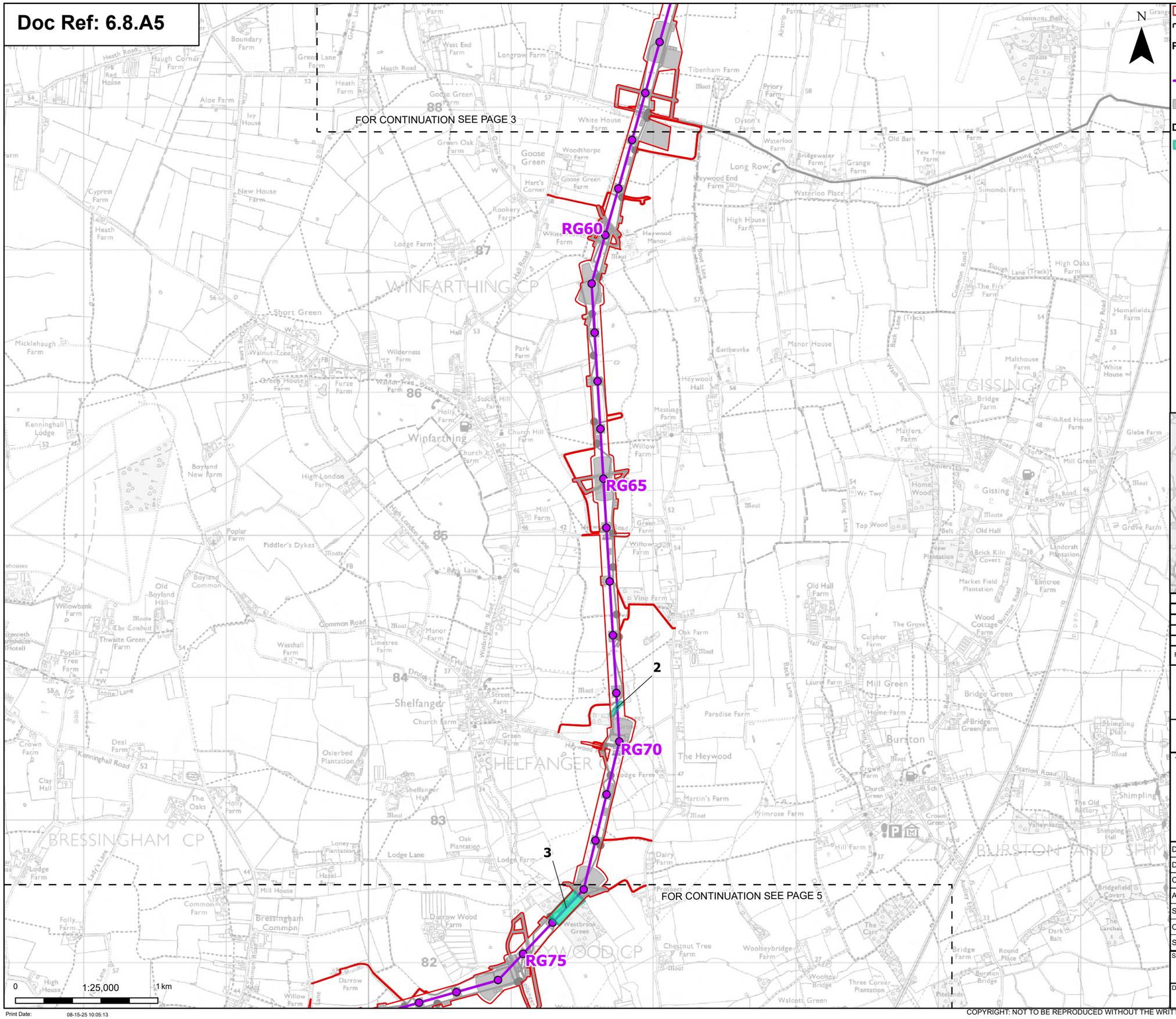
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Doc Ref: 6.8.A5



Print Date: 08-15-25 10:05:13

- Order limits
- Sheet index cutline

Proposed project design details

- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
Page 4 of 24

Designed	C. Horley	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Doc Ref: 6.8.A5

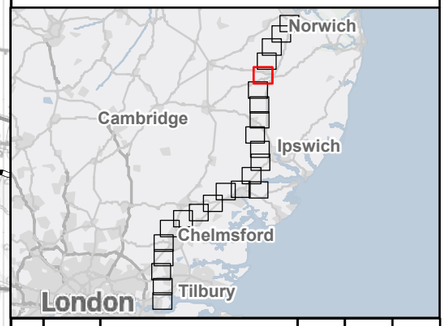
RG75
RG80
RG85
RG90
RG95
RG100
3
4
5
6
Section A
Section B
FOR CONTINUATION SEE PAGE 4
FOR CONTINUATION SEE PAGE 6
N
0 1:25,000 1 km

Order limits
Sheet index cutline
Project section line

Proposed project design details
Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints
Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
Page 5 of 24

Designed	C. Horley	Date	21 Aug 25
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Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368
Revision: A

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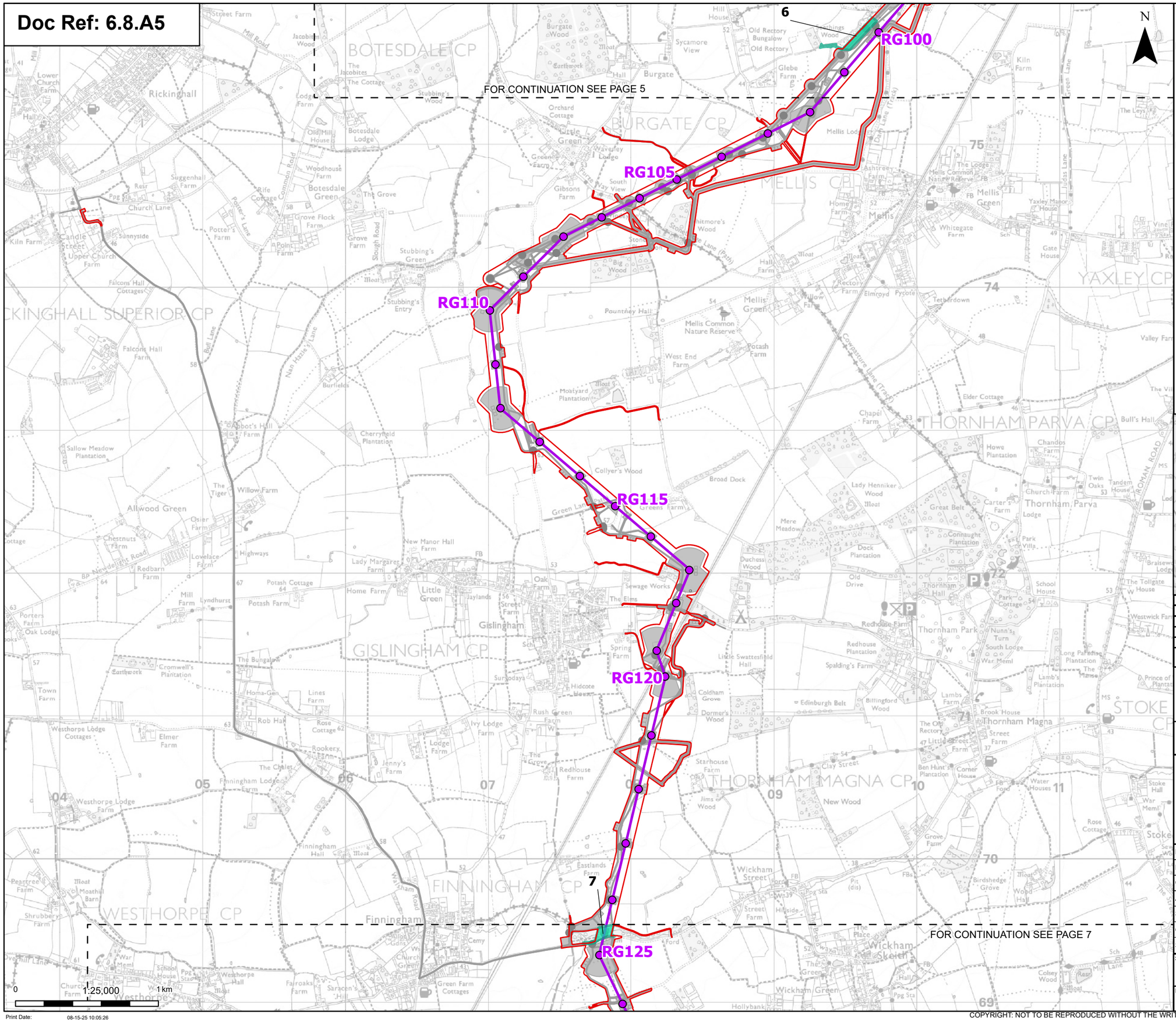
Doc Ref: 6.8.A5



N

Order limits

Sheet index cutline

Proposed project design details

Proposed standard lattice pylon location

Proposed overhead line alignment

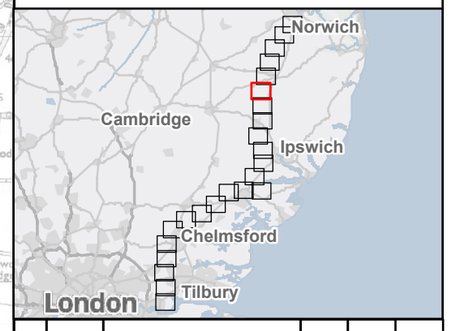
Environmental mitigation

Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
Page 6 of 24

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
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Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

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FOR CONTINUATION SEE PAGE 6

RG125

RG130

RG135

RG140

RG145

FOR CONTINUATION SEE PAGE 8

0 1:25,000 1 km

Print Date: 08-15-25 10:05:32

N

Order limits

Sheet index cutline

Proposed project design details

Proposed standard lattice pylon location

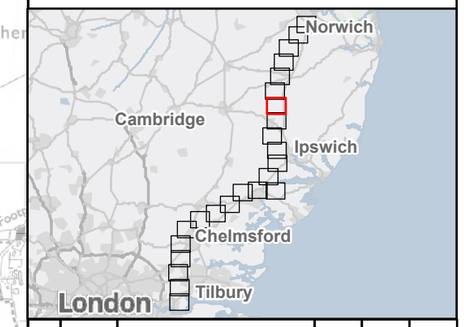
Proposed overhead line alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
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Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
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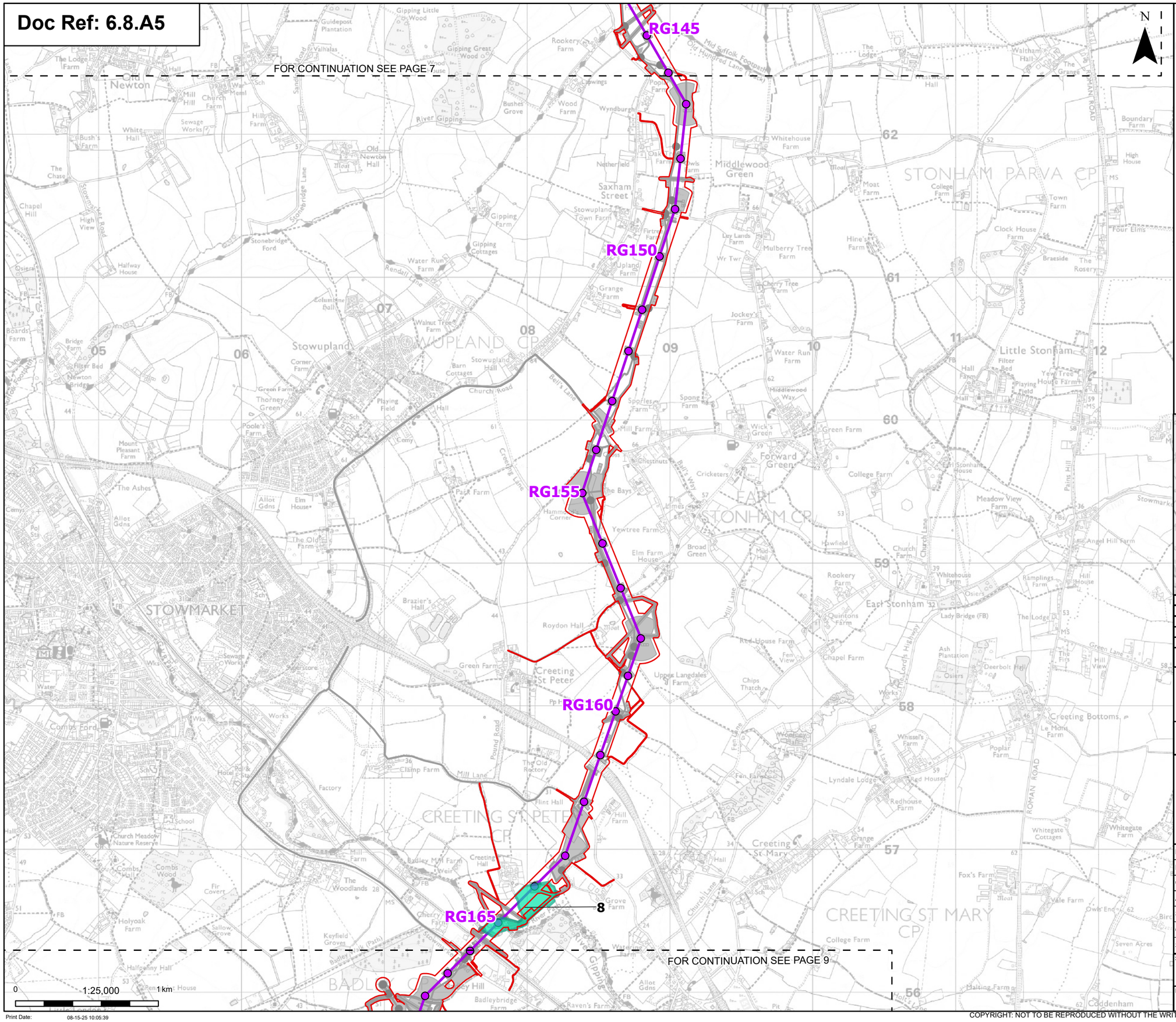
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A



Doc Ref: 6.8.A5

FOR CONTINUATION SEE PAGE 7

FOR CONTINUATION SEE PAGE 9

▭ Order limits

⌐ ¬ Sheet index cutline

Proposed project design details

● Proposed standard lattice pylon location

― Proposed overhead line alignment

▨ Environmental mitigation

■ Other temporary and permanent construction and operational works

Discipline specific constraints

🟩 Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations Page 8 of 24

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
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Approved	K. Burrows	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

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Doc Ref: 6.8.A5

FOR CONTINUATION SEE PAGE 8

FOR CONTINUATION SEE PAGE 10

N

RG170 RG175 RG180 RG185 RG190

9 10 11 12 13 14 15 16

0 1:25,000 1 km

Print Date: 08-15-25 10:05:45

- Order limits
- Sheet index cutline
- Project section line

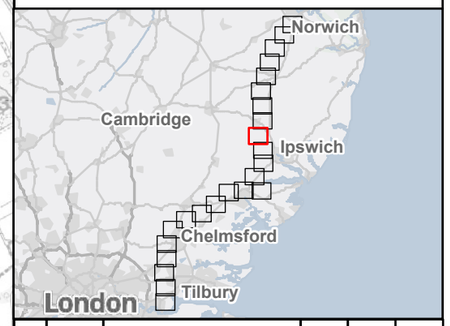
Proposed project design details

- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
Page 9 of 24

Designed	C. Horley	Date	21 Aug 25
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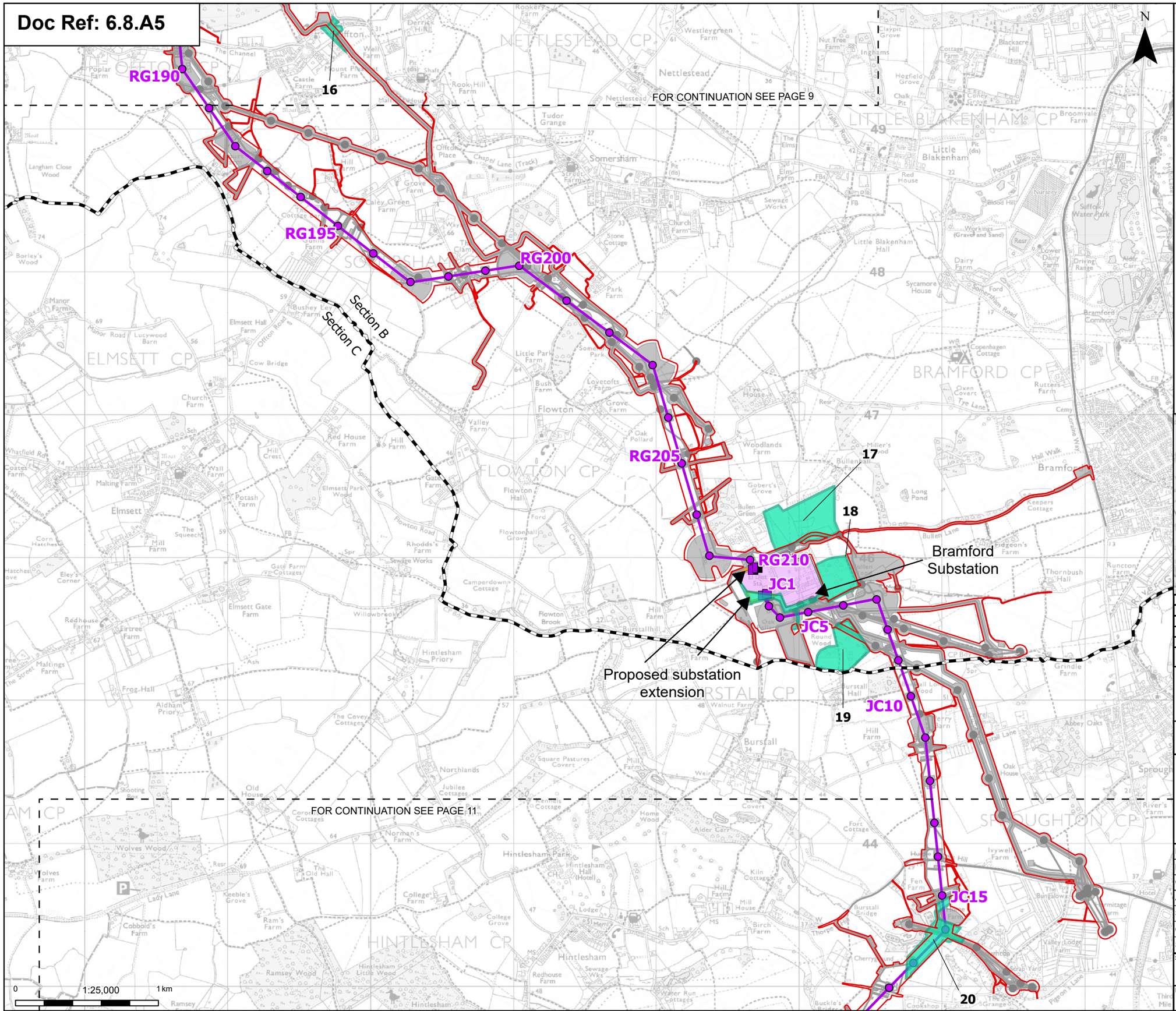
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Doc Ref: 6.8.A5



Order limits
Sheet index cutline
Project section line

Proposed project design details

Proposed full line tension gantry
Proposed low duty gantry
Proposed standard lattice pylon location
Proposed overhead line alignment
Bramford Substation
Bramford Substation Extension
Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
Page 10 of 24

Designed	C. Horley	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

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Revision: A

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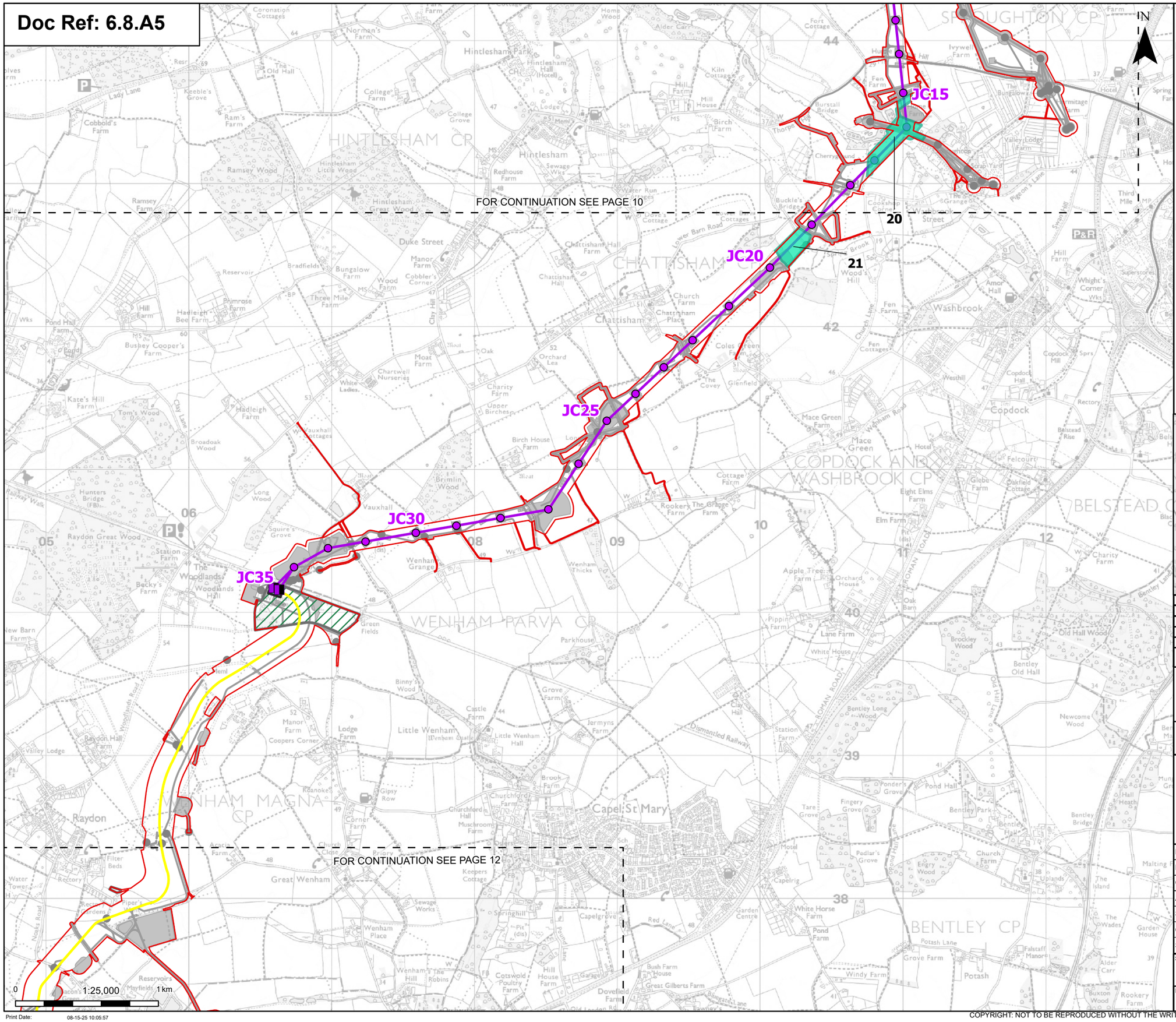

Print Date: 08-15-25 10:05:57

- Order limits
- Sheet index cutline

Proposed project design details

- Proposed full line tension gantry
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound(CSEC)
- Environmental area
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations Page 11 of 24

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
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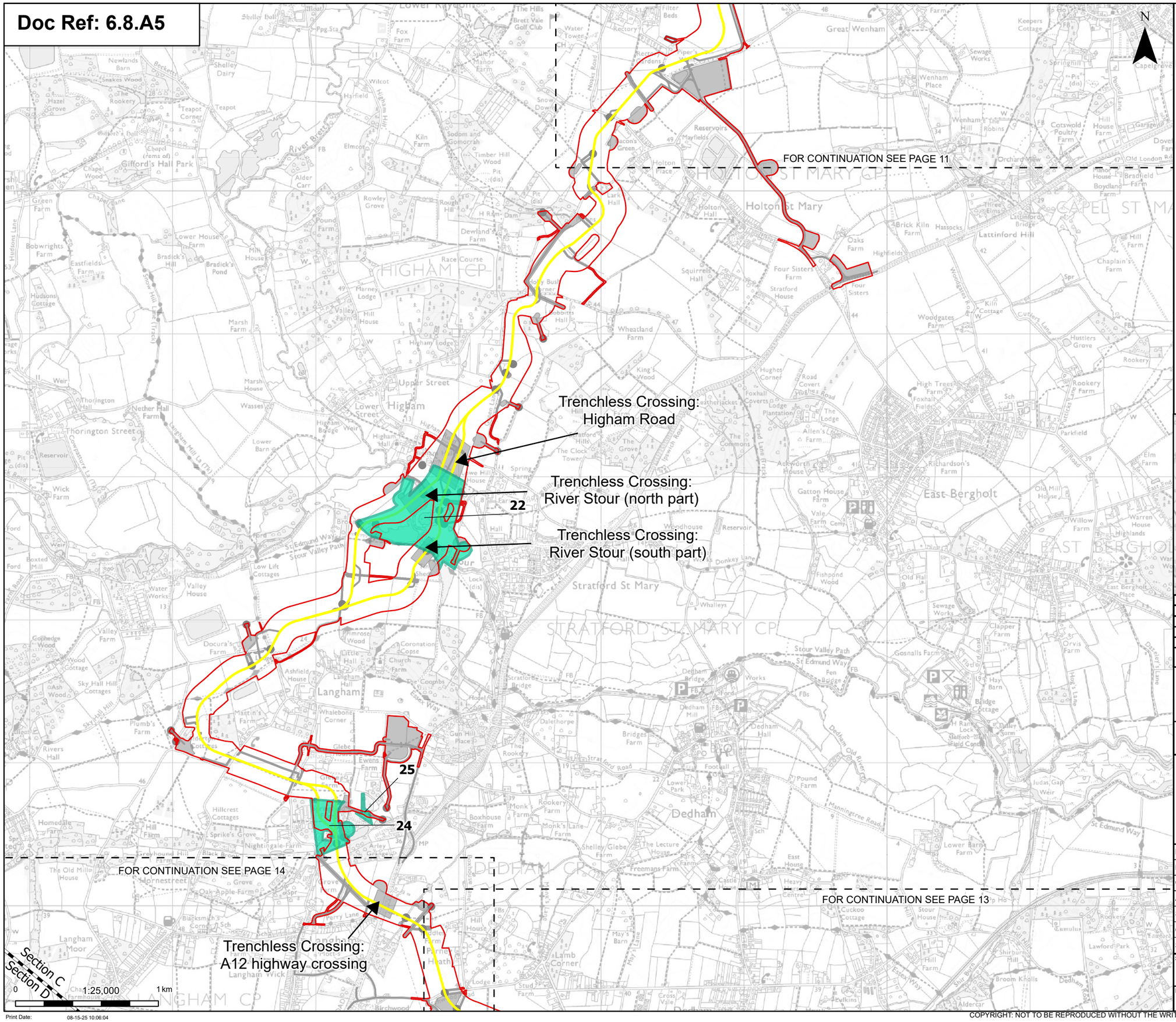
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Doc Ref: 6.8.A5



Order limits

Sheet index cutline

Project section line

Proposed project design details

Proposed underground cable alignment

Environmental mitigation

Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations Page 12 of 24

Designed	C. Horley	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

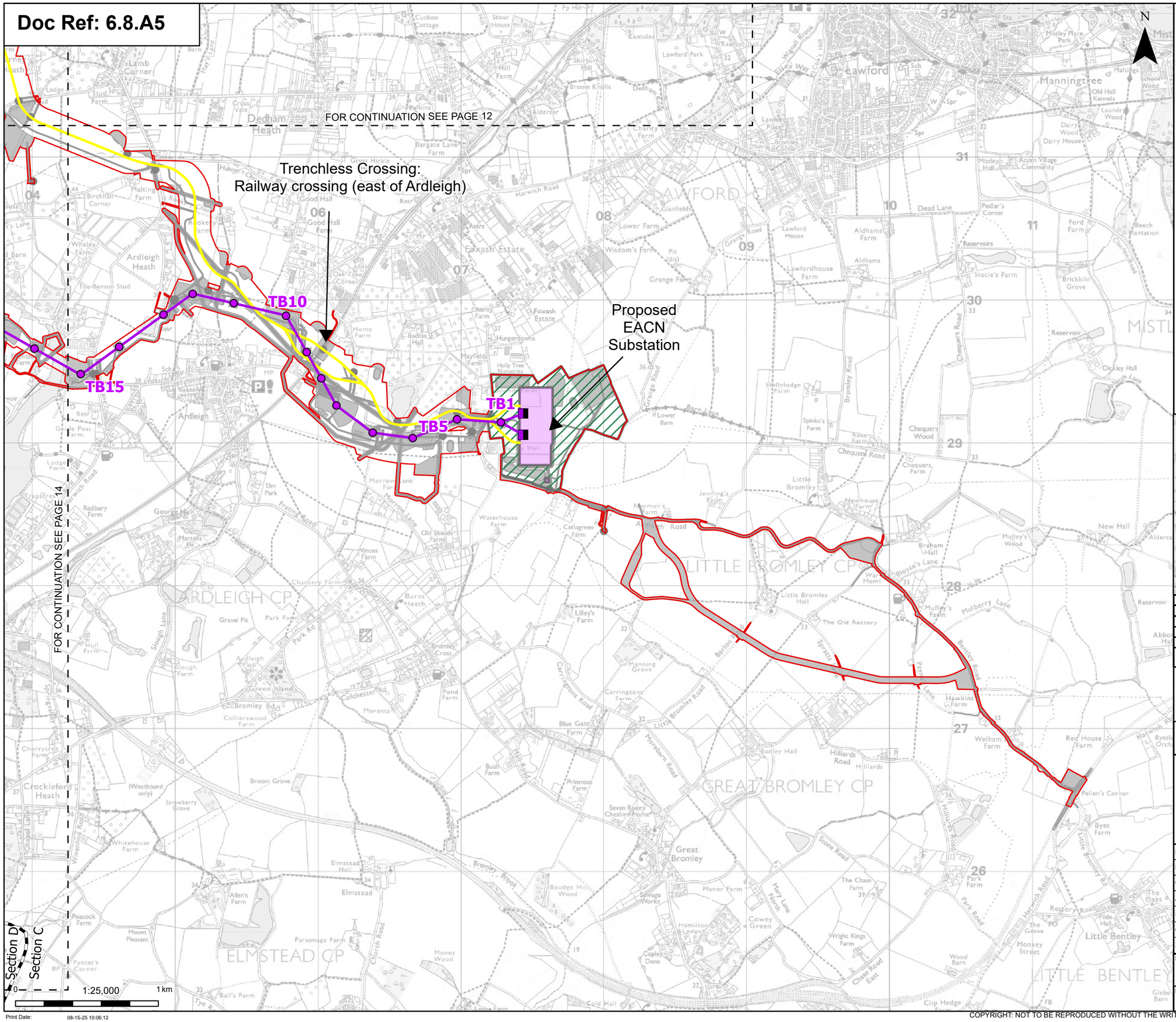
Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Print Date: 08-15-25 10:06:04

Doc Ref: 6.8.A5



- Order limits
- Sheet index cutline
- Project section line

Proposed project design details

- Proposed full line tension gantry
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed DNO Substation
- Proposed East Anglia Connection Node Substation(EACN)
- Environmental area
- Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
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Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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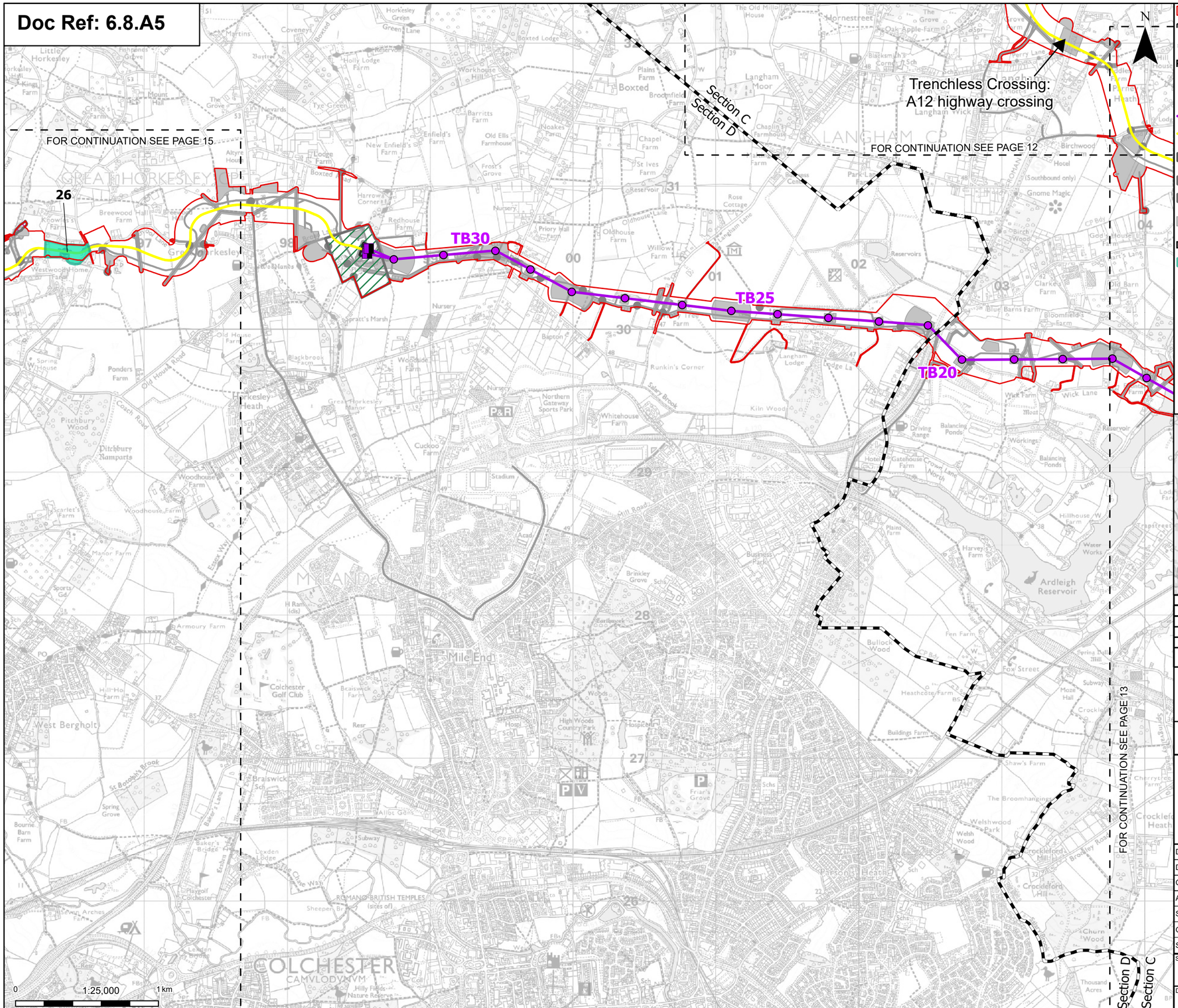
Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368
Revision: A

Print Date: 08-15-25 10:06:12

Doc Ref: 6.8.A5



Order limits
Sheet index cutline
Project section line

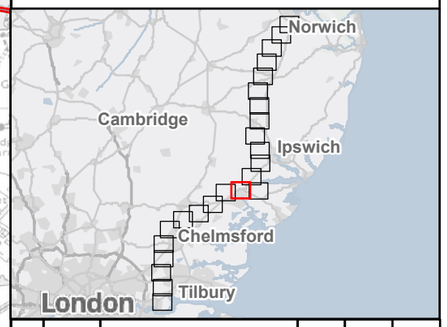
Proposed project design details

Proposed full line tension gantry
Proposed standard lattice pylon location
Proposed overhead line alignment
Proposed underground cable alignment
Proposed cable sealing end compound(CSEC)
Environmental area
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations Page 14 of 24

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Print Date: 08-15-25 10:06:19

Doc Ref: 6.8.A5

TB35
TB40
TB45
TB50
TB55
TB60
26
27

FOR CONTINUATION SEE PAGE 14
FOR CONTINUATION SEE PAGE 16

N

0 1:25,000 1 km

Print Date: 08-15-25 10:06:26

Order limits
Sheet index cutline

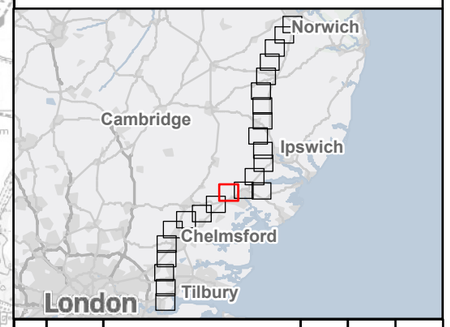
Proposed project design details

Proposed full line tension gantry
Proposed standard lattice pylon location
Proposed overhead line alignment
Proposed underground cable alignment
Proposed cable sealing end compound(CSEC)
Environmental area
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations Page 15 of 24

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368
Revision: A

Doc Ref: 6.8.A5

TB60

TB65

TB70

TB75

TB80

TB85

28

Section D

Section E

FOR CONTINUATION SEE PAGE 15

FOR CONTINUATION SEE PAGE 17

0 1:25,000 1 km

Print Date: 08-15-25 10:06:32

Order limits

Sheet index cutline

Project section line

Proposed project design details

Proposed standard lattice pylon location

Proposed overhead line alignment

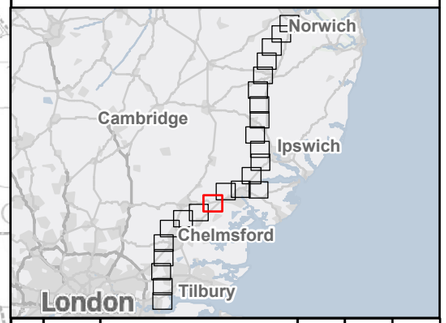
Environmental mitigation

Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
Page 16 of 24

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

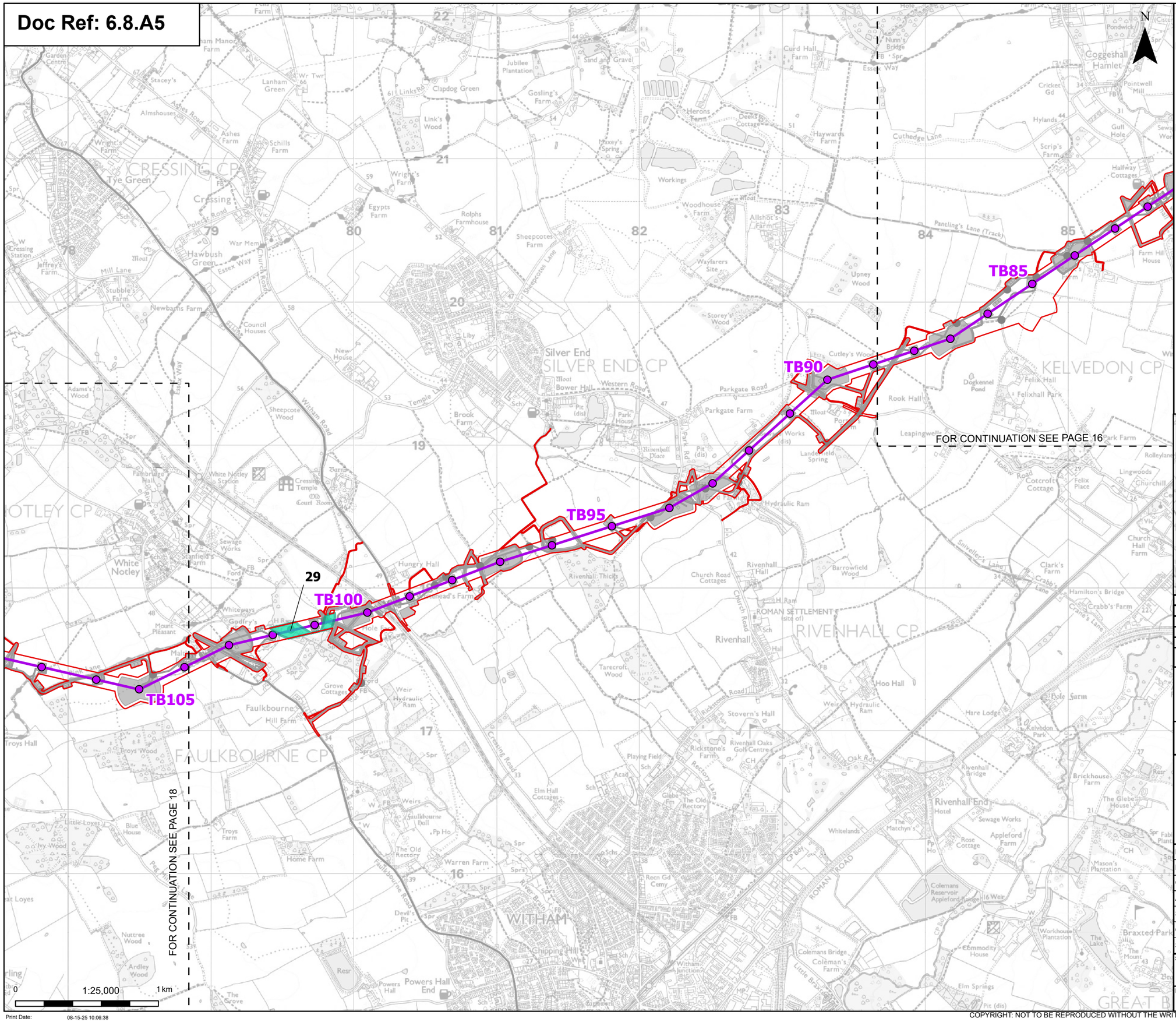
Suitability Description:

Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Doc Ref: 6.8.A5



Order limits

Sheet index cutline

Proposed project design details

Proposed standard lattice pylon location

Proposed overhead line alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
Page 17 of 24

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

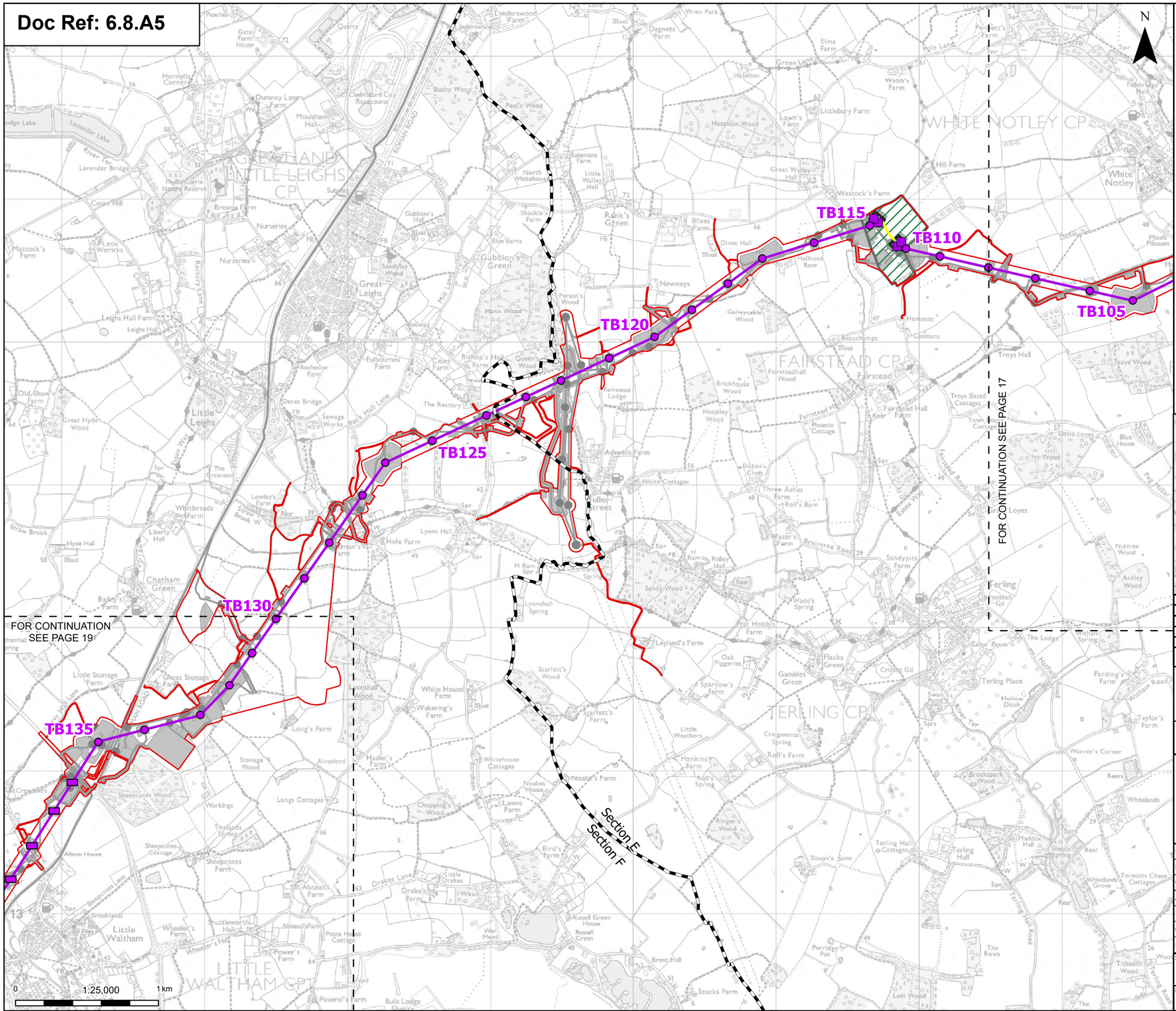
Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Print Date: 08-15-25 10:06:38

Doc Ref: 6.8.A5

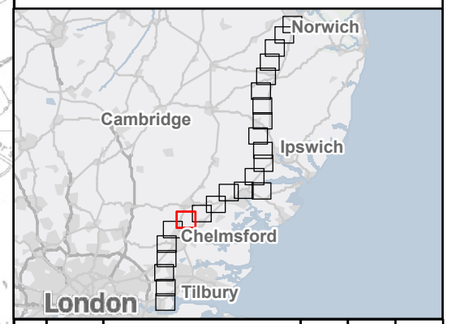


Order limits
Sheet index cutline
Project section line

Proposed project design details

Proposed low duty gantry
Proposed low height pylon location
Proposed standard lattice pylon location
Proposed overhead line alignment
Proposed underground cable alignment
Proposed cable sealing end compound(CSEC)
Environmental area
Environmental mitigation
Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
Page 18 of 24

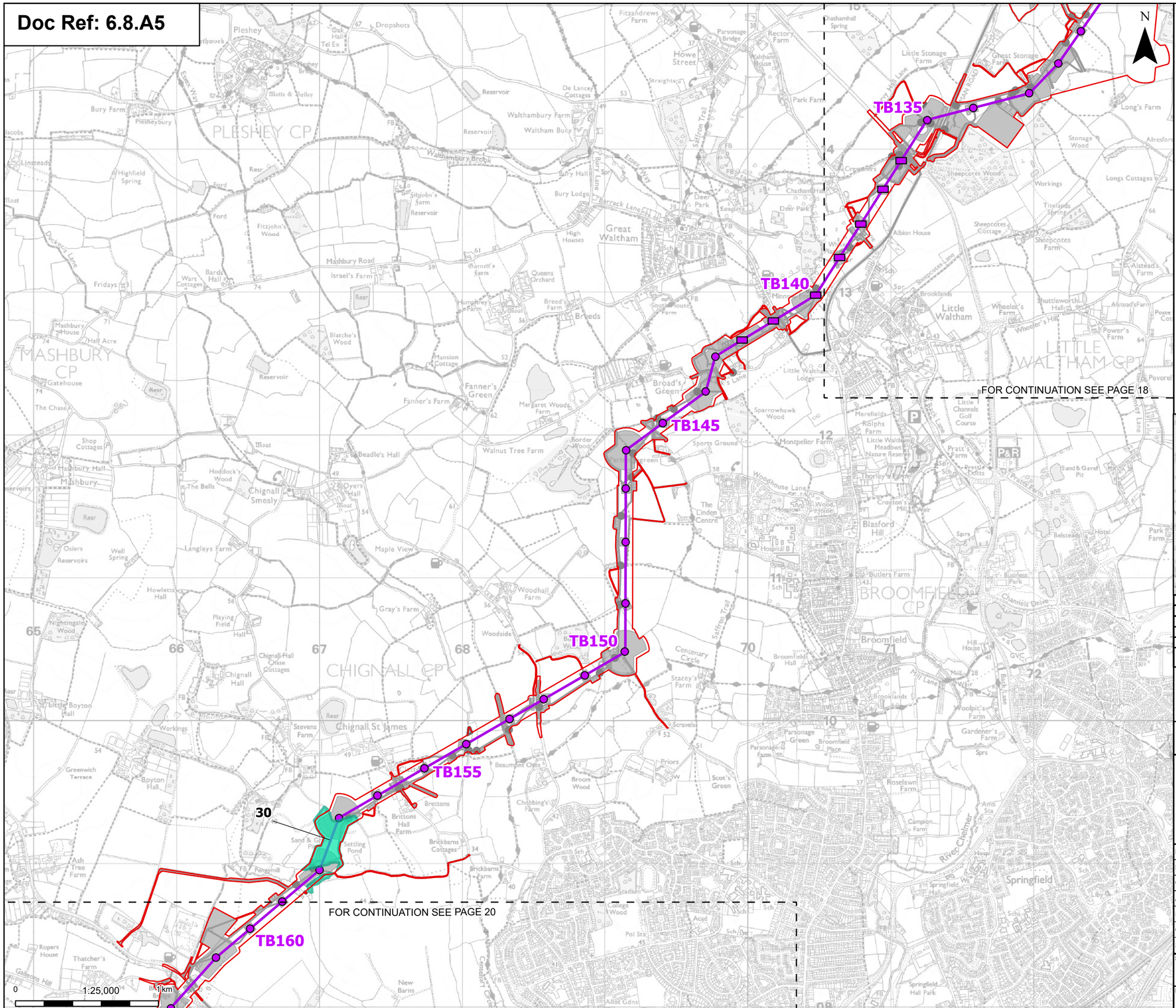
Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368
Revision: A

Print Date: 08-15-25 10:06:43

Doc Ref: 6.8.A5



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Order limits

Sheet index cutline

Proposed project design details

Proposed low height pylon location

Proposed standard lattice pylon location

Proposed overhead line alignment

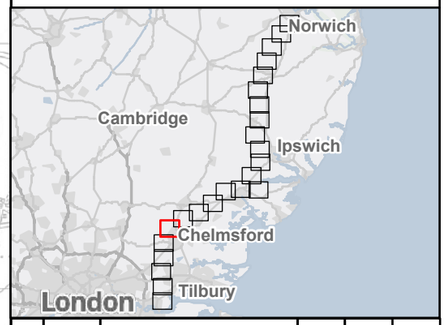
Environmental mitigation

Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
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Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

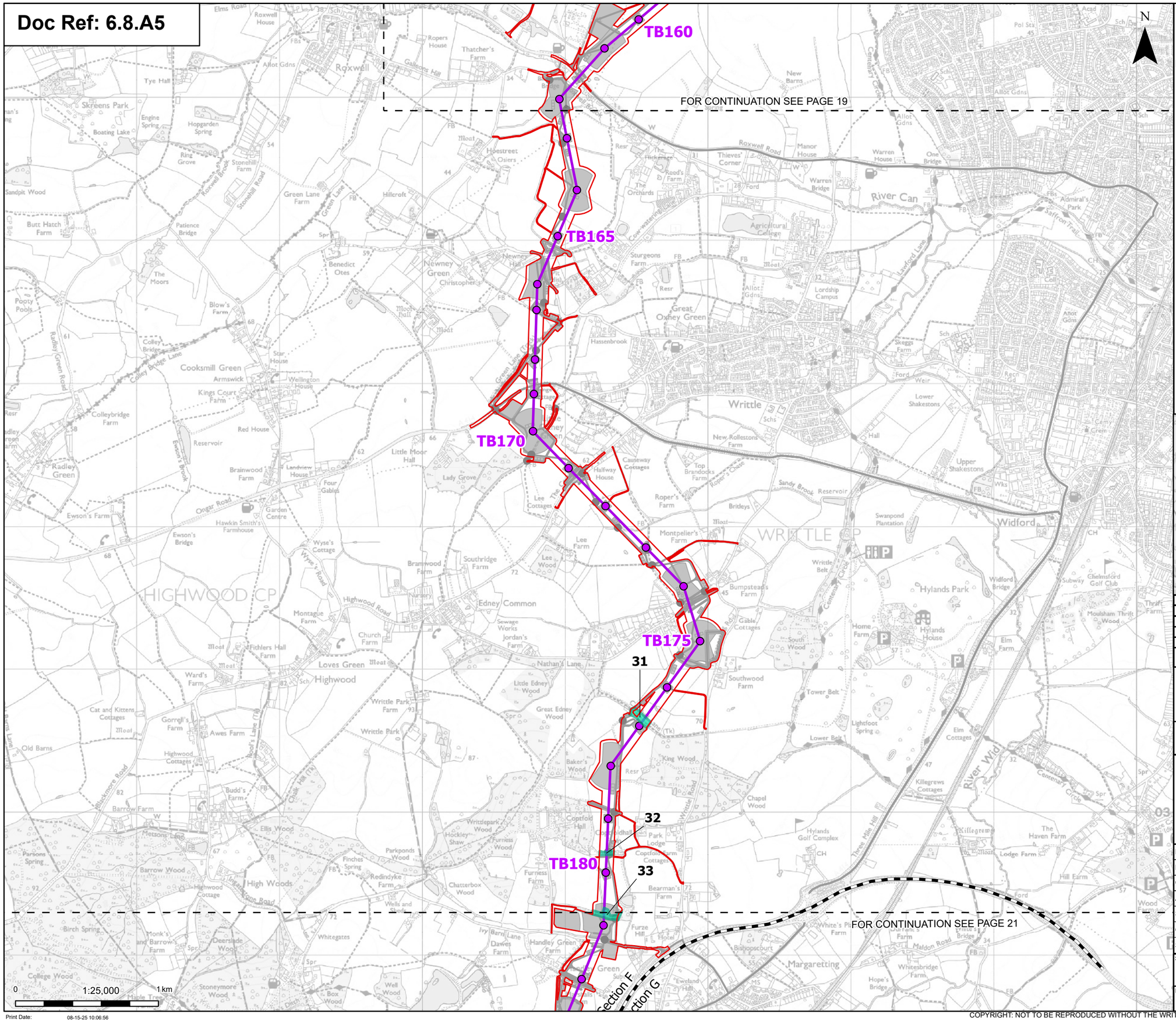
Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Print Date: 08-15-25 10:06:49

Doc Ref: 6.8.A5



Order limits
Sheet index cutline
Project section line

Proposed project design details

Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
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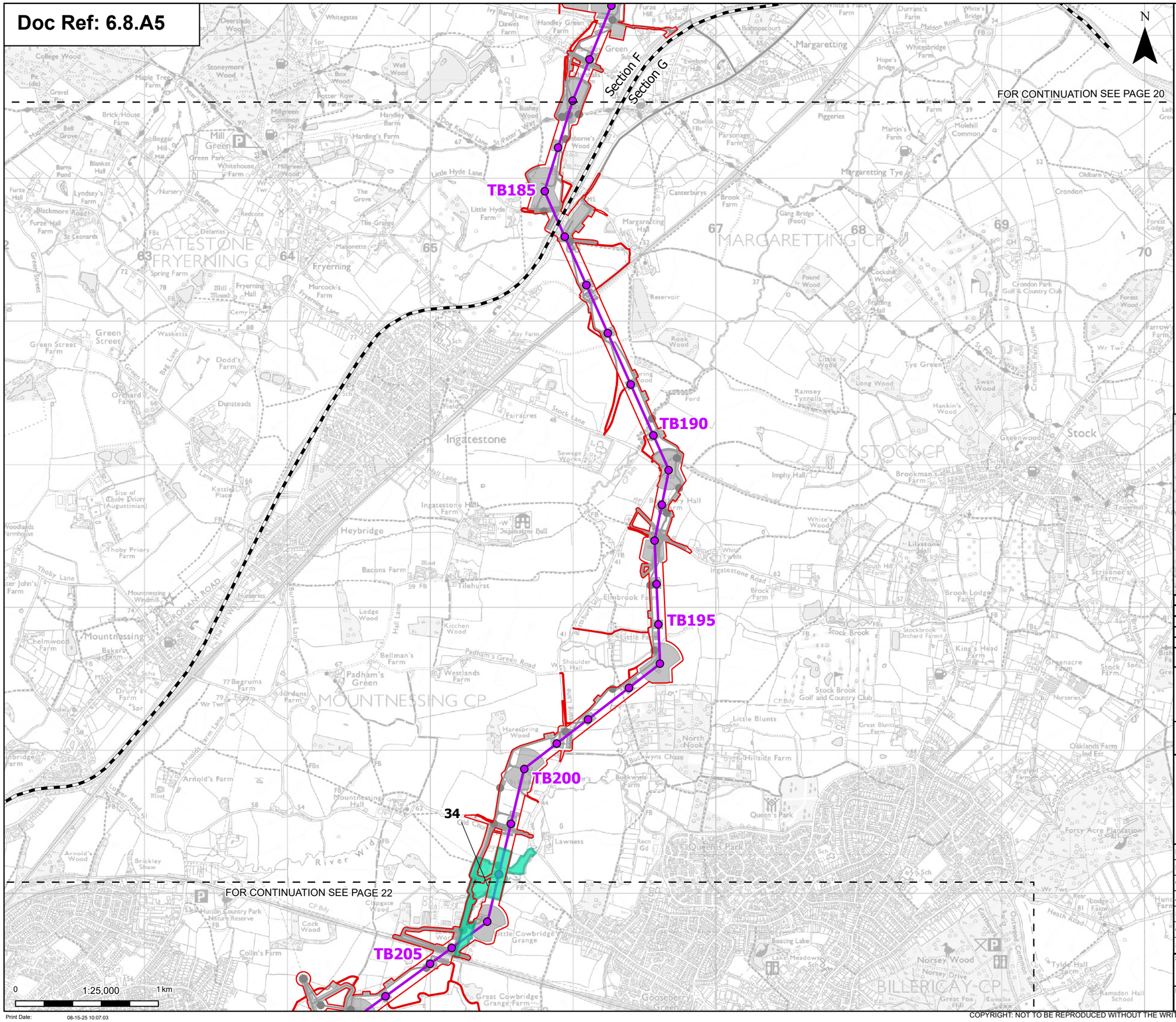
Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368
Revision: A

Print Date: 08-15-25 10:06:56

Doc Ref: 6.8.A5



Order limits
Sheet index cutline
Project section line

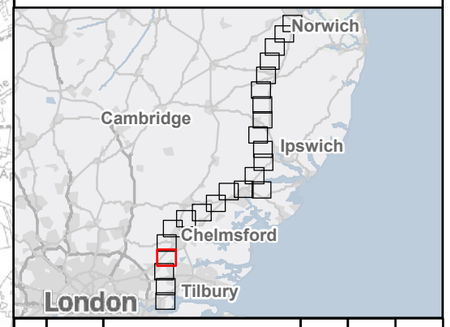
Proposed project design details

Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
Page 21 of 24

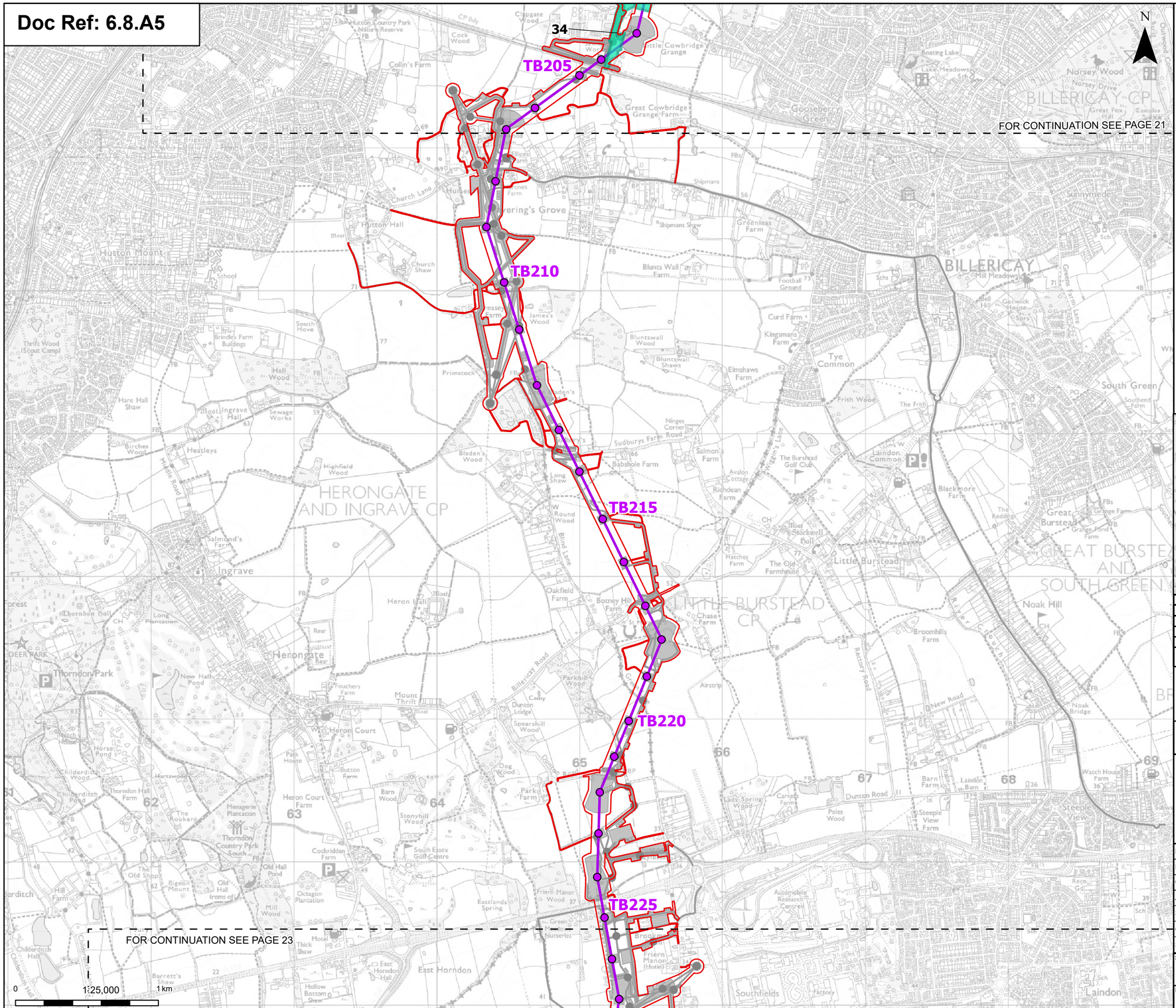
Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368
Revision: A

Print Date: 08-15-25 10:07:03

Doc Ref: 6.8.A5



Print Date: 08-15-25 10:07:09

- Order limits
- Sheet index cutline

Proposed project design details

- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations Page 22 of 24

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Doc Ref: 6.8.A5

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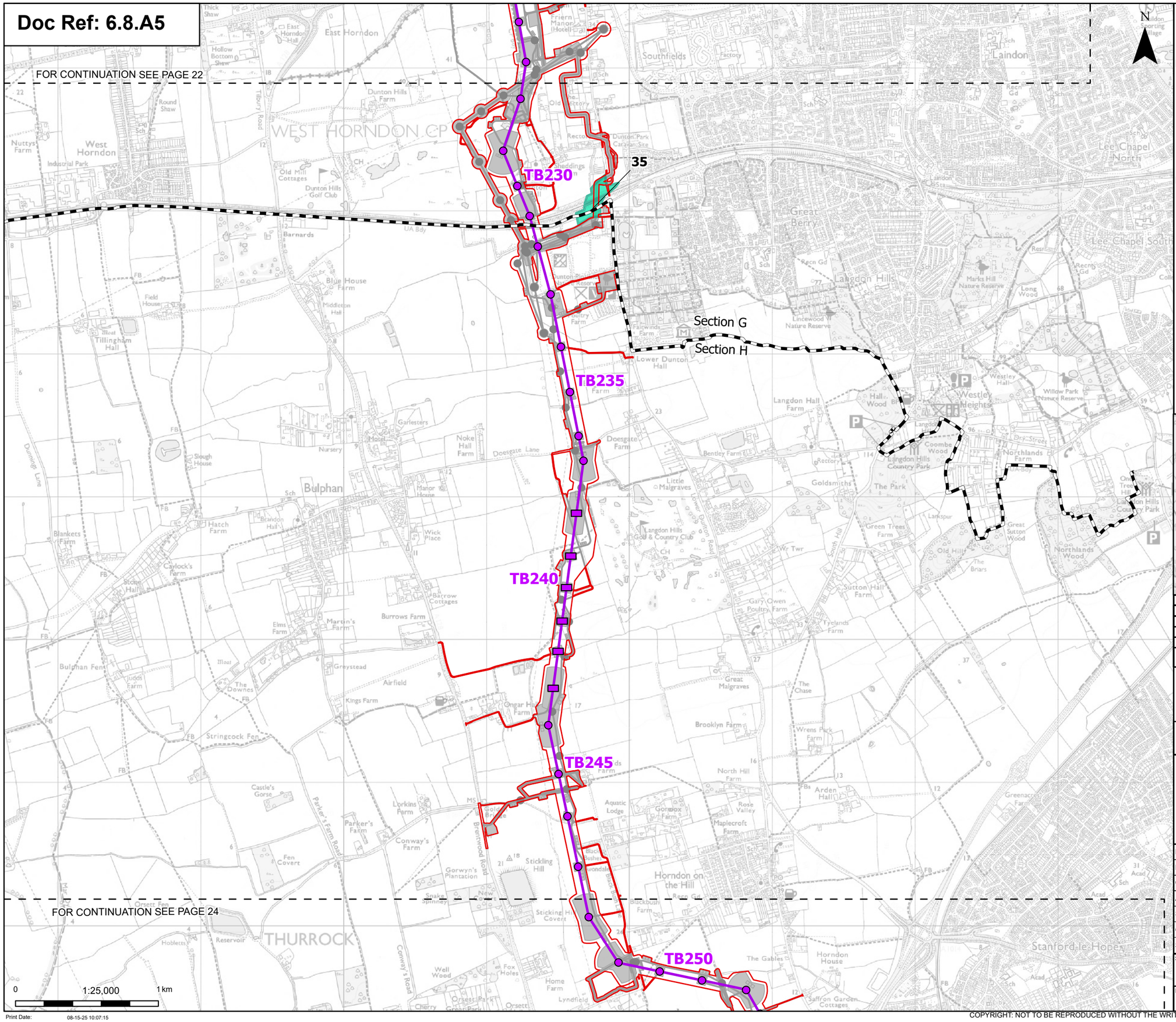


FOR CONTINUATION SEE PAGE 24

0 1:25,000 1 km

Print Date: 08-15-25 10:07:15

N

- Order limits
- Sheet index cutline
- Project section line

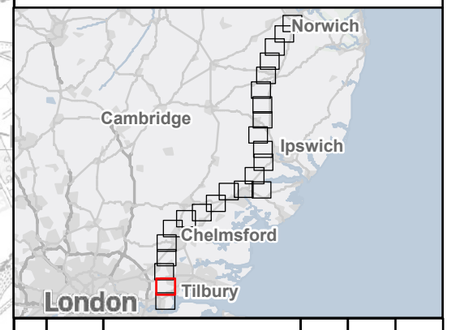
Proposed project design details

- Proposed low height pylon location
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
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Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations
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Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368
Revision: A

Doc Ref: 6.8.A5

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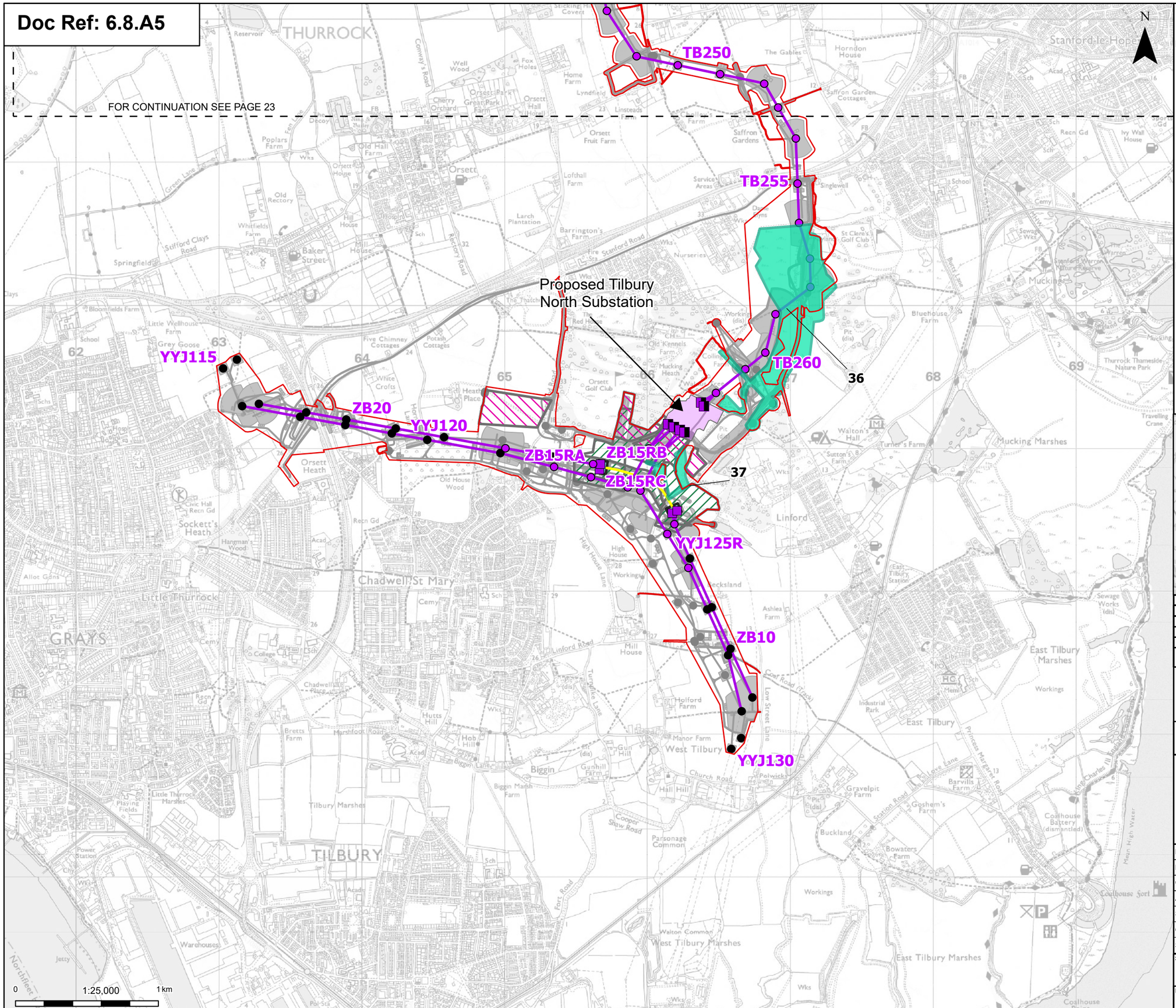

Print Date: 08-15-25 10:07:21

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- Order limits
- Sheet index cutline

Proposed project design details

- Proposed full line tension gantry
- Proposed low duty gantry
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed Tilbury North Substation
- Proposed cable sealing end compound(CSEC)
- Environmental area
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure A8.5.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Locations Page 24 of 24

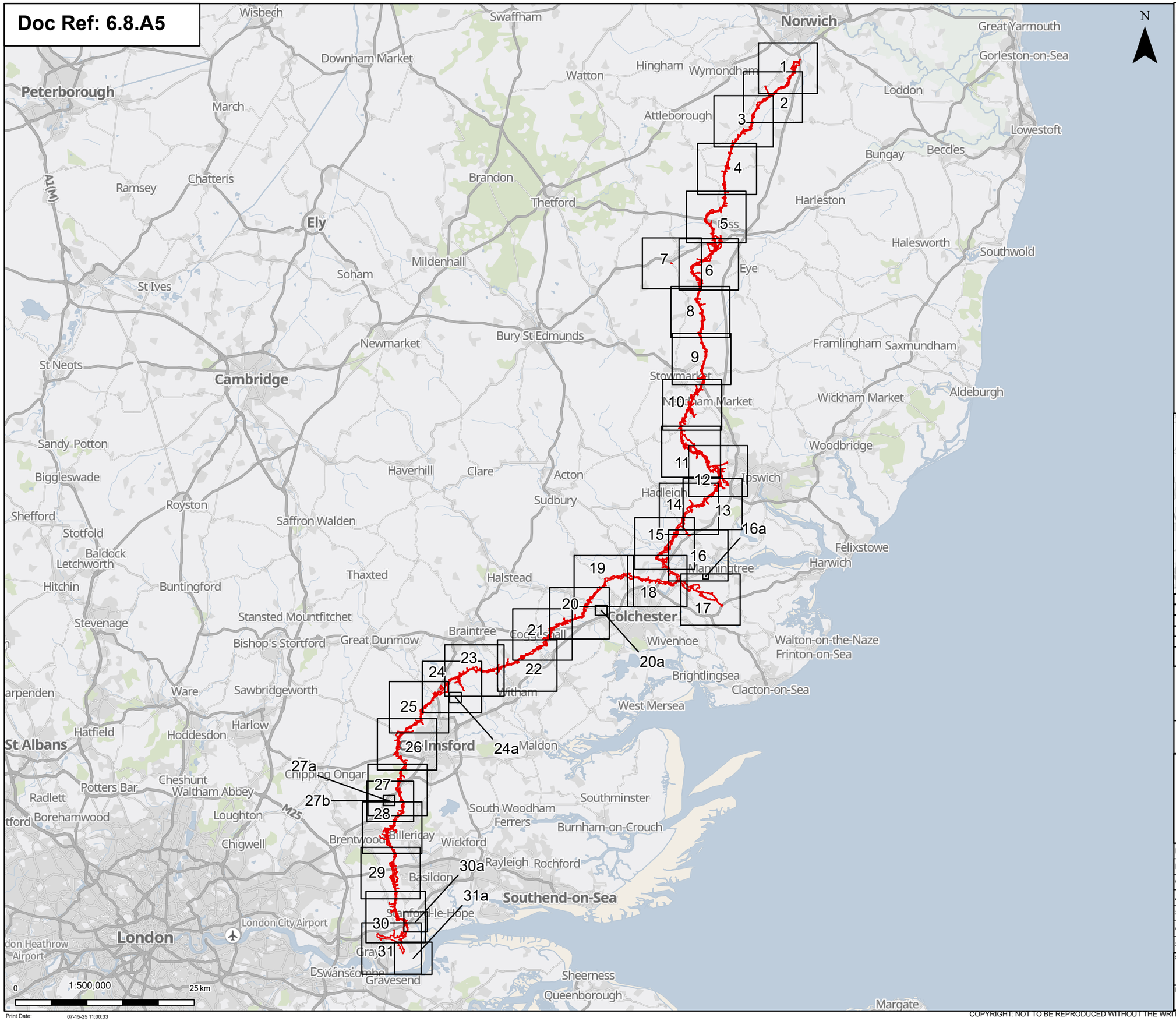
Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00368

Revision: A

Doc Ref: 6.8.A5



Order limits

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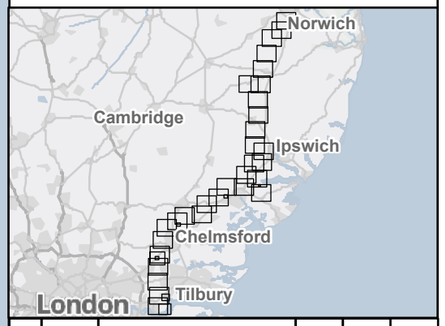


Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	SS	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits Overview

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:500,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

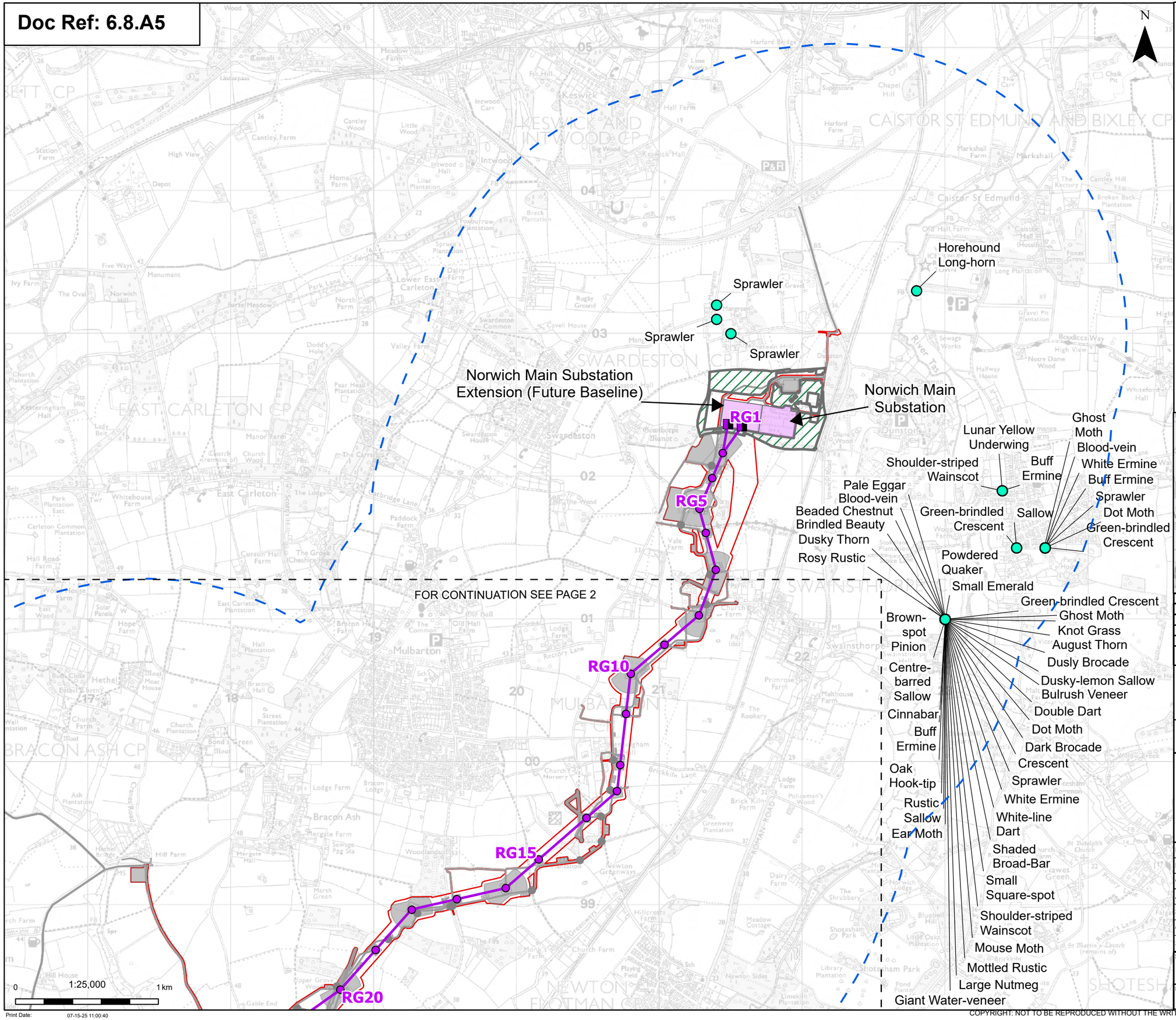
Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Print Date: 07-15-25 11:00:33

Doc Ref: 6.8.A5



Print Date: 07-15-25 11:00:40

- Order limits
- Sheet index cutline

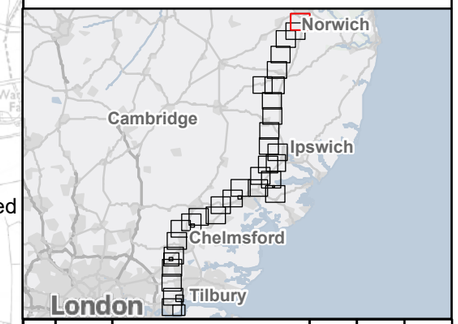
Proposed project design details

- Proposed full line tension gantry
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Norwich Main Substation
- Norwich Main Substation Extension (future baseline)
- Environmental area
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 1 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369
Revision: A

Doc Ref: 6.8.A5

RG10

RG15

RG20

RG25

RG30

RG35

Shaded Broad-bar

Ghost Moth
Dusky Thorn
Beaded Chestnut
Blood-vein
Buff Ermine
White Ermine
Bulrush Veneer
Brindled Beauty
Small Emerald
Rustic
Centre-barred Sallow
Powdered Quaker
Dot Moth

FOR CONTINUATION SEE PAGE 1

FOR CONTINUATION SEE PAGE 3

N

0 1:25,000 1 km

Print Date: 07-15-25 11:00:46

Order limits
Sheet index cutline

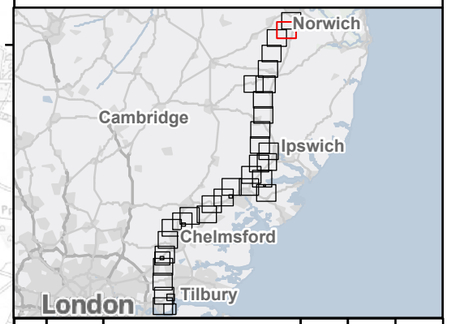
Proposed project design details

Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

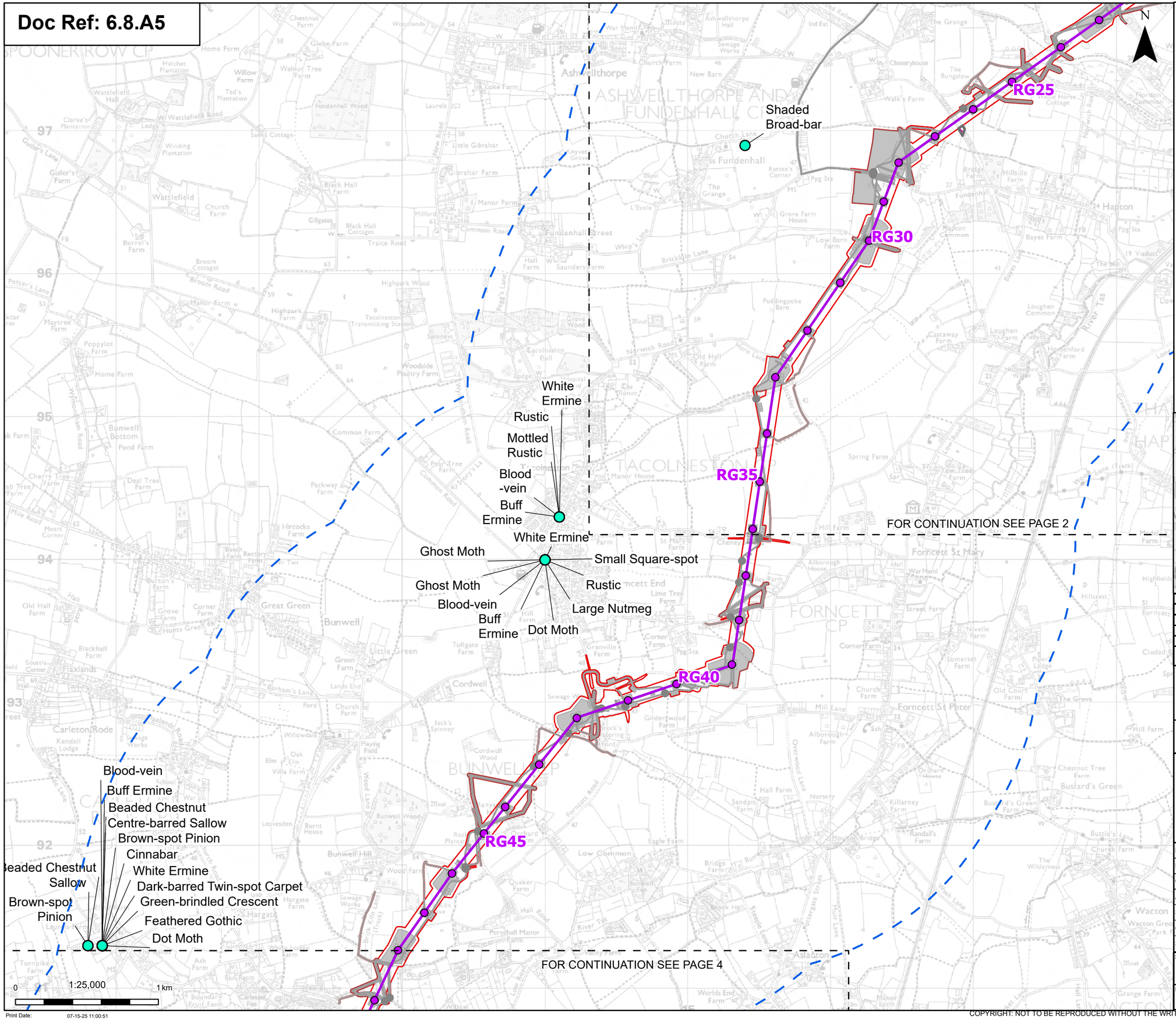
Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 2 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369
Revision: A

Doc Ref: 6.8.A5



Order limits
Sheet index cutline

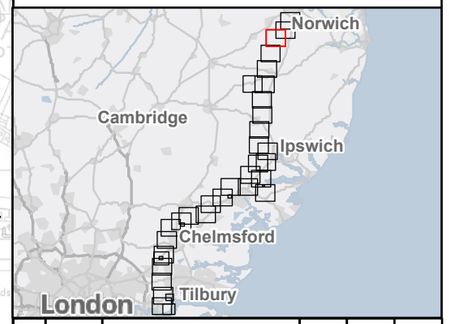
Proposed project design details

Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 3 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369
Revision: A

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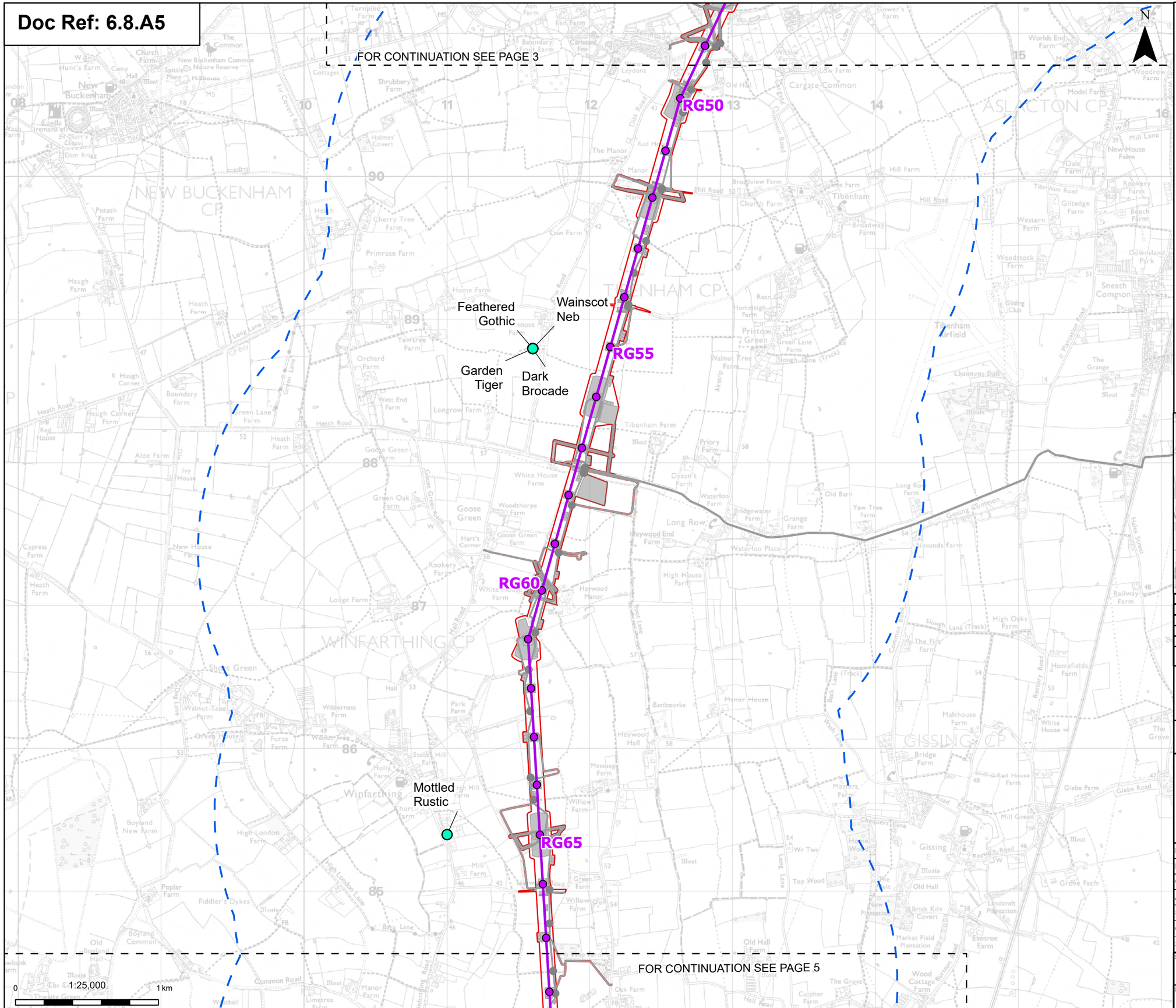
Doc Ref: 6.8.A5

FOR CONTINUATION SEE PAGE 3



FOR CONTINUATION SEE PAGE 5

Print Date: 07-15-25 11:00:55

- Order limits
- Sheet index cutline

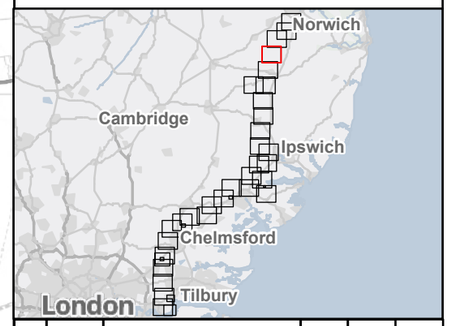
Proposed project design details

- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

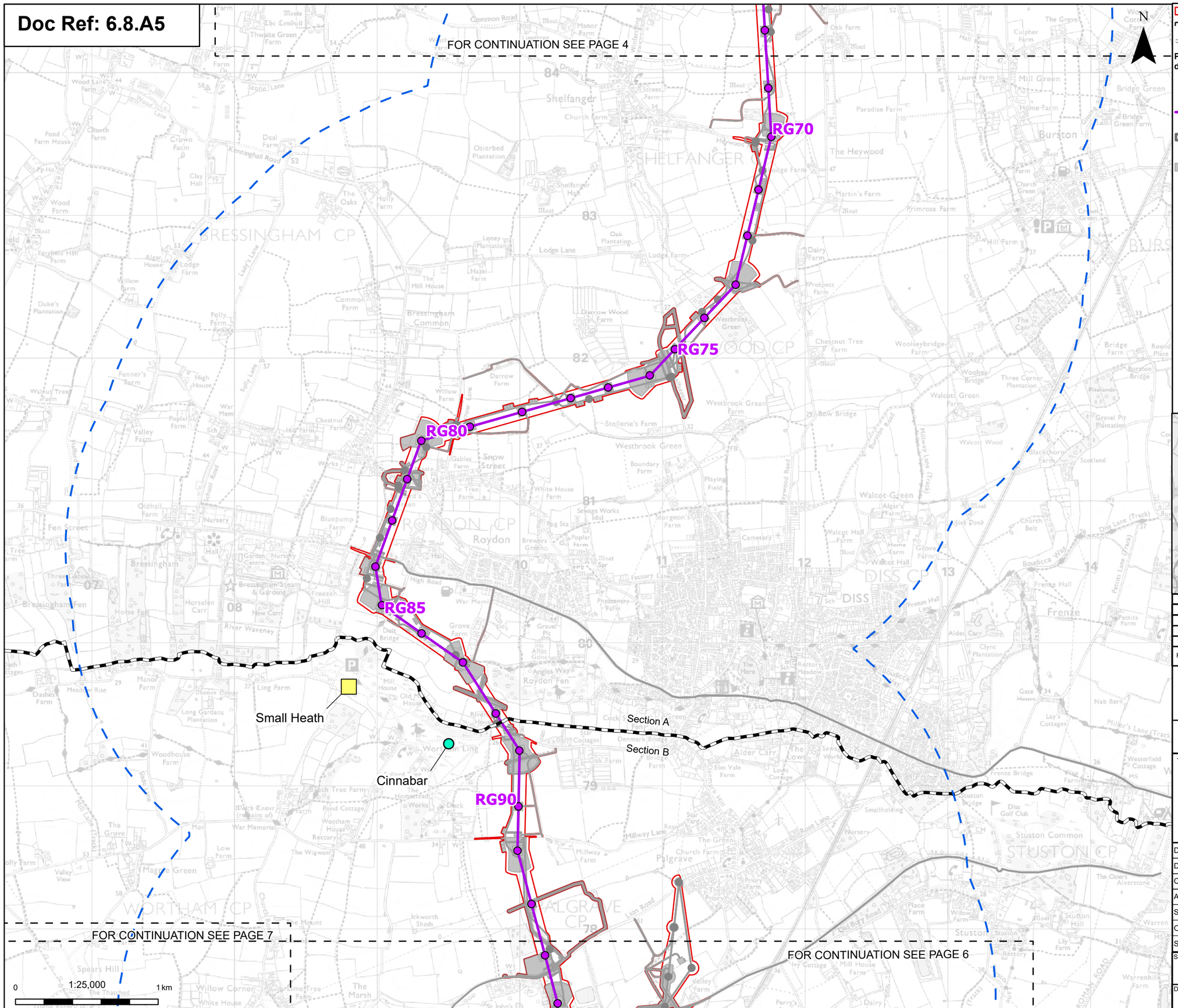
Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 4 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A



Doc Ref: 6.8.A5

FOR CONTINUATION SEE PAGE 4

FOR CONTINUATION SEE PAGE 7

FOR CONTINUATION SEE PAGE 6

- 🟥 Order limits
- ⌐ ¬ Sheet index cutline
- ▬ Project section line

Proposed project design details

- ● Proposed standard lattice pylon location
- ▬ Proposed overhead line alignment
- ▨ Environmental mitigation
- ▩ Other temporary and permanent construction and operational works

Discipline specific constraints

- ⌐ ¬ 2 km Study Area
- 🟨 Butterfly
- ● Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

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PROJECT:
Norwich to
Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
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Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369
Revision: A

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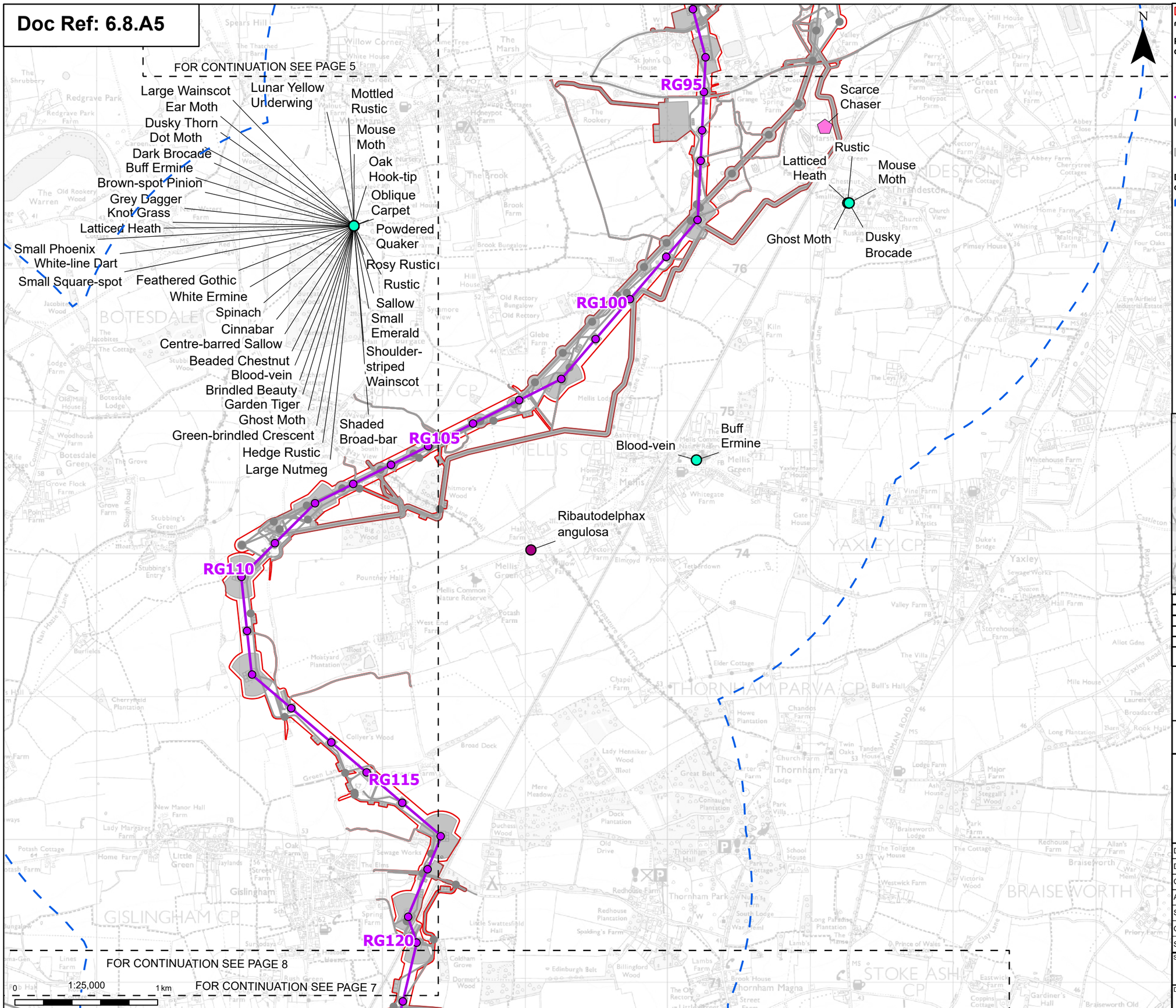

Order limits
Sheet index cutline

Proposed project design details

Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area

Dragonfly (Odonata)
Moth
True bug (Hemiptera)

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 6 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

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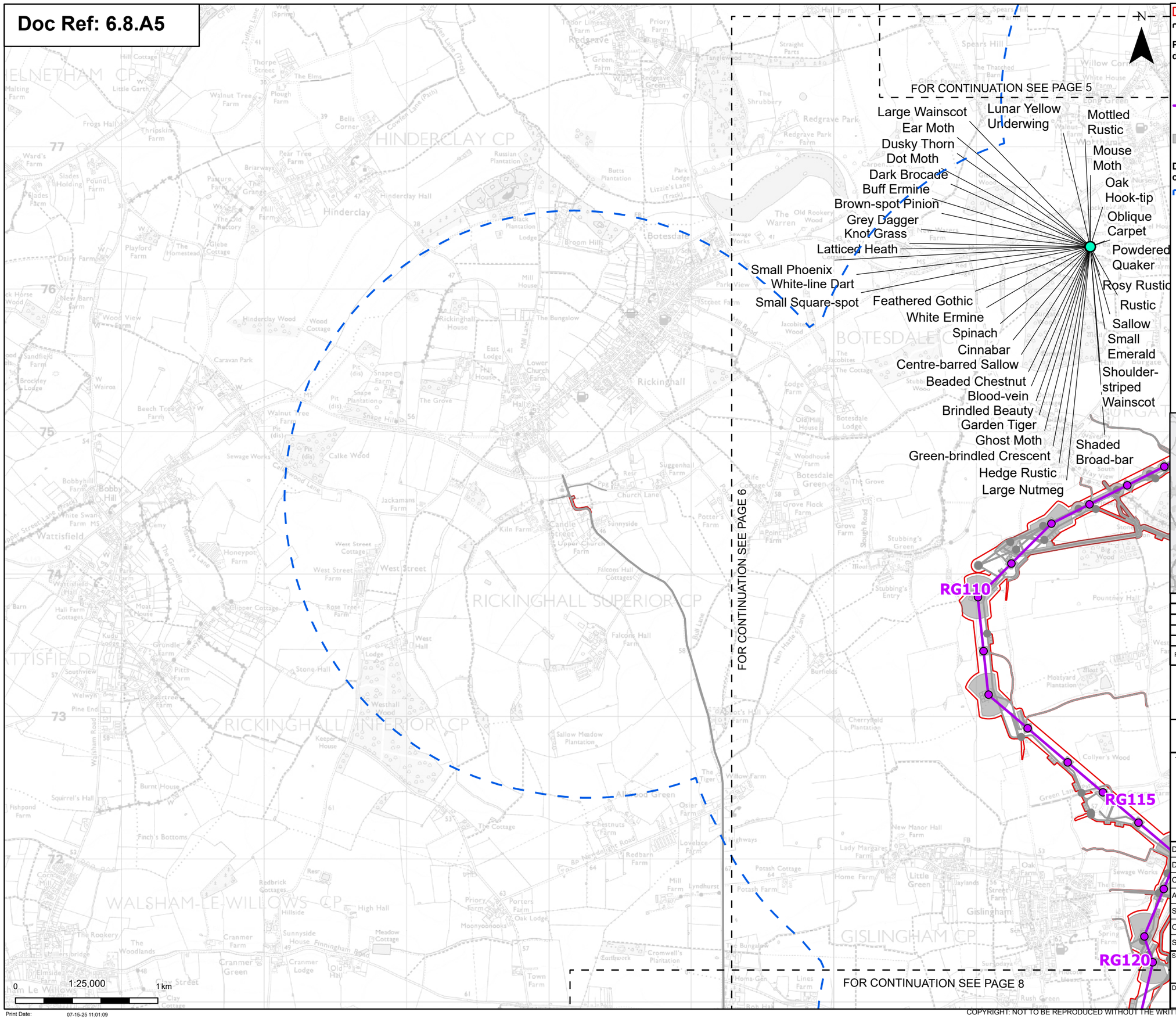


Order limits

Sheet index cutline

Proposed project design details

Proposed standard lattice pylon location

Proposed overhead line alignment

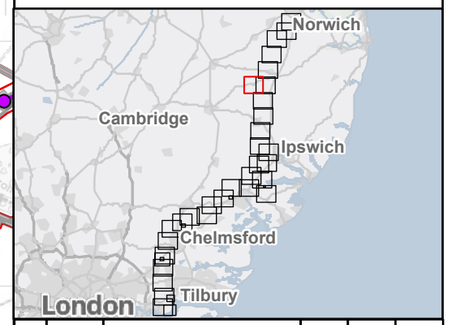
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area

Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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A	Aug 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
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Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 7 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:

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Revision: A

Print Date: 07-15-25 11:01:09

Doc Ref: 6.8.A5

FOR CONTINUATION SEE PAGE 7

FOR CONTINUATION SEE PAGE 6

N

RG125

RG130

RG135

RG140

Rosy Rustic
Small Square-spot
Dusky Thorn
Brown-spot Pinion
Centre-barred Sallow

FOR CONTINUATION SEE PAGE 9

0 1:25,000 1 km

Print Date: 07-15-25 11:01:13

Order limits

Sheet index cutline

Proposed project design details

Proposed standard lattice pylon location

Proposed overhead line alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area

Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 8 of 31

Designed	C. Horley	Date	21 Aug 25
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Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Doc Ref: 6.8.A5

FOR CONTINUATION SEE PAGE 8

RG140

Pretty Chalk Carpet

Oak Hook-tip
Mouse Moth
Mottled Rustic
Minor Shoulder-knot
Lunar Yellow Underwing
Latticed Heath
Large Wainscot
Large Nutmeg
Brown-spot Pinion
Knot Grass
Small Emerald
Grey Dagger
Green-brindled Crescent
Giant Water-veneer
Gypsy Moth
Sprawler

RG145

Rustic
Rosy Rustic
Rosy Minor
Ghost Moth
Garden Dart
Sallow
Small Ranunculus
Small Square-spot

RG150

Cinnabar
Ghost Moth
Ear Moth
Mottled Rustic
Latticed Heath
Sprawler
Autumnal Rustic
Beaded Chestnut
Blood-vein
Brown-spot Pinion
V-moth
Rustic
Knot Grass
Sprawler
Sallow
Shoulder-striped Wainscot
Small Square-spot

RG155

RG160

Toadflax Brocade
Powdered Quaker
Blood-vein
Brindled Beauty
Autumnal Rustic
Buff Ermine
Bulrush Veneer
Centre-barred Sallow
Cinnabar
Waste Grass-veneer
Comfrey Ermel
Dark Brocade
Dark Spinach
Deep-brown Dart
Spindle Knot-horn
Dot Moth
Dusky-lemon Sallow
Dusky Brocade
Dusky Thorn
Wainscot Neb
Saltmarsh Knot-horn
Shaded Broad-bar
Feathered Gothic
White Ermine
Ear Moth
Shoulder-striped Wainscot
Flame Wainscot
Centre-barred Sallow
Green-brindled Crescent
Dark-barred Twin-spot Carpet
Deep-brown Dart
Dot Moth
Dusky-lemon Sallow
Dusky Brocade
Dusky Thorn
Large Nutmeg
Large Wainscot
Small Emerald
White Ermine
Rosy Rustic
Mouse Moth
Powdered Quaker
Buff Ermine
Small Square-spot
Wormwood Knot-horn
Beaded Chestnut

FOR CONTINUATION SEE PAGE 10

0 1:25,000 1 km

Print Date: 07-15-25 11:01:17

N

- Order limits
- Sheet index cutline

Proposed project design details

- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 9 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

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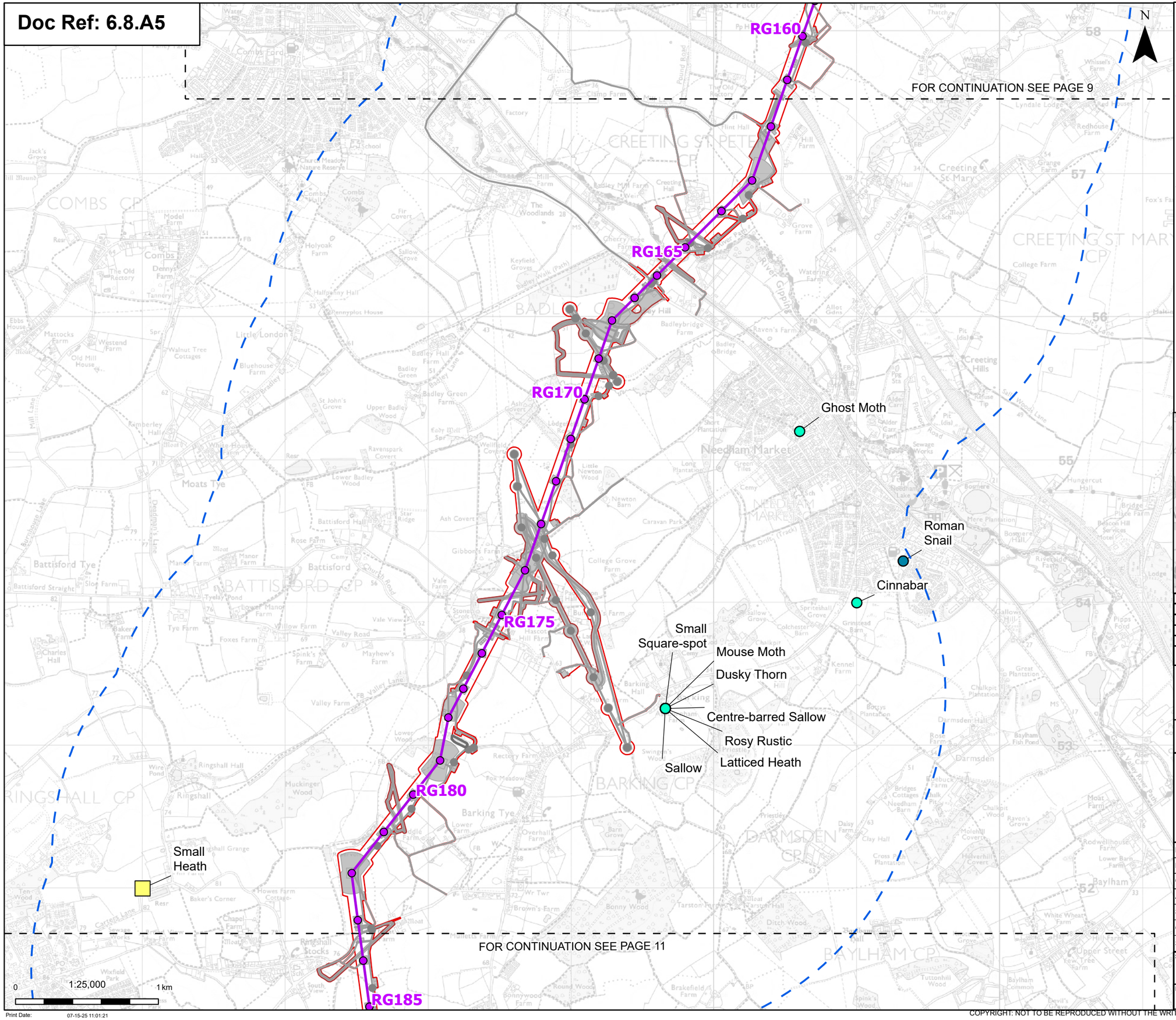


Order limits
Sheet index cutline

Proposed project design details

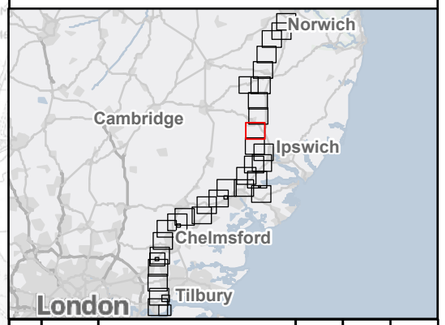
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area

- Butterfly
- Moth
- Mollusc

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits Page 10 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

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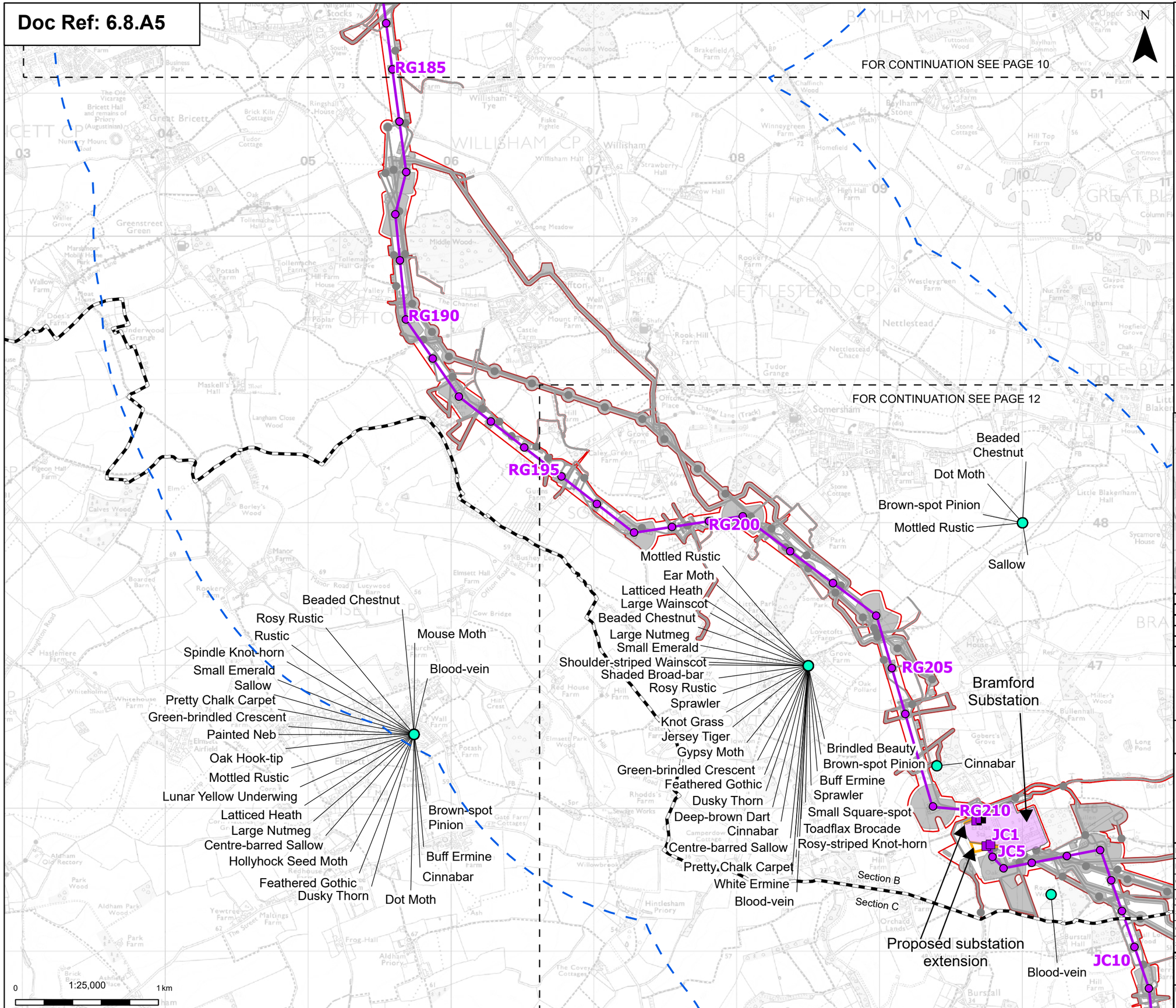

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- Order limits
- Sheet index cutline
- Project section line

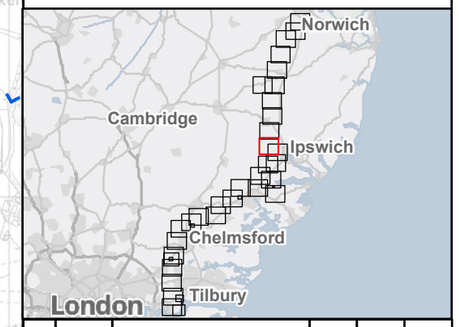
Proposed project design details

- Proposed full line tension gantry
- Proposed low duty gantry
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Bramford Substation
- Bramford Substation Extension
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 11 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Doc Ref: 6.8.A5

RG195
RG200
RG205
RG210
JC1
JC5
JC10
JC15
JC20

Mottled Rustic
Ear Moth
Latticed Heath
Large Wainscot
Beaded Chestnut
Large Nutmeg
Small Emerald
Shoulder-striped Wainscot
Shaded Broad-bar
Rosy Rustic
Sprawler
Knot Grass
Jersey Tiger
Gypsy Moth
Green-brindled Crescent
Feathered Gothic
Dusky Thorn
Deep-brown Dart
Cinnabar
Centre-barred Sallow
Pretty Chalk Carpet
White Ermine
Blood-vein

Beaded Chestnut
Dot Moth
Brown-spot Pinion
Mottled Rustic
Sallow

Small Square-spot
Large Nutmeg
Cinnabar
White Ermine
Mottled Rustic

Bramford Substation

Brindled Beauty
Brown-spot Pinion
Cinnabar
Buff Ermine
Sprawler
Small Square-spot
Toadflax Brocade
Rosy-striped Knot-horn

Section B
Section C

Proposed substation extension

Blood-vein

Autumnal Rustic

Ashy Furrow Bee
Cinnabar
Cinnabar

Hawksbeard Mining Bee
Brown Tree Ant
Lobe-spurred Furrow Bee
White-letter Hairstreak

White Ermine
Mottled Rustic
Toadflax Brocade
Large Nutmeg
Dusky Thorn
Brindled Beauty
Rustic
Rosy Rustic
Powdered Quaker
Cinnabar
Buff Ermine

FOR CONTINUATION SEE PAGE 11
FOR CONTINUATION SEE PAGE 13
FOR CONTINUATION SEE PAGE 14

N

0 1:25,000 1 km

Print Date: 07-15-25 11:01:30

Order limits
Sheet index cutline
Project section line

Proposed project design details

Proposed full line tension gantry
Proposed low duty gantry
Proposed standard lattice pylon location
Proposed overhead line alignment
Bramford Substation
Bramford Substation Extension
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Butterfly
Hymenopteran
Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits Page 12 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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Approved	K. Burrows	Date	21 Aug 25
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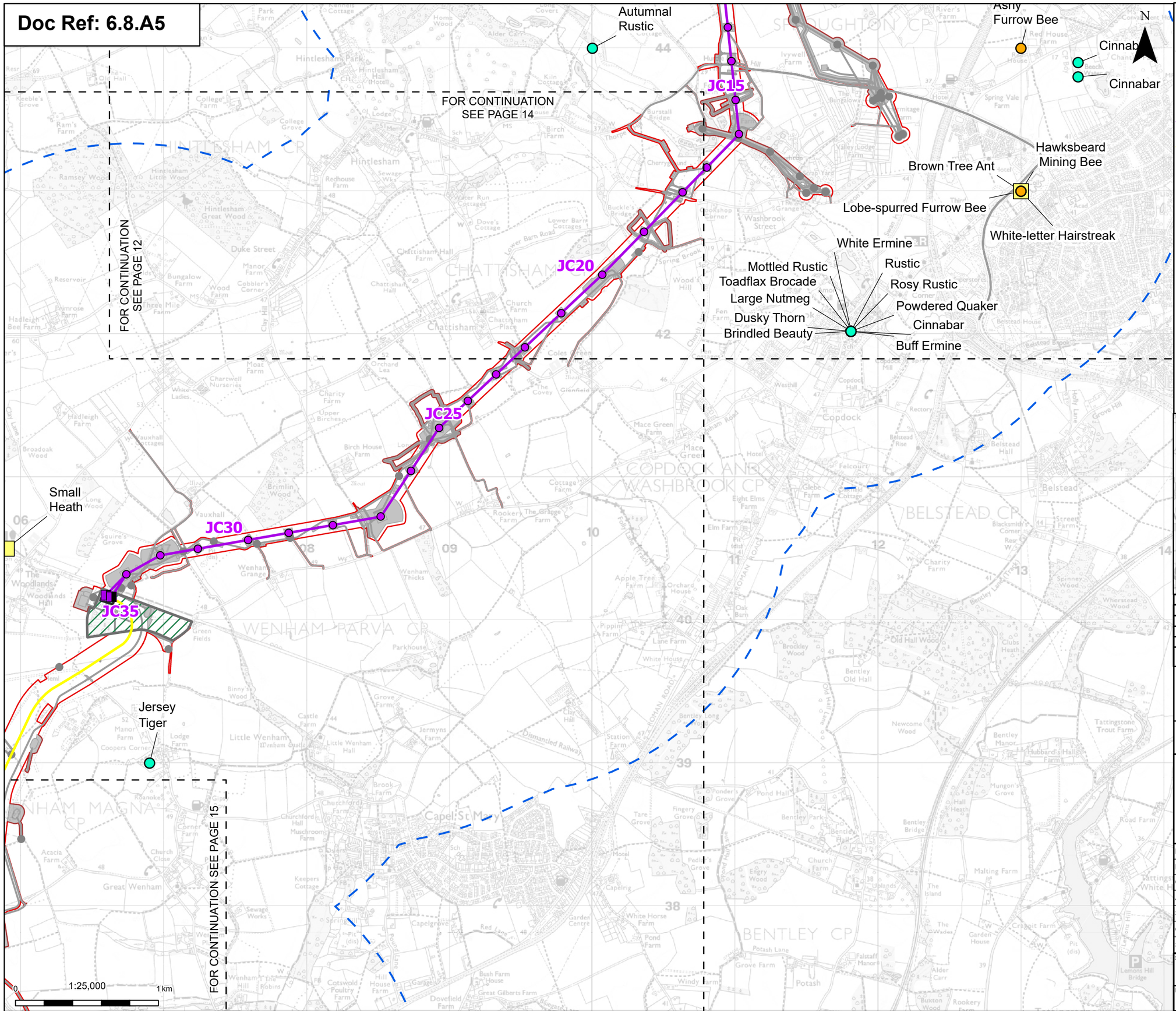
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Doc Ref: 6.8.A5



Order limits
Sheet index cutline

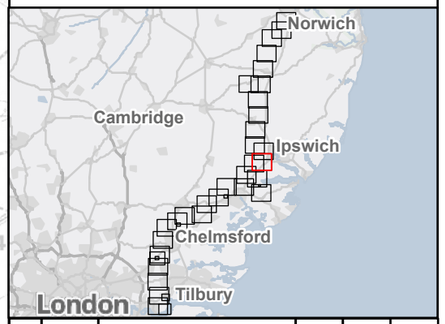
Proposed project design details

- Proposed full line tension gantry
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound(CSEC)
- Environmental area
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Butterfly
- Hymenopteran
- Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits Page 13 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

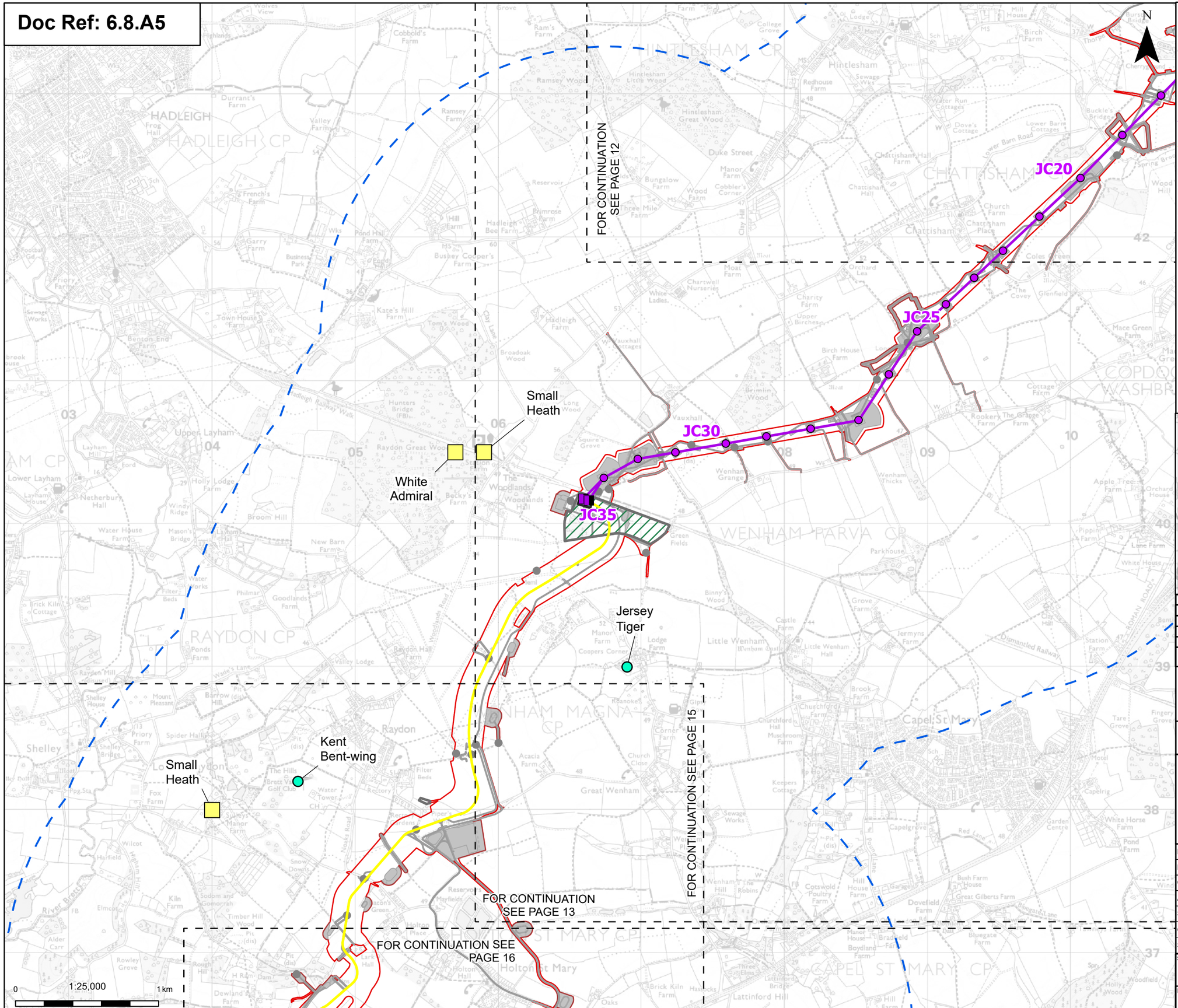
Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Print Date: 07-15-25 11:01:35

Doc Ref: 6.8.A5



Order limits
Sheet index cutline

Proposed project design details

- Proposed full line tension gantry
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound(CSEC)
- Environmental area
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Butterfly
- Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits Page 14 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

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Revision: A

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Doc Ref: 6.8.A5

Small Heath

Kent Bent-wing

Feathered Gothic

Mouse Moth

Rosy Rustic

Latticed Heath

Dusky Thorn

Trenchless Crossing: Higham Road

Trenchless Crossing: River Stour (north part)

Trenchless Crossing: River Stour (south part)

Copse Snail

leaf-miner fly

Apterygida media

Phyllocnistis saligna

Stigmella obliquella

Scarce Chaser

Stigmella splendidissimella

Trenchless Crossing: A12 highway crossing

FOR CONTINUATION SEE PAGE 13

FOR CONTINUATION SEE PAGE 16

FOR CONTINUATION SEE PAGE 14

FOR CONTINUATION SEE PAGE 18

Section C

Section D

0 1 km 1:25,000

N

Order limits
Sheet index cutline
Project section line

Proposed project design details

Proposed underground cable alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Butterfly

Dragonfly (Odonata)
Moth
Orthopteran
True fly (Diptera)
Mollusc

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
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Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
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Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

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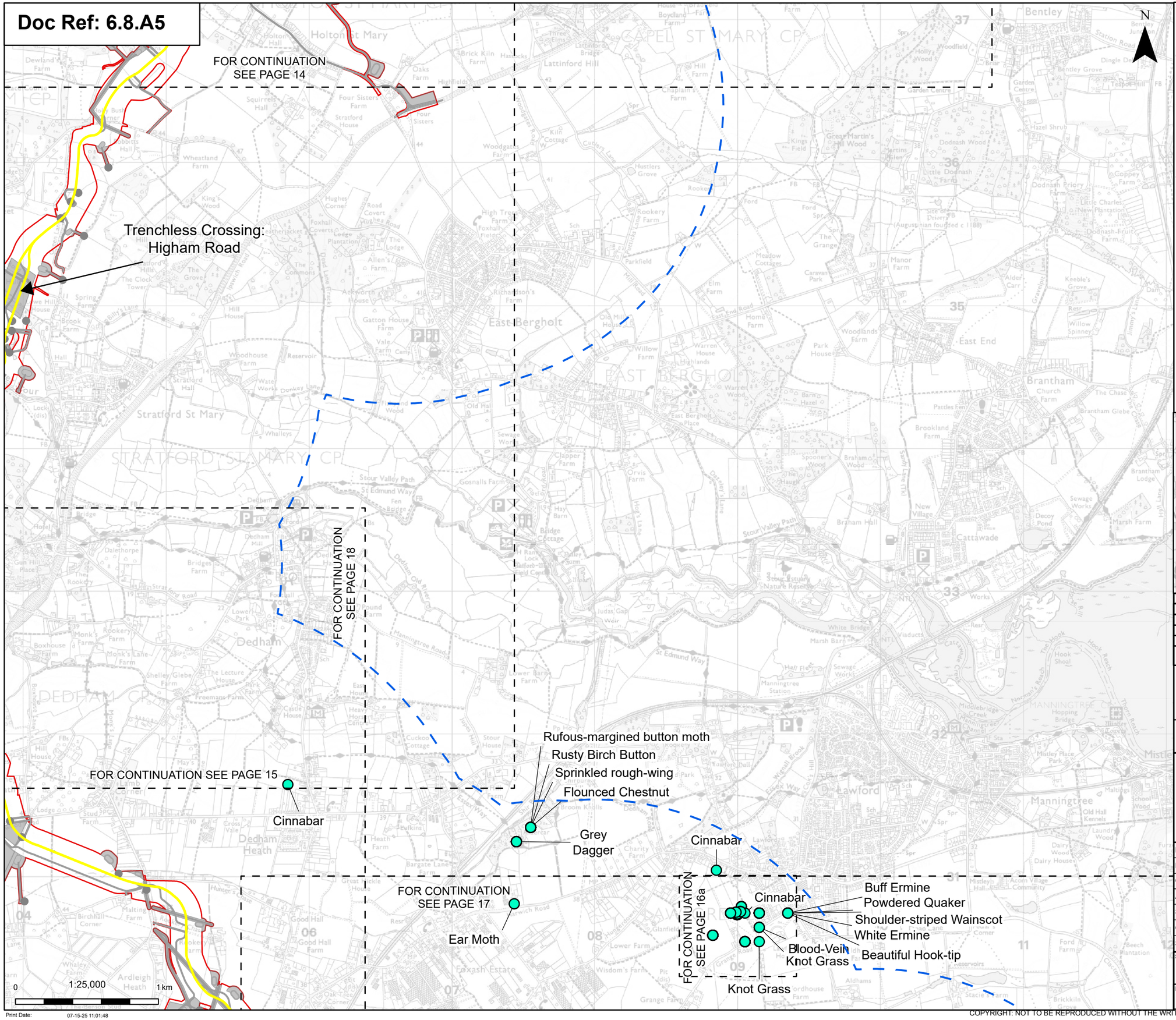
Doc Ref: 6.8.A5



Print Date: 07-15-25 11:01:48

Order limits

Sheet index cutline

Proposed project design details

Proposed standard lattice pylon location

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area

Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
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Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 16 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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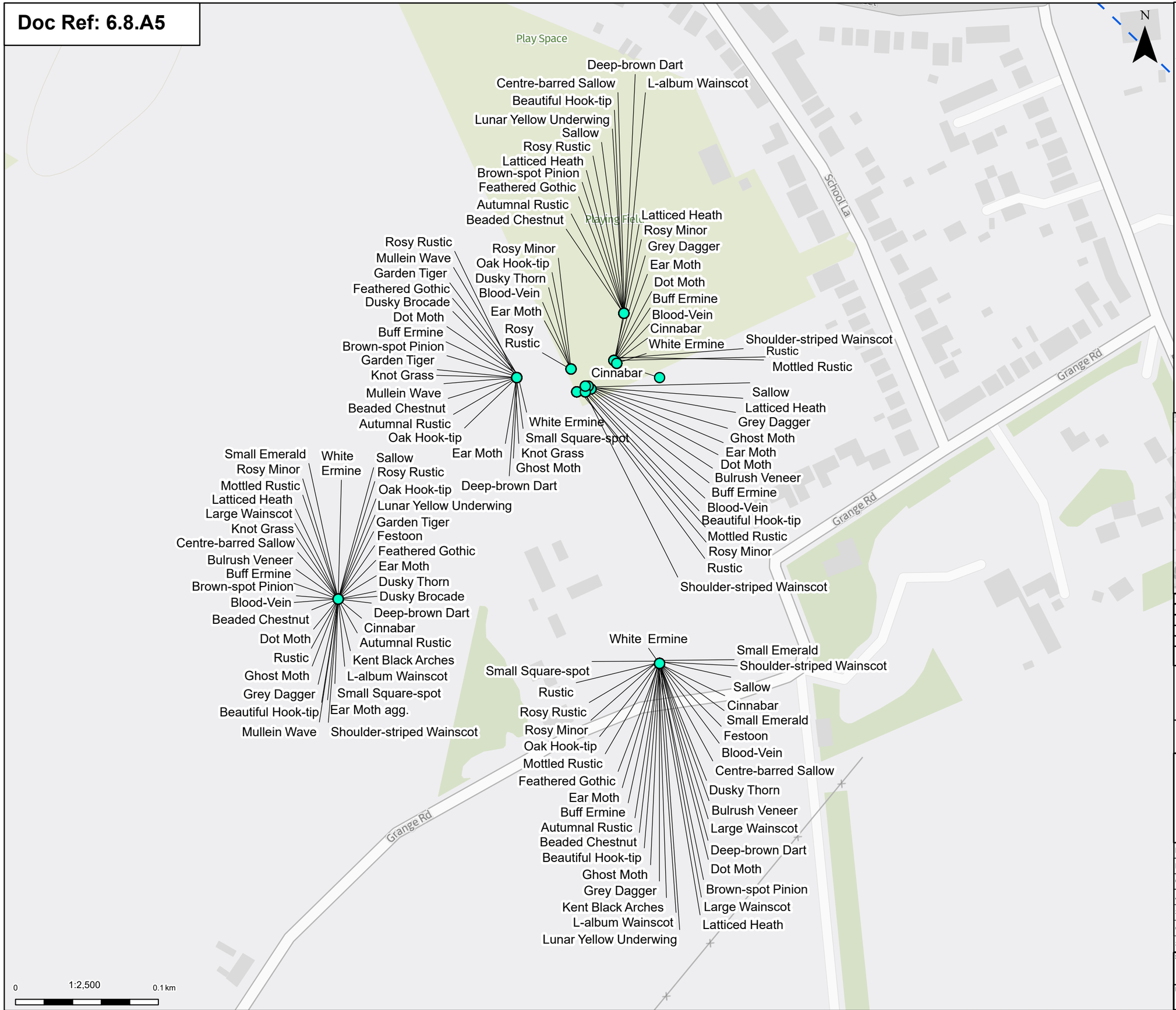
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

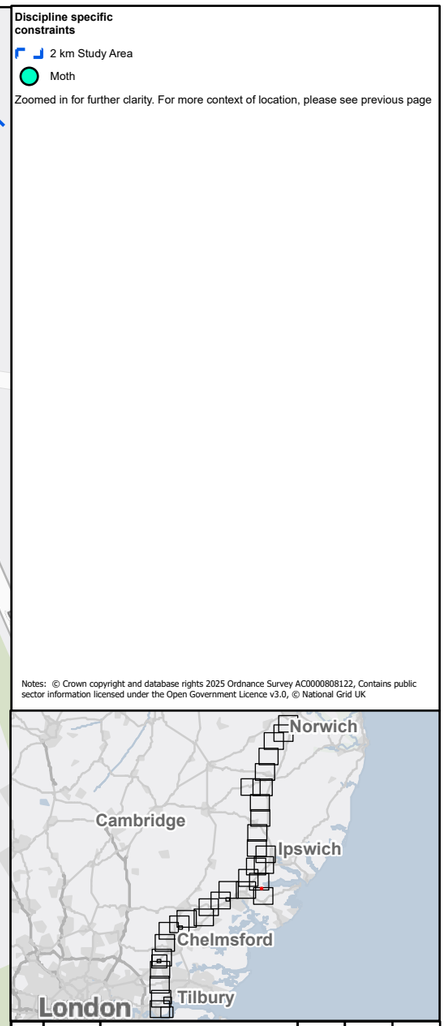
Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Doc Ref: 6.8.A5





Discipline specific constraints

- 2 km Study Area
- Moth

Zoomed in for further clarity. For more context of location, please see previous page

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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
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Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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Doc Ref: 6.8.A5

Ear Moth

FOR CONTINUATION SEE PAGE 16a

Cinnabar

Buff Ermine

Powdered Quaker

Shoulder-striped Wainscot

White Ermine

Blood-Vein

Knot Grass

Beautiful Hook-tip

Knot Grass

FOR CONTINUATION SEE PAGE 16

TB10

TB5

TB1

Proposed EACN Substation

Trenchless Crossing: Railway crossing (east of Ardleigh)

FOR CONTINUATION SEE PAGE 18

Cinnabar

N

0 1:25,000 1 km

Print Date: 07-15-25 11:02:01

- Order limits
- Sheet index cutline
- Other temporary and permanent construction and operational works

Proposed project design details

- Proposed full line tension gantry
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed DNO Substation
- Proposed East Anglia Connection Node Substation(EACN)
- Environmental area

Discipline specific constraints

- 2 km Study Area
- Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 17 of 31

Designed	C. Horley	Date	21 Aug 25
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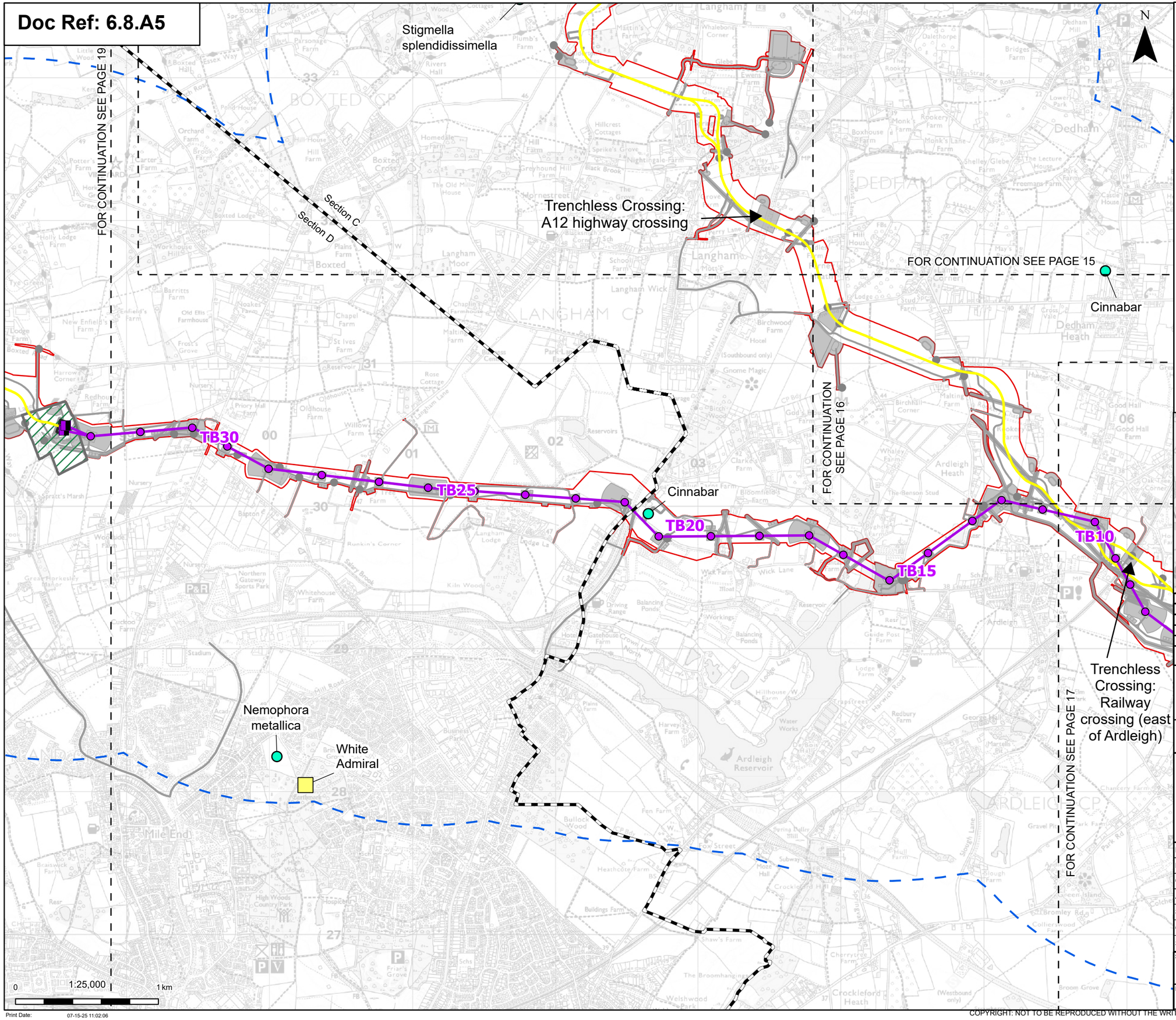
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Doc Ref: 6.8.A5



Order limits
Sheet index cutline
Project section line

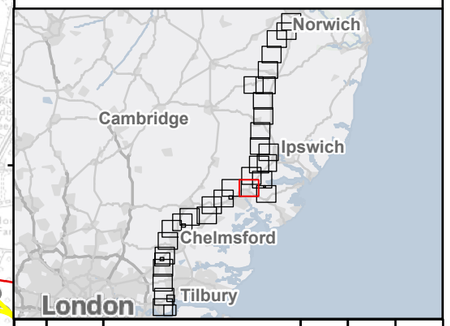
Proposed project design details

- Proposed full line tension gantry
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound(CSEC)
- Environmental area
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Butterfly
- Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
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Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 18 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
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Suitability Code:	A2	Project Number:	10059280

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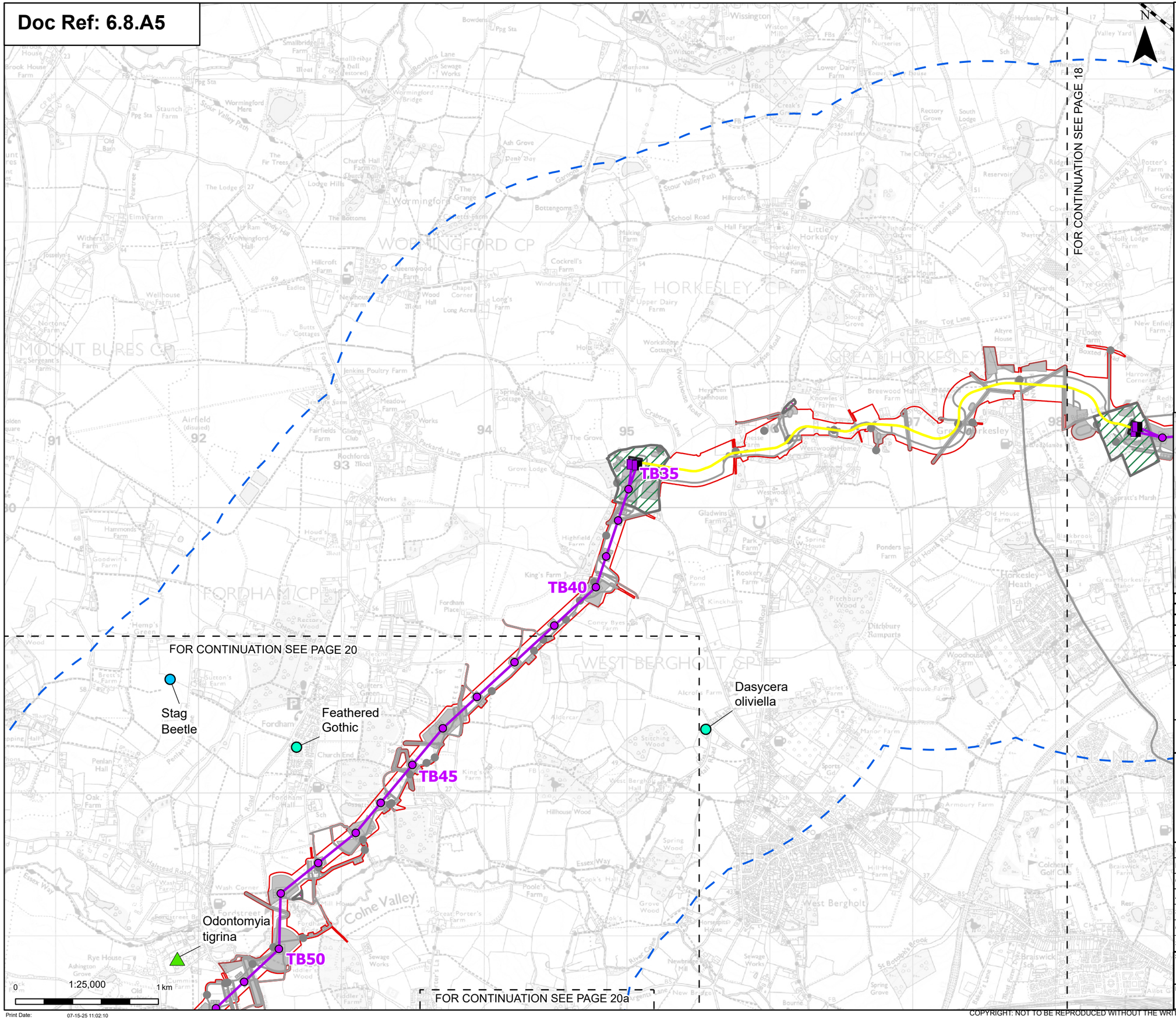


Order limits
Sheet index cutline
Project section line

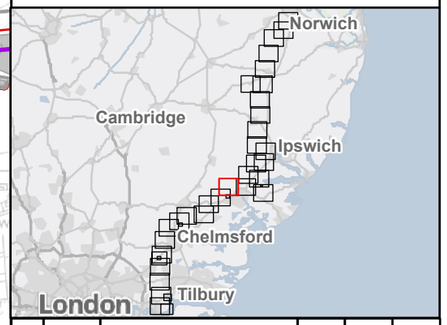
Proposed project design details

- Proposed full line tension gantry
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed cable sealing end compound(CSEC)
- Environmental area
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Beetle (Coleoptera)
- Moth
- True fly (Diptera)

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 19 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Revision: A

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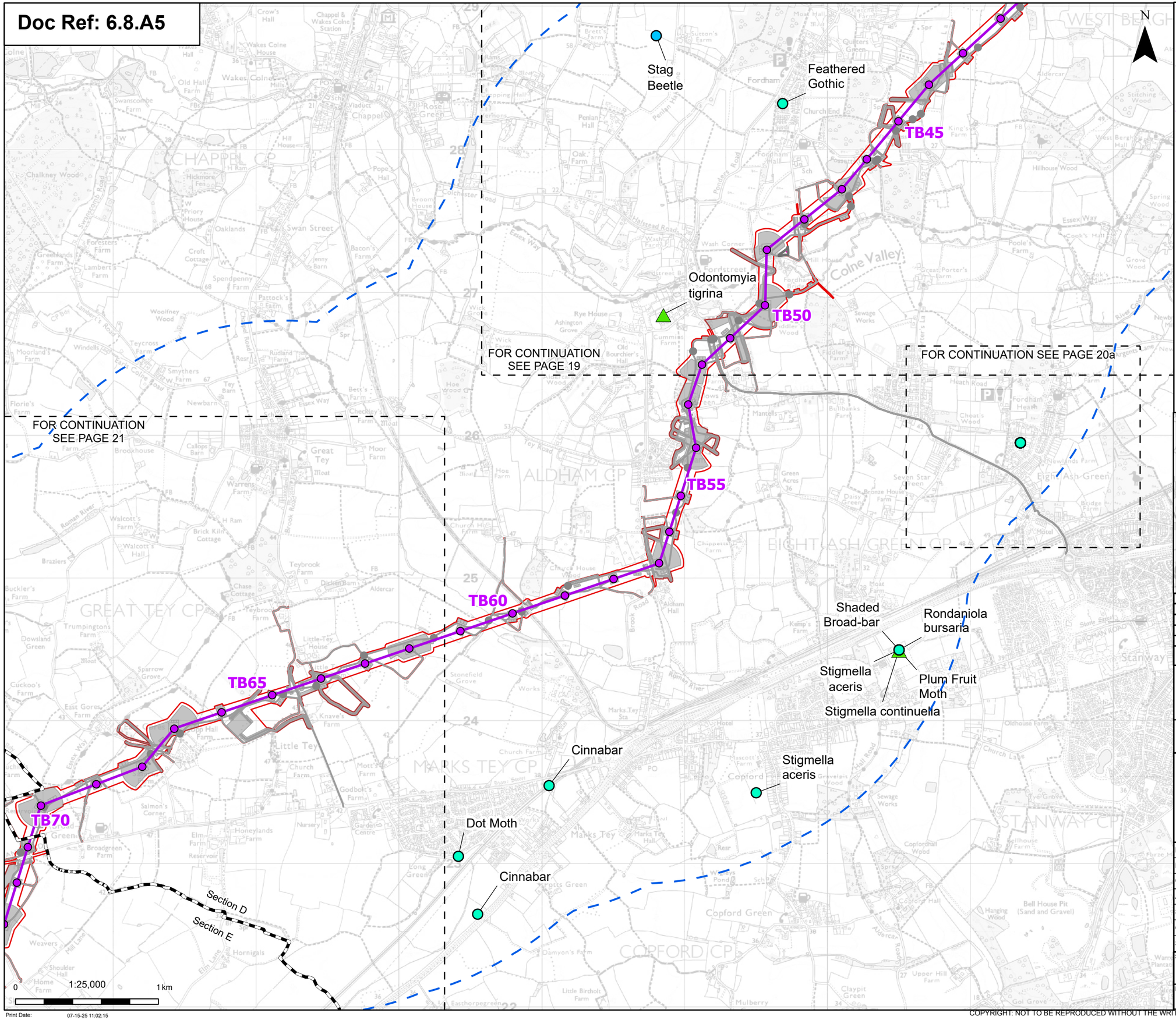
Doc Ref: 6.8.A5



- Order limits
- Sheet index cutline
- Project section line

Proposed project design details

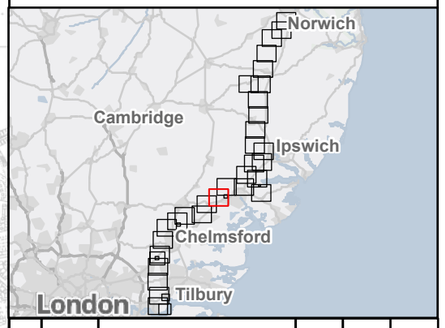
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area

- Beetle (Coleoptera)
- Moth
- True fly (Diptera)

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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A	Aug 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
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Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 20 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
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Suitability Code:	A2	Project Number:	10059280

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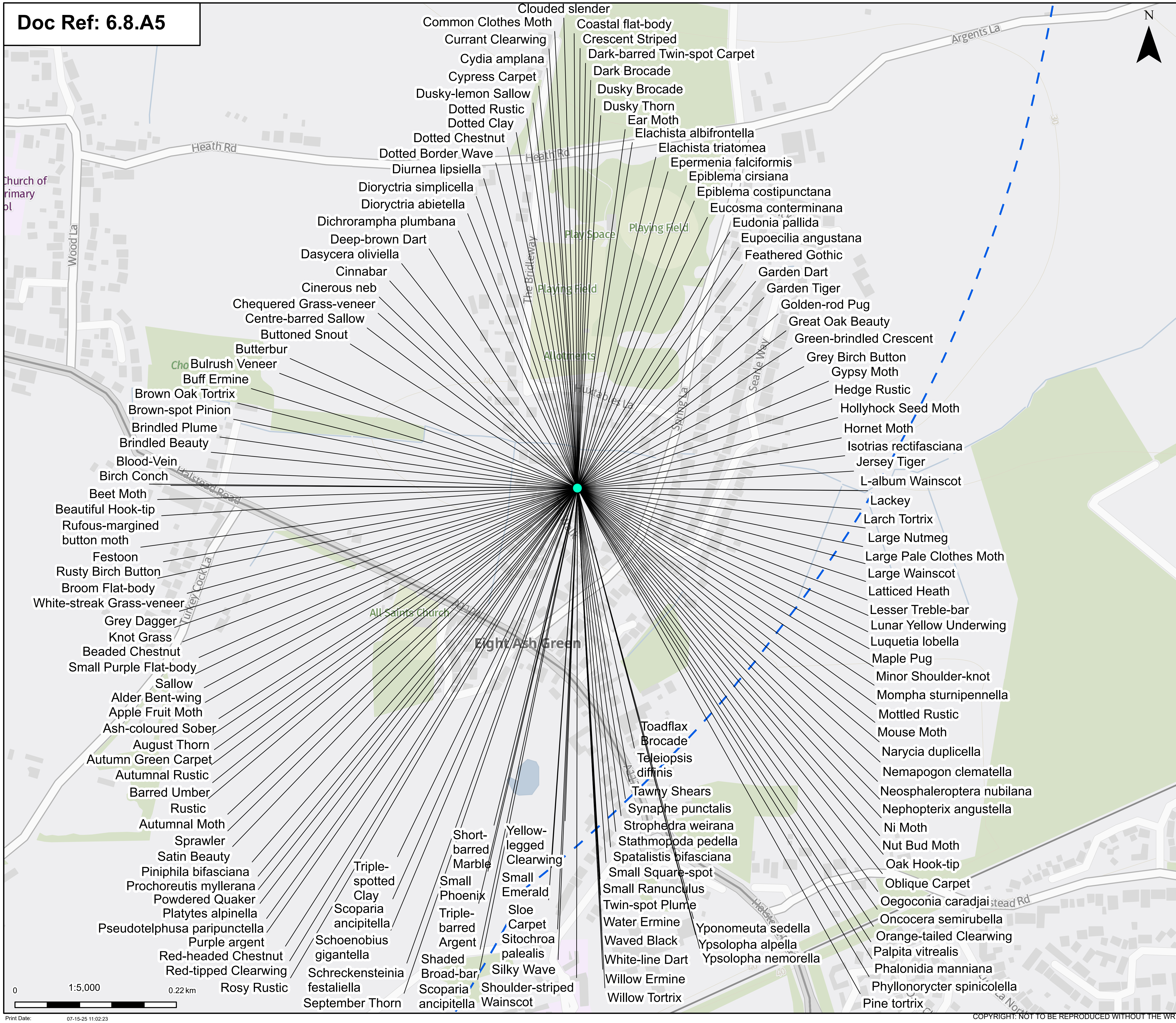

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Argents La
Heath Rd
Heath Rd
Church of
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Wood La
The Bridleway
Play Space
Playing Field
Playing Field
Allotments
Seakle Way
Spring La
Halstead Road
Turkey Cock La
All Saints Church
Eight Ash Green
Halstead Rd
Clouded slender
Common Clothes Moth
Coastal flat-body
Currant Clearwing
Crescent Striped
Cydia amplana
Dark-barred Twin-spot Carpet
Cypress Carpet
Dark Brocade
Dusky-lemon Sallow
Dusky Brocade
Dotted Rustic
Dusky Thorn
Dotted Clay
Ear Moth
Dotted Chestnut
Elachista albifrontella
Dotted Border Wave
Elachista triatomea
Diurnea lipsiella
Epermenia falciformis
Epiblema cirsiana
Dioryctria simplicella
Epiblema costipunctana
Dioryctria abietella
Eucosma conterminana
Dichrorampha plumbana
Eudonia pallida
Deep-brown Dart
Eupoecilia angustana
Dasycera oliviella
Feathered Gothic
Cinnabar
Garden Dart
Cinerous neb
Garden Tiger
Chequered Grass-veneer
Golden-rod Pug
Centre-barred Sallow
Great Oak Beauty
Buttoned Snout
Green-brindled Crescent
Butterbur
Grey Birch Button
Bulrush Veneer
Gypsy Moth
Buff Ermine
Hedge Rustic
Brown Oak Tortrix
Hollyhock Seed Moth
Brown-spot Pinion
Hornet Moth
Brindled Plume
Isotrias rectifasciana
Brindled Beauty
Jersey Tiger
Blood-Vein
L-album Wainscot
Birch Conch
Lackey
Beet Moth
Larch Tortrix
Beautiful Hook-tip
Large Nutmeg
Rufous-margined
button moth
Large Pale Clothes Moth
Festoon
Large Wainscot
Rusty Birch Button
Latticed Heath
Broom Flat-body
Lesser Treble-bar
White-streak Grass-veneer
Lunar Yellow Underwing
Grey Dagger
Luquetia lobella
Knot Grass
Maple Pug
Beaded Chestnut
Minor Shoulder-knot
Small Purple Flat-body
Mompha sturnipennella
Sallow
Mottled Rustic
Alder Bent-wing
Mouse Moth
Apple Fruit Moth
Narycia duplicella
Ash-coloured Sober
Nemapogon clematella
August Thorn
Neosphaleroptera nubilana
Autumn Green Carpet
Nephopterix angustella
Autumnal Rustic
Ni Moth
Barred Umber
Nut Bud Moth
Rustic
Oak Hook-tip
Autumnal Moth
Oblique Carpet
Sprawler
Oegoconia caradjai
Satin Beauty
Oncocera semirubella
Piniphila bifasciana
Orange-tailed Clearwing
Prochoreutis myllerana
Palpita vitrealis
Powdered Quaker
Phalonidia manniana
Platytes alpinella
Phyllonorycter spinicolella
Pseudotelphusa paripunctella
Pine tortrix
Purple argent
Red-headed Chestnut
Red-tipped Clearwing
Rosy Rustic
Triple-
spotted
Clay
Scoparia
ancipitella
Schoenobius
gigantella
Schreckensteinia
festaliella
September Thorn
Short-
barred
Marble
Small
Phoenix
Triple-
barred
Argent
Shaded
Broad-bar
Scoparia
ancipitella
Yellow-
legged
Clearwing
Small
Emerald
Sloe
Carpet
Sitochroa
palealis
Silky Wave
Shoulder-striped
Wainscot
Toadflax
Brocade
Teleiopsis
diffinis
Tawny Shears
Synaphe punctalis
Strophedra weirana
Stathmopoda pedella
Spatalistis bifasciana
Small Square-spot
Small Ranunculus
Twin-spot Plume
Water Ermine
Waved Black
White-line Dart
Willow Ermine
Willow Tortrix
Yponomeuta sedella
Ypsolopha alpella
Ypsolopha nemorella
0
1:5,000
0.22 km

Discipline specific constraints

- 2 km Study Area
- Moth

Zoomed in for further clarity. For more context of location, please see previous page

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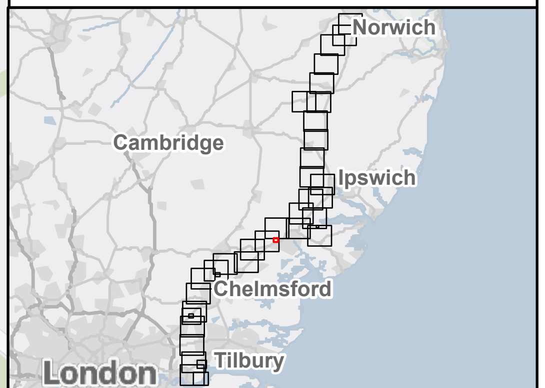

Rev	Date	Description	Drawn	Check	Approv
A	Aug 2025	FOR DCO APPLICATION	SS	AF	KB

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:
Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 20a of 31

Designed	C. Horley	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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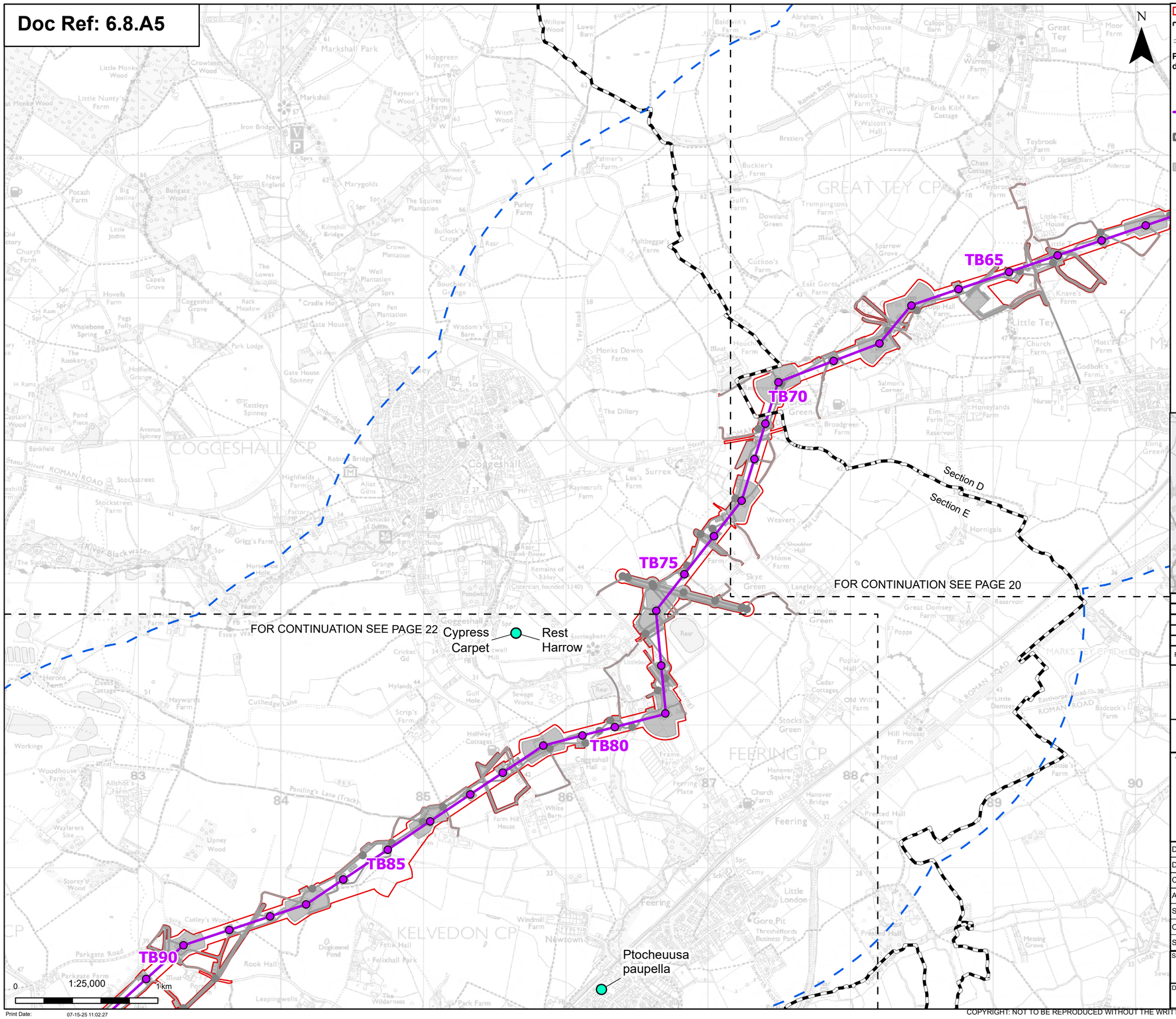


N

Order limits
Sheet index cutline
Project section line

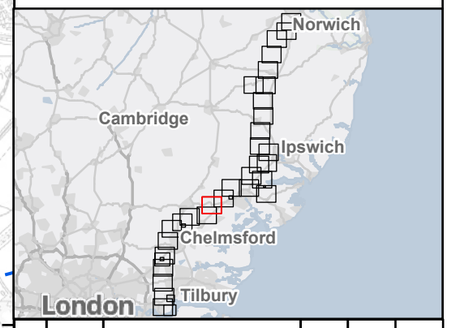
Proposed project design details

Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



Rev	Date	Description	Drawn	Check	Approv
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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 21 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Revision: A

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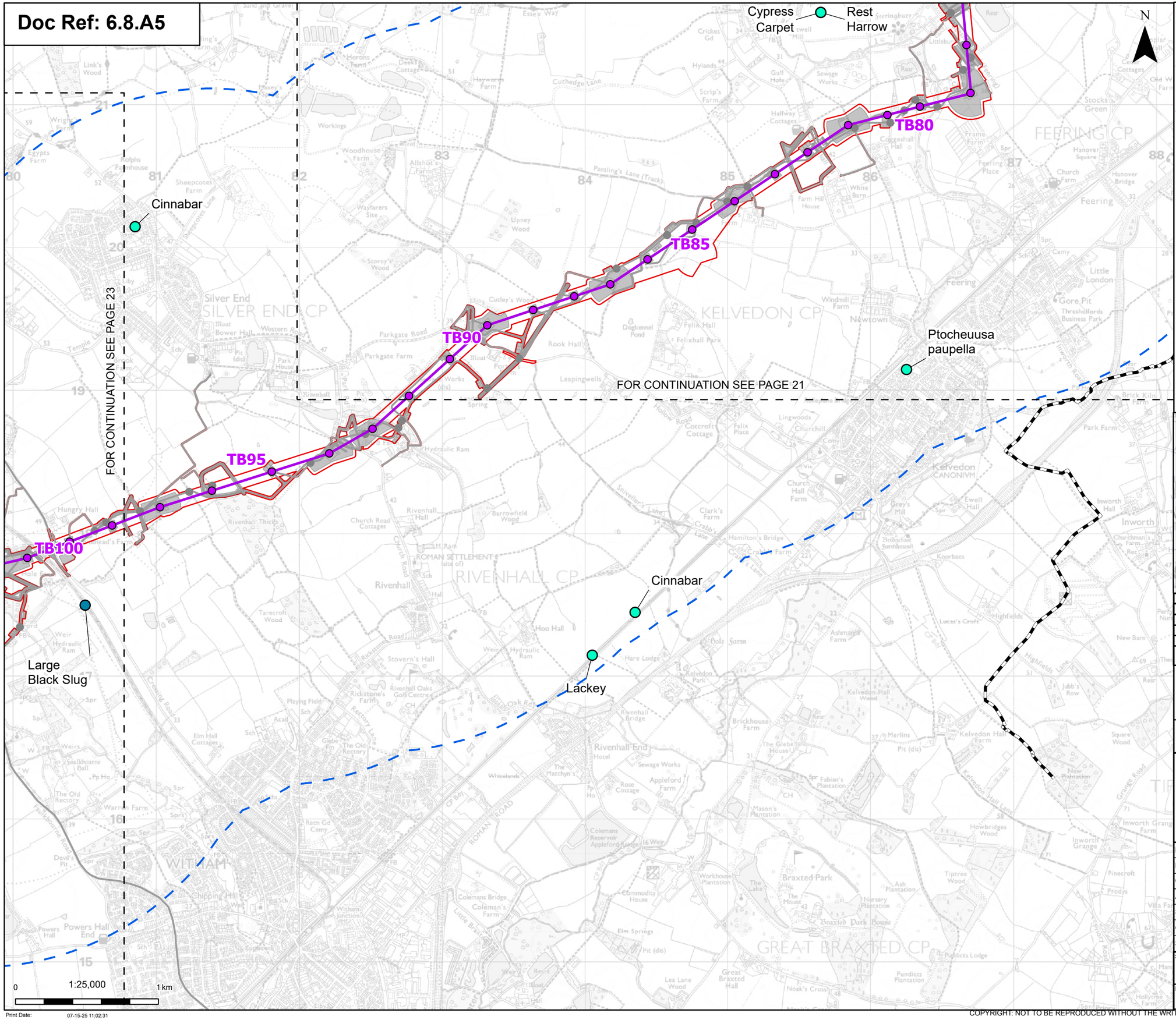


Order limits
Sheet index cutline
Project section line

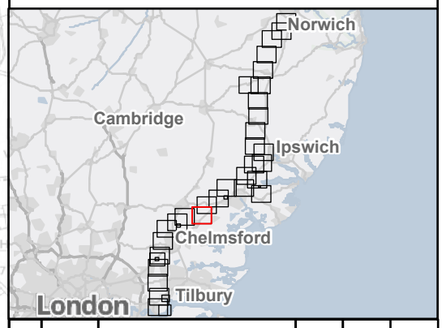
Proposed project design details

Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Moth
Mollusc

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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A	Aug 2025	FOR DCO APPLICATION	SS	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits Page 22 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Print Date: 07-15-25 11:02:31

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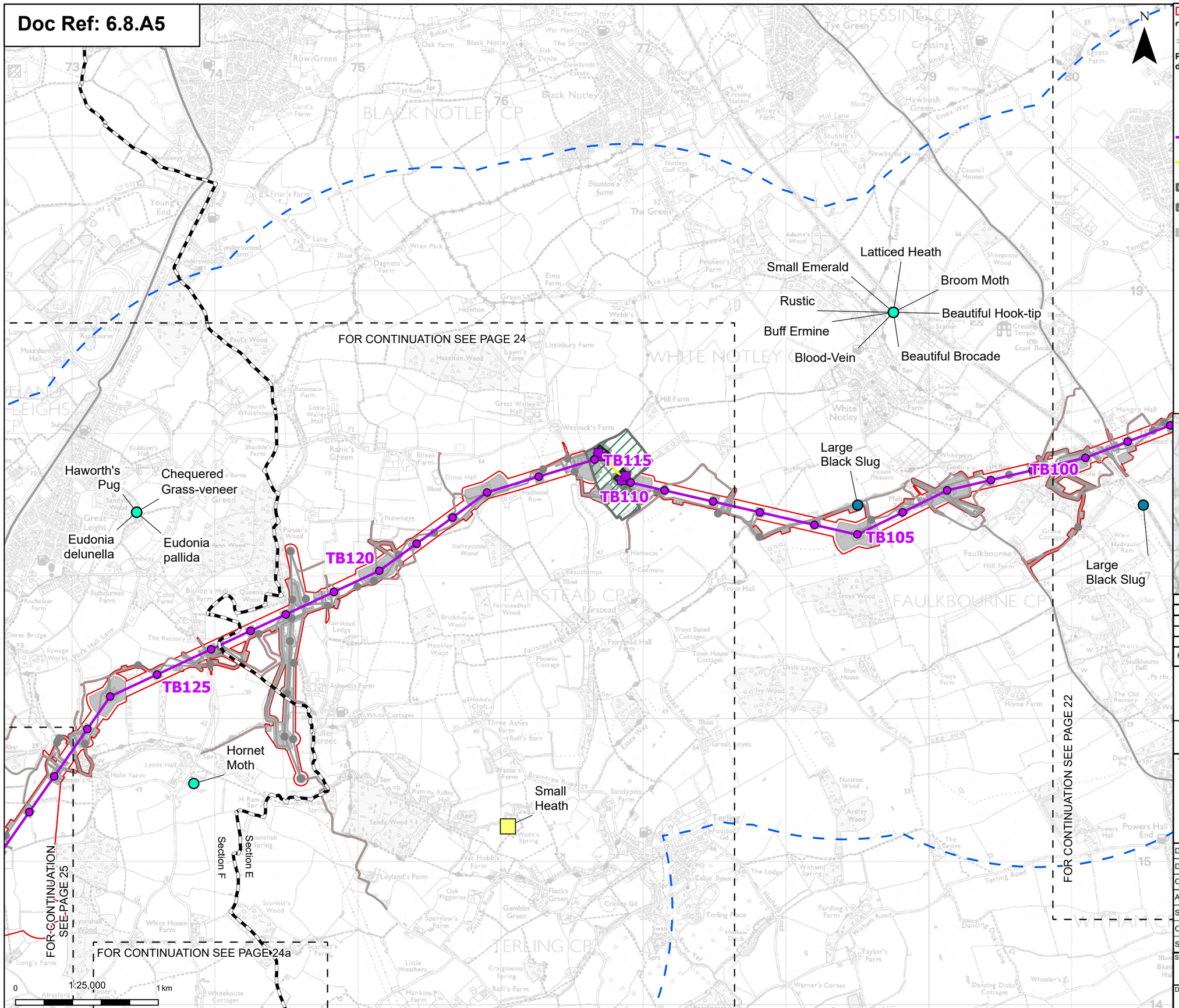


Order limits
Sheet index cutline
Project section line

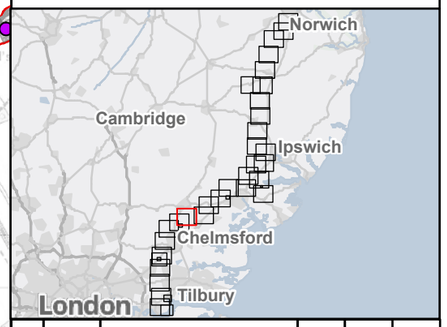
Proposed project design details

Proposed low duty gantry
Proposed standard lattice pylon location
Proposed overhead line alignment
Proposed underground cable alignment
Proposed cable sealing end compound(CSEC)
Environmental area
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Butterfly
Moth
Mollusc

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits Page 23 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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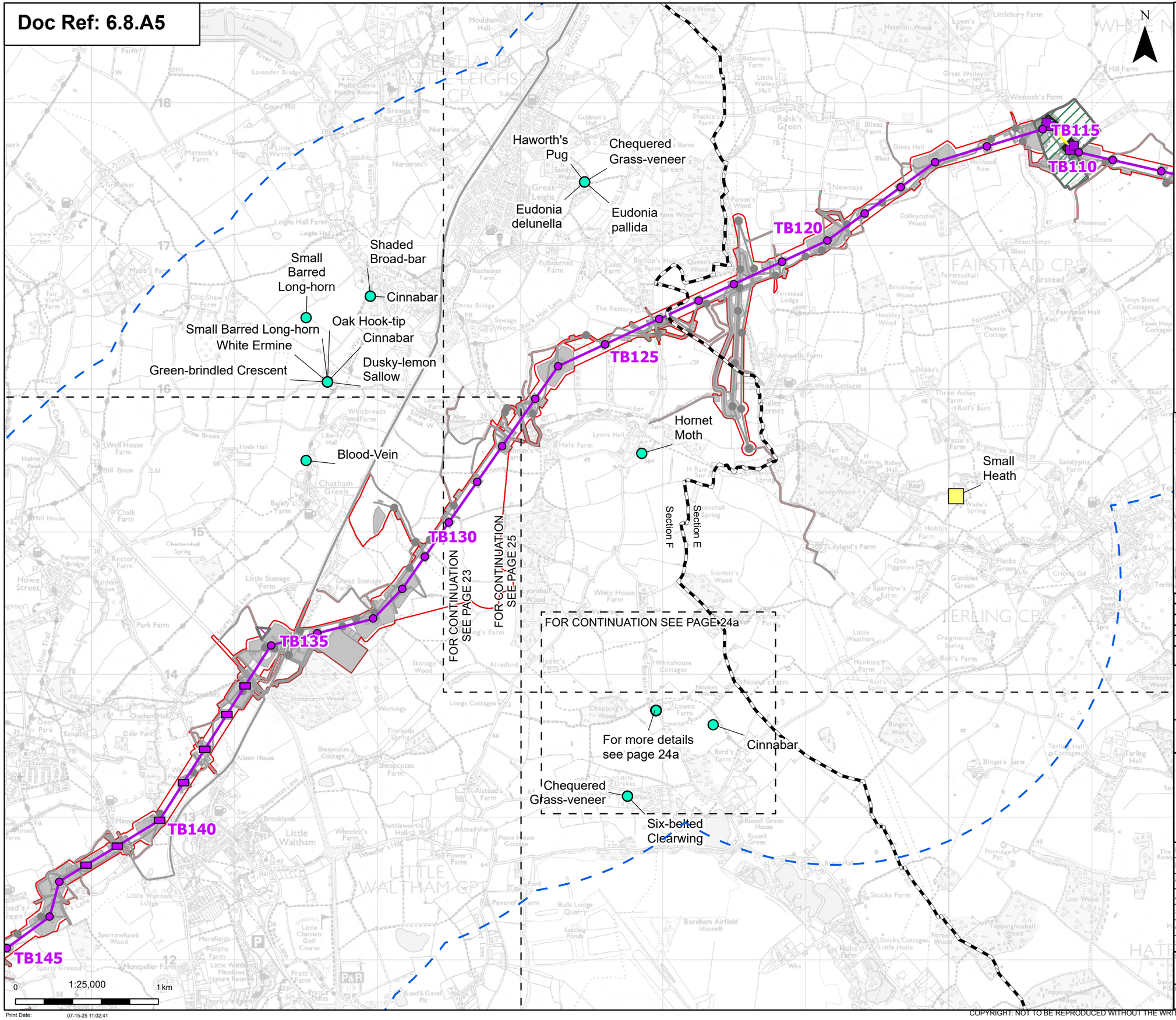
Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369
Revision: A

Doc Ref: 6.8.A5



Order limits
Sheet index cutline
Project section line

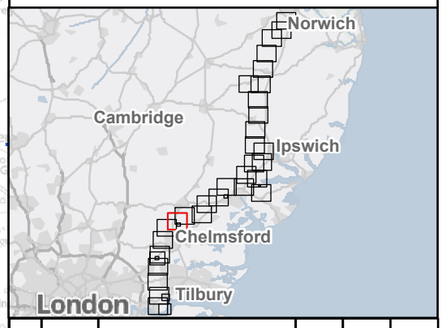
Proposed project design details

Proposed low duty gantry
Proposed low height pylon location
Proposed standard lattice pylon location
Proposed overhead line alignment
Proposed underground cable alignment
Proposed cable sealing end compound(CSEC)
Environmental area
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Butterfly
Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 24 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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Approved	K. Burrows	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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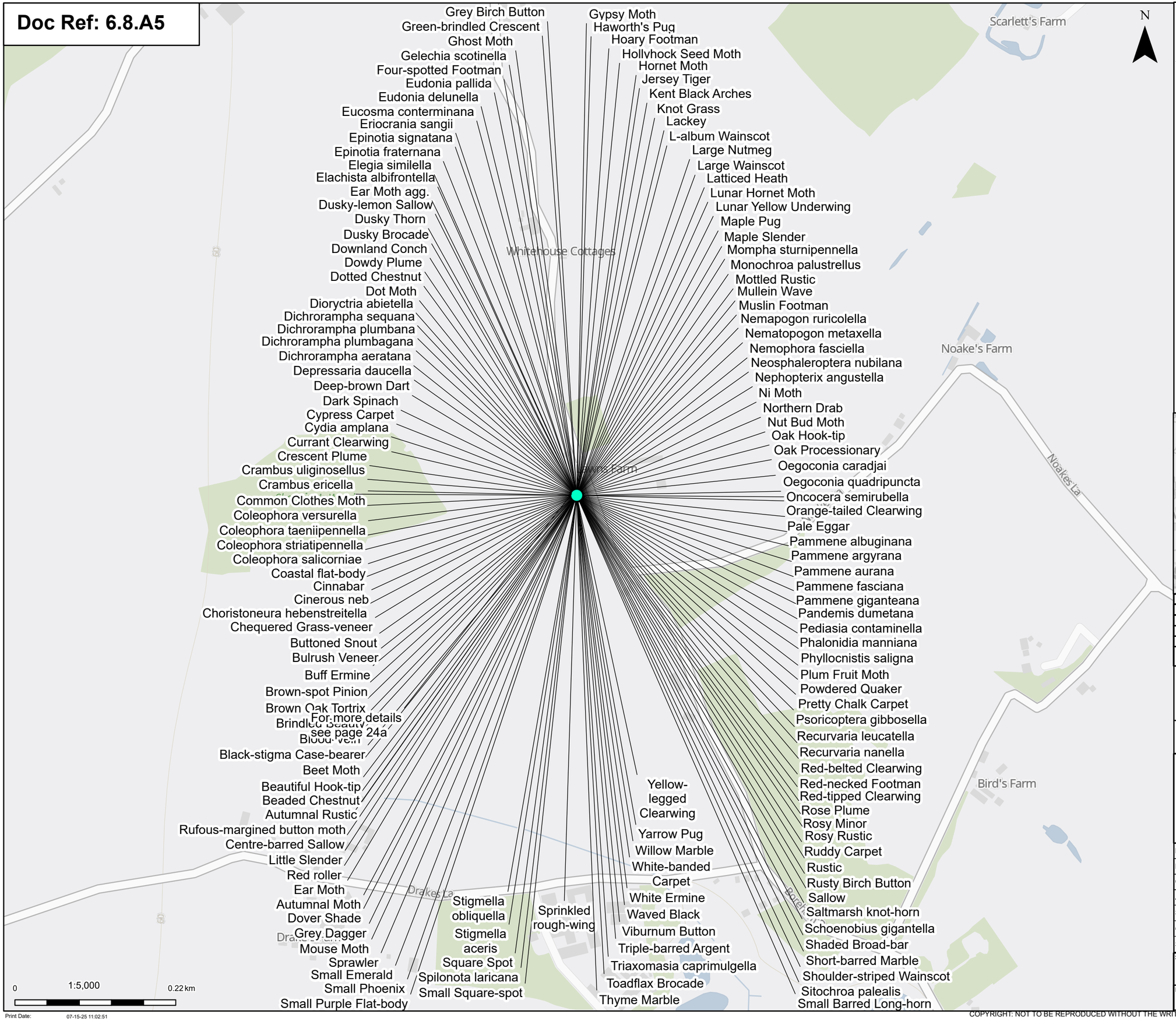
Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369
Revision: A

Print Date: 07-15-25 11:02:41

Doc Ref: 6.8.A5



Discipline specific constraints

2 km Study Area

Moth

Zoomed in for further clarity. For more context of location, please see previous page

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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
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Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 24a of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:5,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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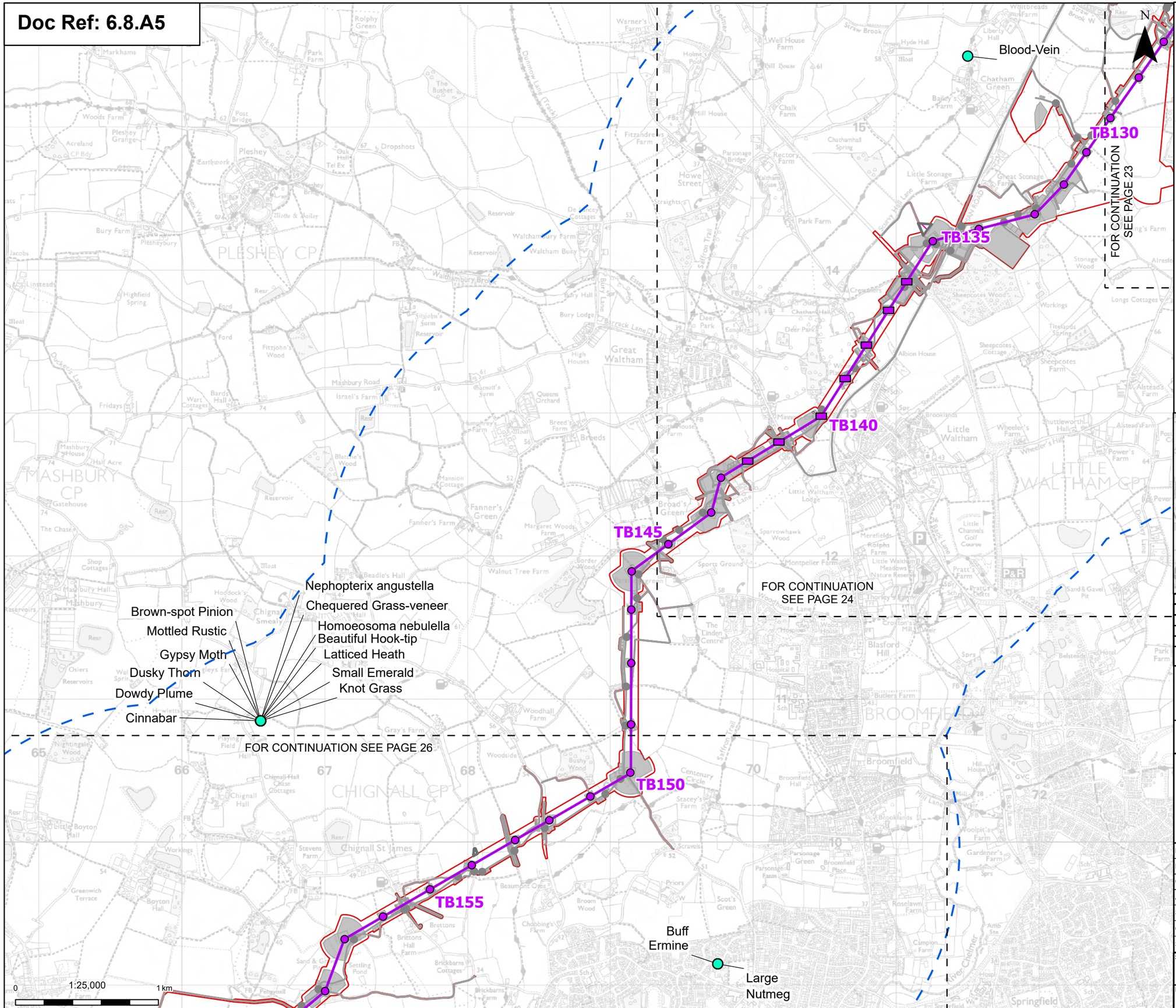
Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Print Date: 07-15-25 11:02:51

Doc Ref: 6.8.A5



Order limits
Sheet index cutline

Proposed project design details

Proposed low height pylon location
Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 25 of 31

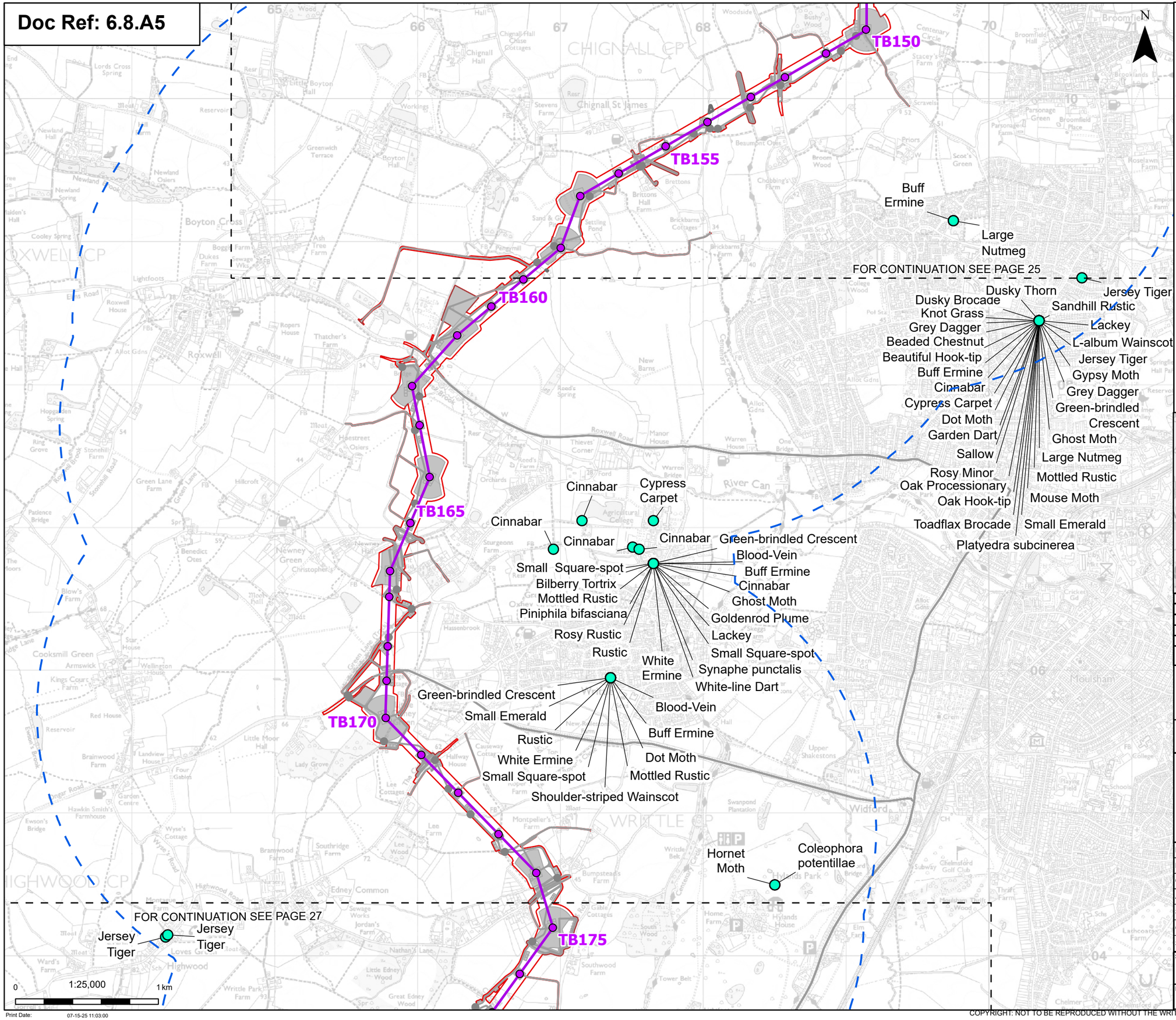
Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369
Revision: A

Print Date: 07-15-25 11:02:56

Doc Ref: 6.8.A5



Print Date: 07-15-25 11:03:00

Order limits
Sheet index cutline

Proposed project design details

Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

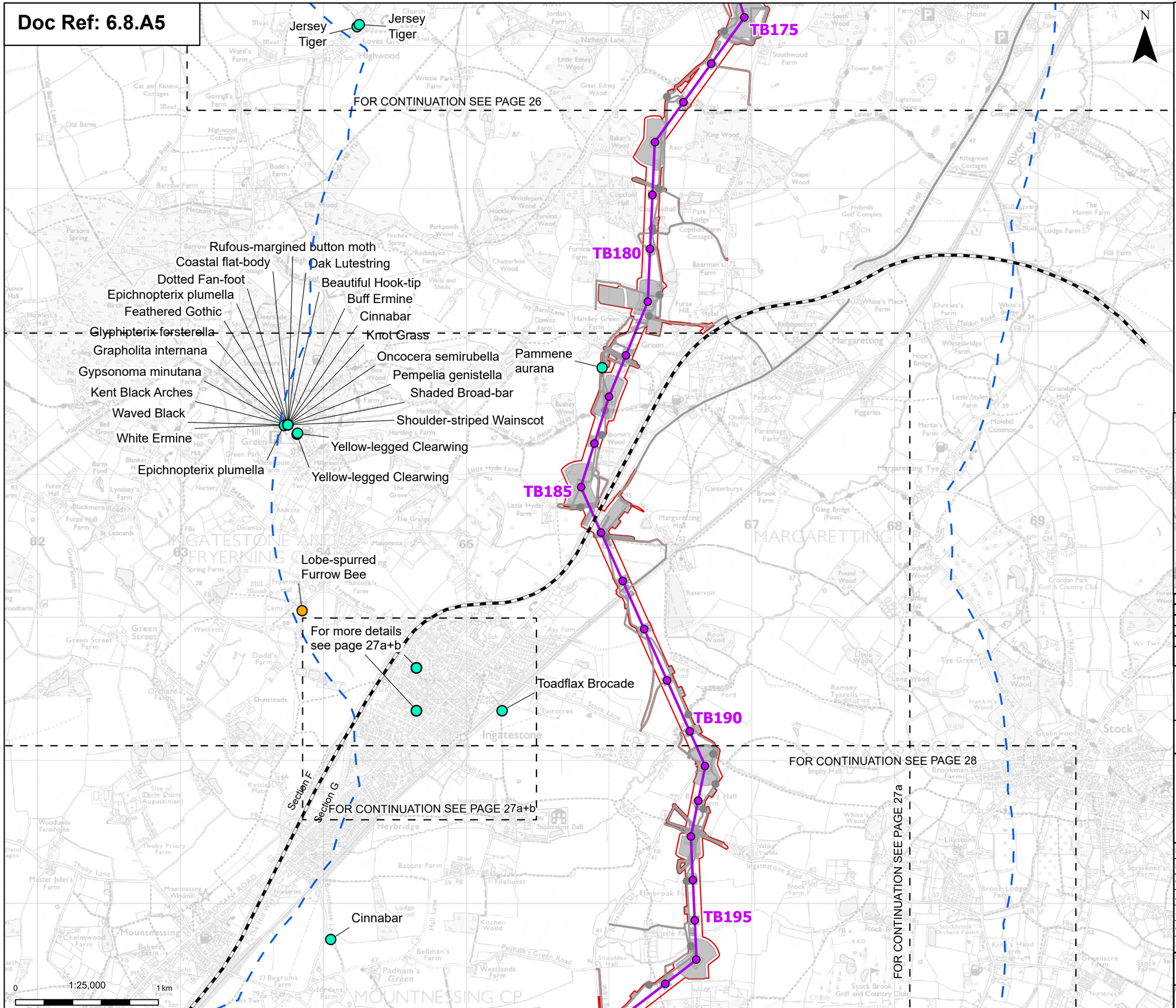
Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 26 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369
Revision: A

Doc Ref: 6.8.A5



Order limits
Sheet index cutline
Project section line

Proposed project design details

Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Hymenopteran
Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 27 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

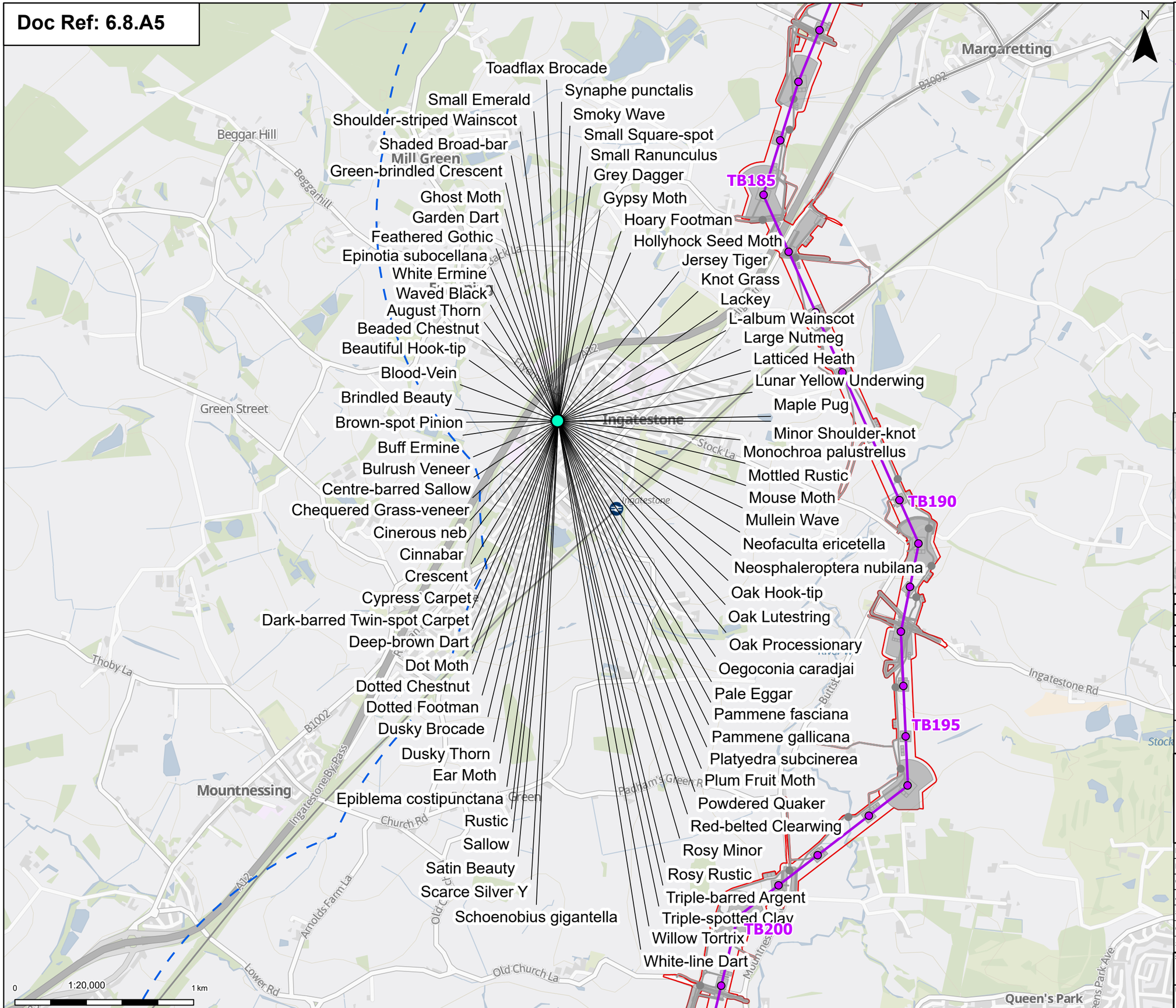
Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Print Date: 07-15-25 11:03:05

Doc Ref: 6.8.A5



Order limits

Proposed project design details

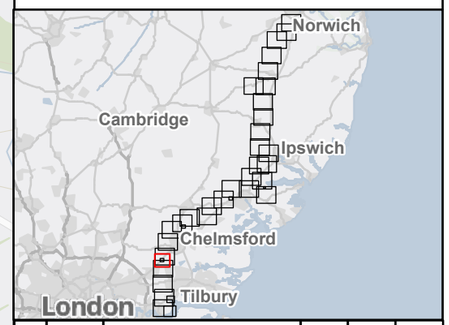
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Zoomed in for further clarity. For more context of location, please see previous page



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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
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Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 27a of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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Approved	K. Burrows	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

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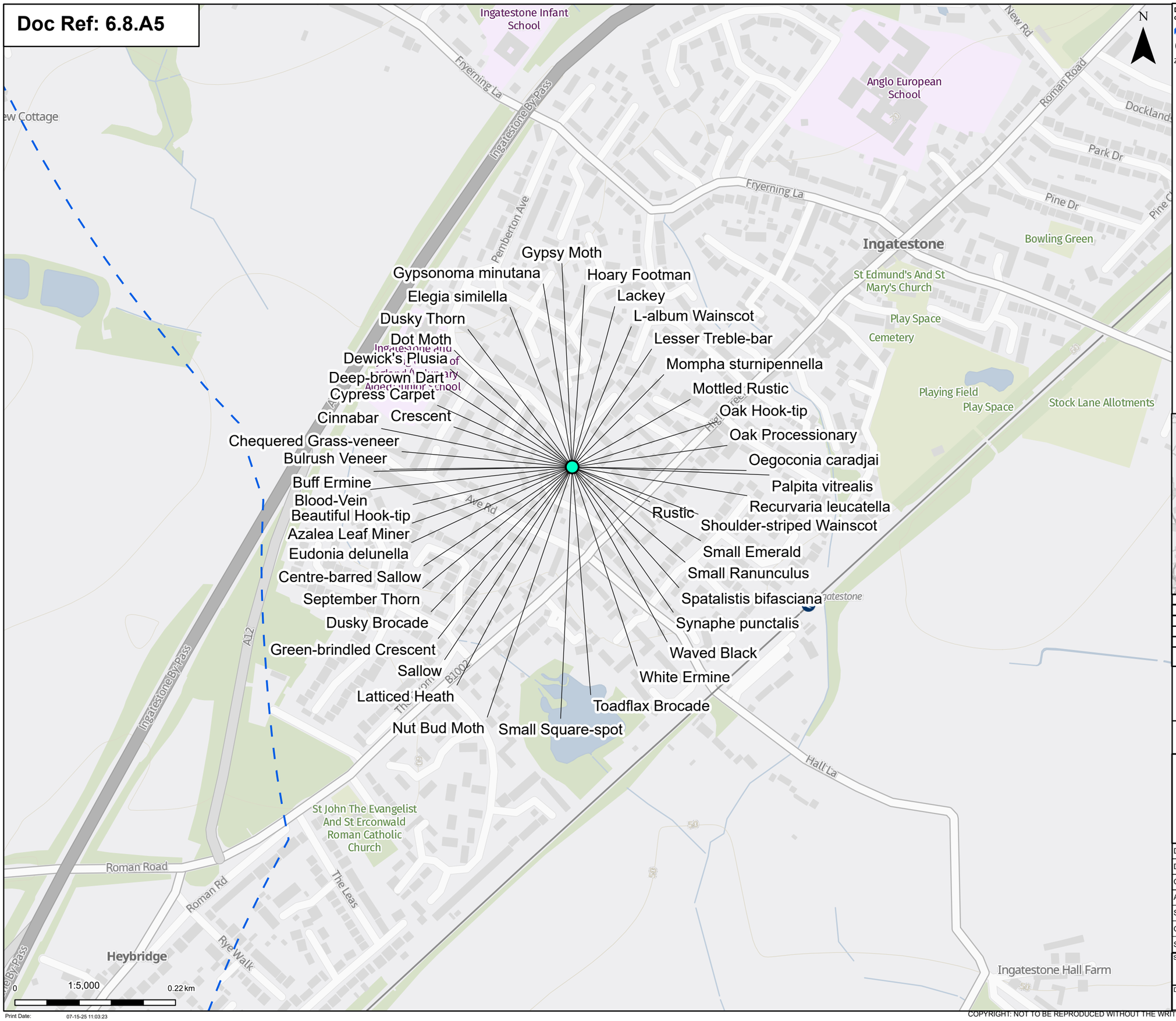
Doc Ref: 6.8.A5



Print Date: 07-15-25 11:03:23

Discipline specific constraints

2 km Study Area

Moth

Zoomed in for further clarity. For more context of location, please see previous page

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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits Page 27b of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:5,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Doc Ref: 6.8.A5

Section F

Section G

FOR CONTINUATION SEE PAGE 27a+b

FOR CONTINUATION SEE PAGE 27a

FOR CONTINUATION SEE PAGE 27

FOR CONTINUATION SEE PAGE 29

N

Cinnabar

Knot Grass

Oak Processionary

Toadflax Brocade

Waved Black

Cinnabar

Cinnabar

Cinnabar

Jersey Tiger

Stigmella assimilella

Blood-Vein

TB195

TB200

TB205

TB210

TB215

0 1:25,000 1 km

Print Date: 07-15-25 11:03:28

Order limits
Sheet index cutline
Project section line

Proposed project design details

Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 28 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
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Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369

Revision: A

Doc Ref: 6.8.A5

FOR CONTINUATION SEE PAGE 28

FOR CONTINUATION SEE PAGE 30

TB215

TB220

TB225

TB230

TB235

Cinnabar

Latticed Heath

Blood-Vein

Cinnabar

Grizzled Skipper

Latticed Heath

Cinnabar

Cinnabar

Blood-Vein

Latticed Heath

Latticed Heath

Cinnabar

Cinnabar

Shaded Broad-bar

Cinnabar

Gypsy Moth

Section G

Section H

N

0 1:25,000 1 km

Print Date: 07-15-25 11:03:32

Order limits
Sheet index cutline
Project section line

Proposed project design details

Proposed low height pylon location
Proposed standard lattice pylon location
Proposed overhead line alignment
Environmental mitigation
Other temporary and permanent construction and operational works

Discipline specific constraints

2 km Study Area
Butterfly
Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
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Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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Revision: A

Doc Ref: 6.8.A5

FOR CONTINUATION SEE PAGE 29

FOR CONTINUATION SEE PAGE 30a

FOR CONTINUATION SEE PAGE 31

For more details see page 30a

TB240
TB245
TB250
TB255
TB260
YYJ115
ZB20
YYJ120
ZB15RB
ZB15RA
ZB15RC

Cinnabar
Festoon
White-streak Grass-veneer
Beautiful Hook-tip
Bulrush Veneer
Chequered Grass-veneer
White-streak Grass-veneer
Crescent Plume
Rustic
Cynaeda dentalis
Recurvaria leucatella
Daisy Bent-wing
Plum Fruit Moth
Dark Fleabane Neb
Pempelia genistella
Dusky Thorn
Pammene fasciana
Eulamprotes atrella
Oak Processionary
Feathered Gothic
Nephopterix angustella
Garden Tiger
Mottled Rustic
Jersey Tiger
Moitrelia obductella
Lackey
Maple Pug
Latticed Heath
Synaphe punctalis
September Thorn
Sitochroa palealis
Toadflax Brocade
Mottled Rustic
Dotted Fan-foot
Bulrush Veneer
Pammene fasciana
Rustic
Festoon
Beautiful Hook-tip
Lackey
Plum Fruit Moth
Rose Plume
Recurvaria nanella
Schoenobius gigantella
Shoulder-striped Wainscot
Dusky Brocade
Lappet
Rosy Rustic
Small Square-spot
Large Wainscot
L-album Wainscot
Dusky-lemon Sallow
Proposed Tilbury North Substation
Wall
Red- tipped Clearwing
Hover fly
Small Heath
Sallow
Deep-brown Dart
Centre-barred Sallow
Autumnal Rustic
Brown-spot Pinion
Beaded Chestnut
Six-belted Clearwing
Ophonus azureus
Ophonus ardosiacus
Epichnopterix plumella

Section G
Section H
N

0 1:25,000 1 km

Print Date: 07-15-25 11:03:37

Order limits
Sheet index cutline
Project section line

Proposed project design details

- Proposed full line tension gantry
- Proposed low duty gantry
- Proposed low height pylon location
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed Tilbury North Substation
- Proposed cable sealing end compound(CSEC)
- Environmental area
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Beetle (Coleoptera)
- Butterfly
- Dragonfly (Odonata)
- Hymenopteran
- Moth
- Orthopteran
- True bug (Hemiptera)
- True fly (Diptera)
- Spider (Araneae)

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 30 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00369
Revision: A

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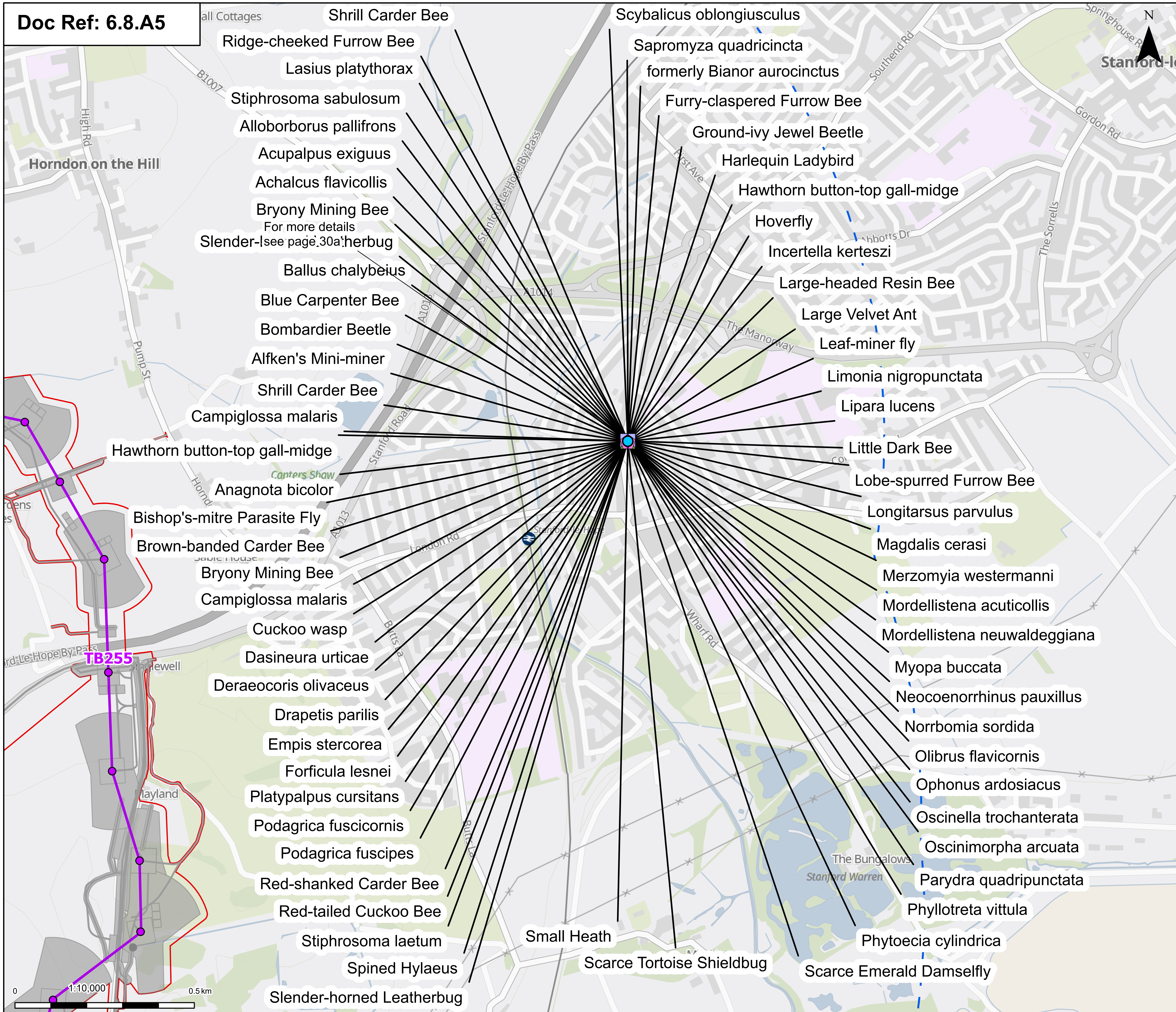
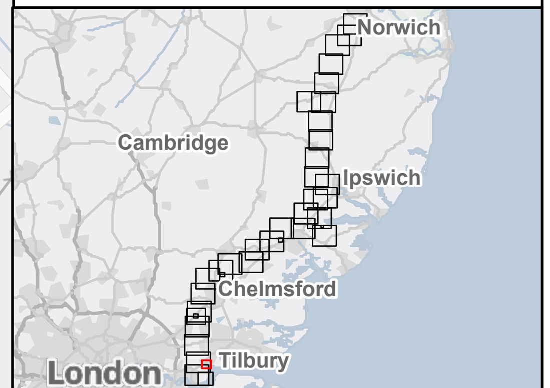


Shrill Carder Bee
Ridge-cheeked Furrow Bee
Lasius platythorax
Stiphrosoma sabulosum
Alloborborus pallifrons
Acupalpus exiguus
Achalcus flavicollis
Bryony Mining Bee
For more details see page 30a
Slender-horned Leatherbug
Ballus chalybeius
Blue Carpenter Bee
Bombardier Beetle
Alfken's Mini-miner
Shrill Carder Bee
Campiglossa malaris
Hawthorn button-top gall-midge
Anagnota bicolor
Bishop's-mitre Parasite Fly
Brown-banded Carder Bee
Bryony Mining Bee
Campiglossa malaris
Cuckoo wasp
Dasineura urticae
Deraeocoris olivaceus
Drapetis parilis
Empis stercorea
Forficula lesnei
Platypalpus cursitans
Podagrica fuscicornis
Podagrica fuscipes
Red-shanked Carder Bee
Red-tailed Cuckoo Bee
Stiphrosoma laetum
Spined Hylaeus
Slender-horned Leatherbug
Scybalicus oblongiusculus
Sapromyza quadricincta
formerly Bianor aurocinctus
Furry-claspered Furrow Bee
Ground-ivy Jewel Beetle
Harlequin Ladybird
Hawthorn button-top gall-midge
Hoverfly
Incertella kerteszi
Large-headed Resin Bee
Large Velvet Ant
Leaf-miner fly
Limonia nigropunctata
Lipara lucens
Little Dark Bee
Lobe-spurred Furrow Bee
Longitarsus parvulus
Magdalis cerasi
Merzomyia westermanni
Mordellistena acuticollis
Mordellistena neuwaldeggiana
Myopa buccata
Neocoenorrhinus pauxillus
Norrbomia sordida
Olibrus flavicornis
Ophonus ardosiacus
Oscinella trochanterata
Oscinimorpha arcuata
Parydra quadripunctata
Phyllotreta vittula
Phytoecia cylindrica
Scarce Emerald Damselfly
Small Heath
Scarce Tortoise Shieldbug
Horndon on the Hill
High Rd
B1007
Pump St
Stanford-Le-Hope By-Pass
A1014
A1013
Stanford Road
London Rd
The Manorway
Abbotts Dr
Southend Rd
Gordon Rd
The Sorrells
First Ave
Wharf Rd
Butts La
Springhouse Rd
Stanford-le
Corringham
TB255
Mayland
The Bungalows
Stanford Warren
Canters Shaw
N
0
1:10,000
0.5 km

	Order limits
Proposed project design details	
	Proposed standard lattice pylon location
	Proposed overhead line alignment
	Other temporary and permanent construction and operational works
Discipline specific constraints	
	2 km Study Area
	Beetle (Coleoptera)
	Butterfly
	Dragonfly (Odonata)
	Hymenopteran
	Orthopteran
	True bug (Hemiptera)
	True fly (Diptera)
	Spider (Araneae)

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

nationalgrid

PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027 Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits Page 30a of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
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Suitability Code:	A2	Project Number:	10059280

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Doc Ref: 6.8.A5

Proposed Tilbury North Substation

YYJ115
ZB20
YYJ120
ZB15RA
ZB15RB
ZB15RC
TB255
TB260
YYJ125R
ZB10
YYJ130

Mottled Rustic
Pammene fasciana
Rose Plume
Recurvaria nanella
Schoenobius gigantella
Shoulder-striped Wainscot
Dusky Brocade
Lappet
Rosy Rustic
Small Square-spot
Large Wainscot
L-album Wainscot
Dusky-lemon Sallow
Cinnabar
Epichnopterix plumella
Cinnabar
Dotted Fan-foot
Rustic
Plum
Fruit Moth
Lackey
Bulrush Veneer
Festoon
Beautiful Hook-tip
Wall
Hover fly
Small Heath
Sallow
Deep-brown Dart
Centre-barred Sallow
Autumnal Rustic
Wall
Cinnabar
Cinnabar
Brown-spot Pinion
Cinnabar
Beaded Chestnut
Six-belted Clearwing
Ophonus azureus
Cinnabar
Ophonus ardosiacus
Cinnabar
Podagrica fuscipes
Podagrica fuscicornis
Cinnabar
Epichnopterix plumella
Shaded Broad-bar
Cinnabar
Slender-horned Leatherbug
Nemophora fasciella
Cinnabar
Lackey
Nemophora fasciella
Eulamprotes immaculatella
Wall
Wall
Cryptic Leatherbug
Chlamydatus evanescens
Fallén's Leatherbug
Raglius alboacuminatus
Luffia lapidella
Crescent Plume
Cinnabar
Garden Tiger
Epichnopterix plumella
Six-belted Clearwing
Mompha sturnipennella
Mugwort Case-bearer
Toadflax Brocade
Cinnabar
L-album Wainscot
Cinnabar
Cinnabar
Cinnabar
Stigmella aceris
Stathmopoda pedella
Hornet Moth
Luffia lapidella
Orache leafminer moth

FOR CONTINUATION SEE PAGE 30
FOR CONTINUATION SEE PAGE 31a
For more details see page 31a

0 1:25,000 1 km

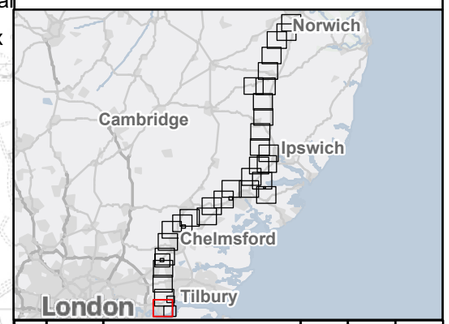
Print Date: 07-15-25 11:03:48

Order limits
Sheet index cutline

Proposed project design details
- Proposed full line tension gantry
- Proposed low duty gantry
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Proposed underground cable alignment
- Proposed Tilbury North Substation
- Proposed cable sealing end compound(CSEC)
- Environmental area
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints
- 2 km Study Area
- Beetle (Coleoptera)
- Butterfly
- Moth
- True bug (Hemiptera)
- True fly (Diptera)

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 31 of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
Approved	K. Burrows	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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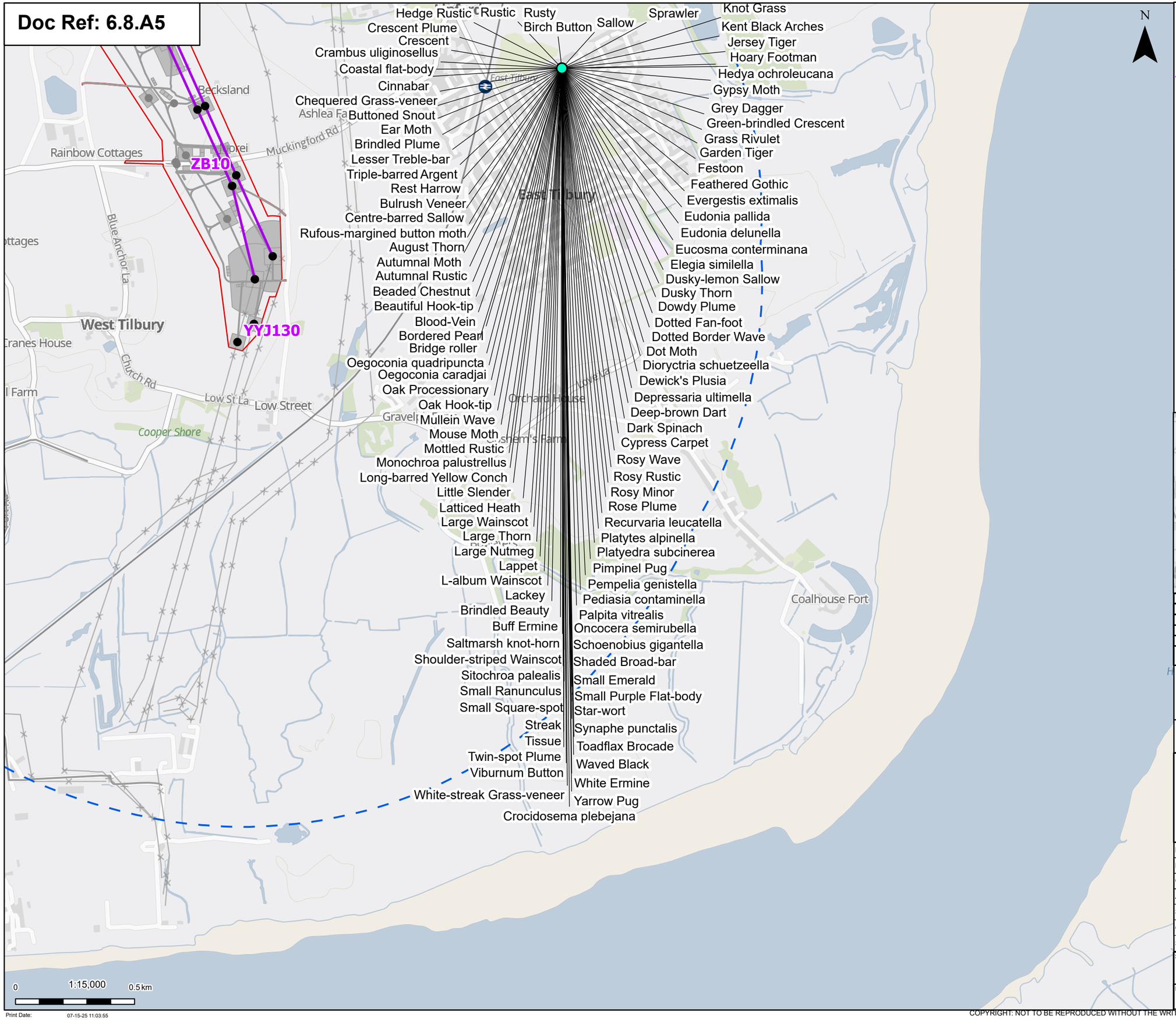
Revision: A

Doc Ref: 6.8.A5



Print Date: 07-15-25 11:03:55

Order limits

Proposed project design details

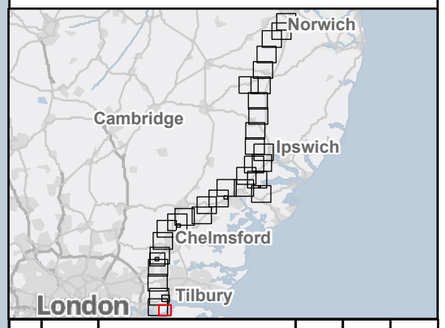
- Existing pylon (modify)
- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2 km Study Area
- Moth

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Zoomed in for further clarity. For more context of location, please see previous page



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

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.2 - Ecology and Biodiversity - Terrestrial Invertebrates Desk Study Records within 2km of the Order Limits
Page 31a of 31

Designed	C. Horley	Date	21 Aug 25
Drawn	S. Sarkar	Date	21 Aug 25
Checked	A. Fell	Date	21 Aug 25
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Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Revision: A

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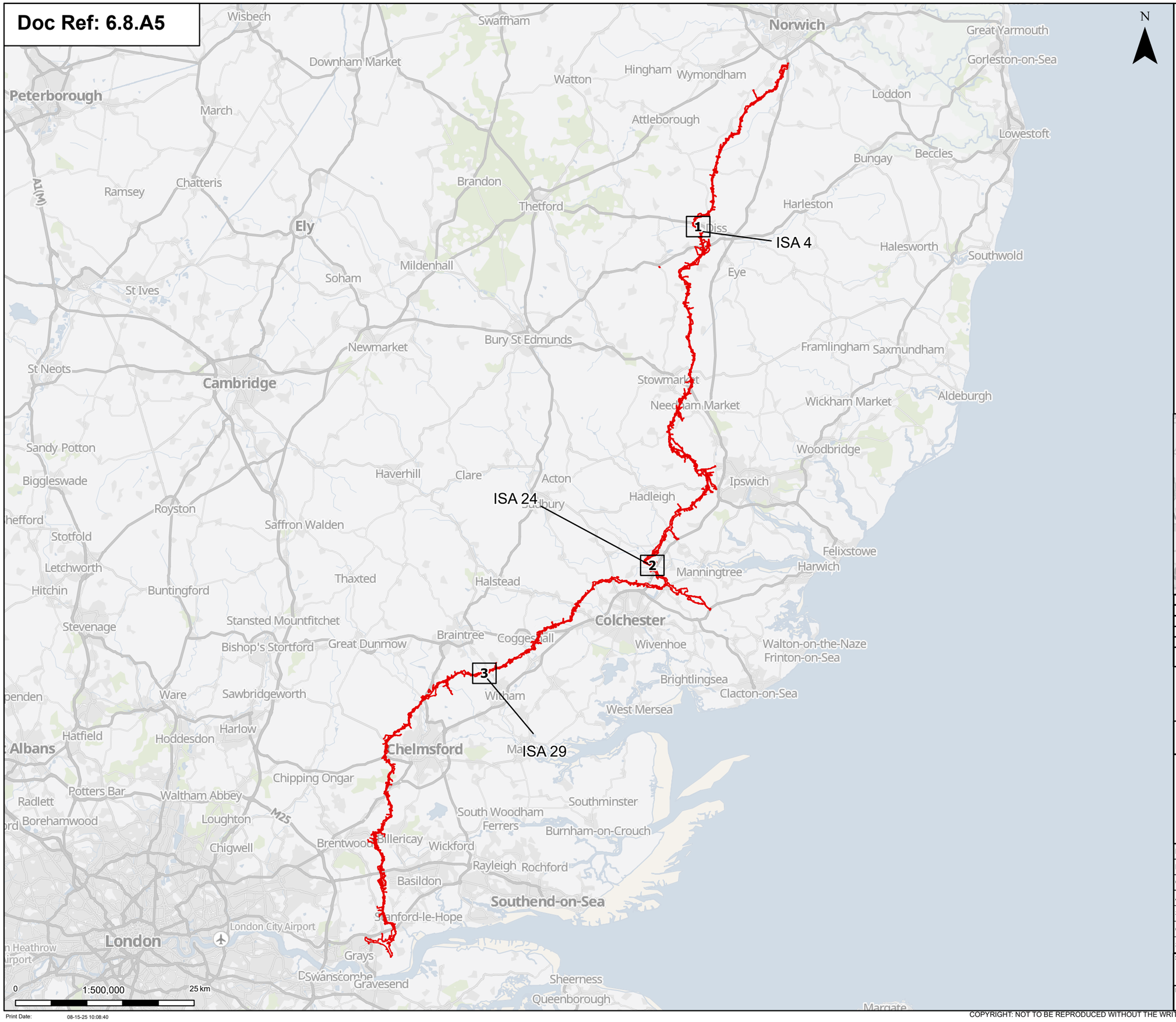

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.3 - Ecology and Biodiversity - Terrestrial Invertebrates Targeted Sampling Overview

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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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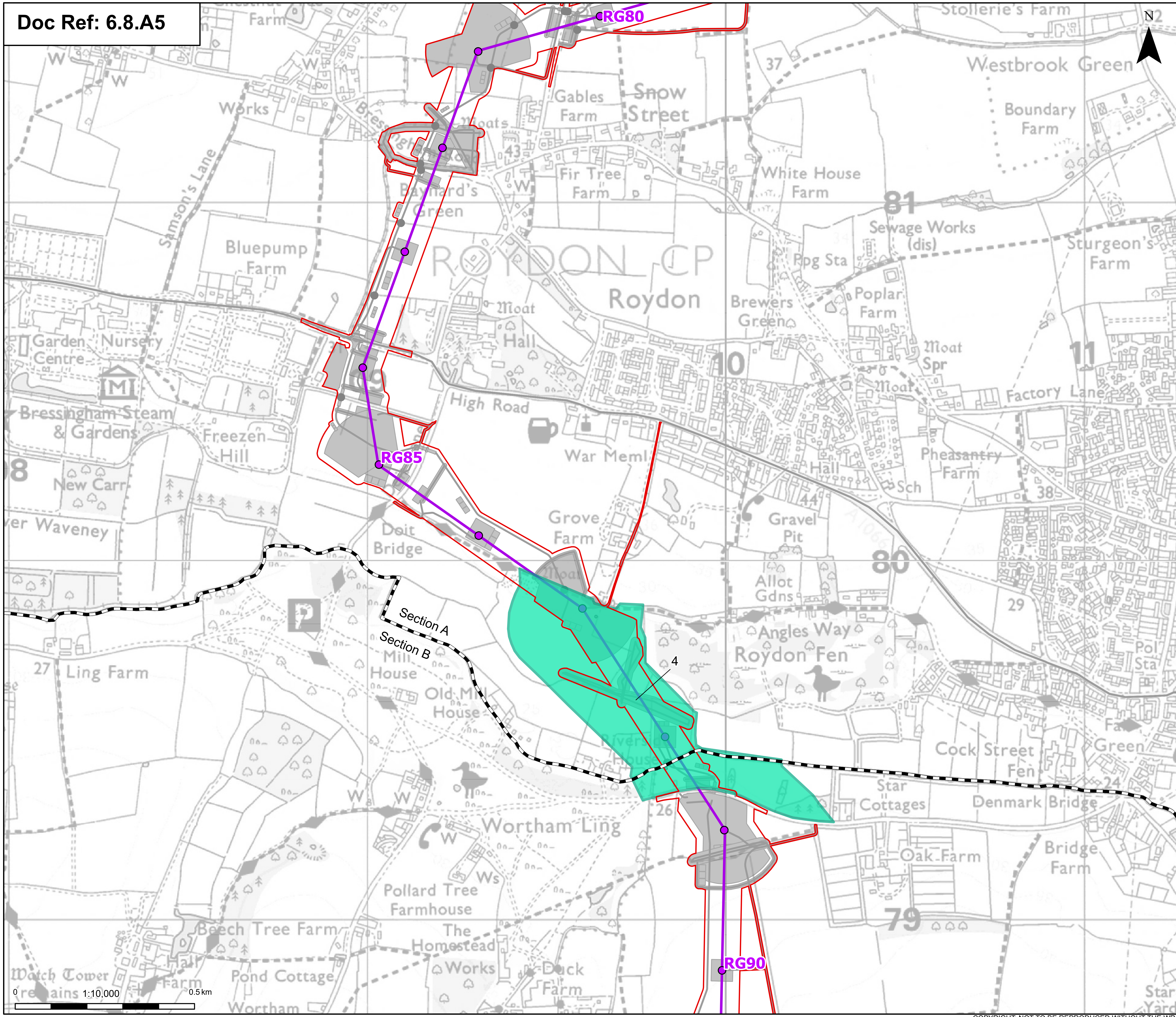


- Order limits
- Project section line

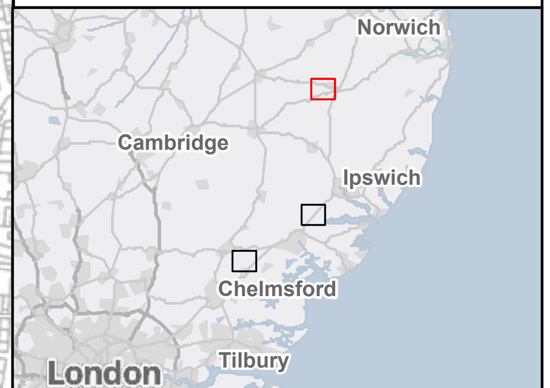
Proposed project design details

- Proposed standard lattice pylon location
- Proposed overhead line alignment
- Environmental mitigation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).



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A	Aug 2025	FOR DCO APPLICATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.3 - Ecology and Biodiversity - Terrestrial Invertebrates Targeted Sampling Page 1 of 3

Designed	C. Horley	Date	21 Aug 25
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Approved	K. Burrows	Date	21 Aug 25
Scale:	1:10,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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Revision: A

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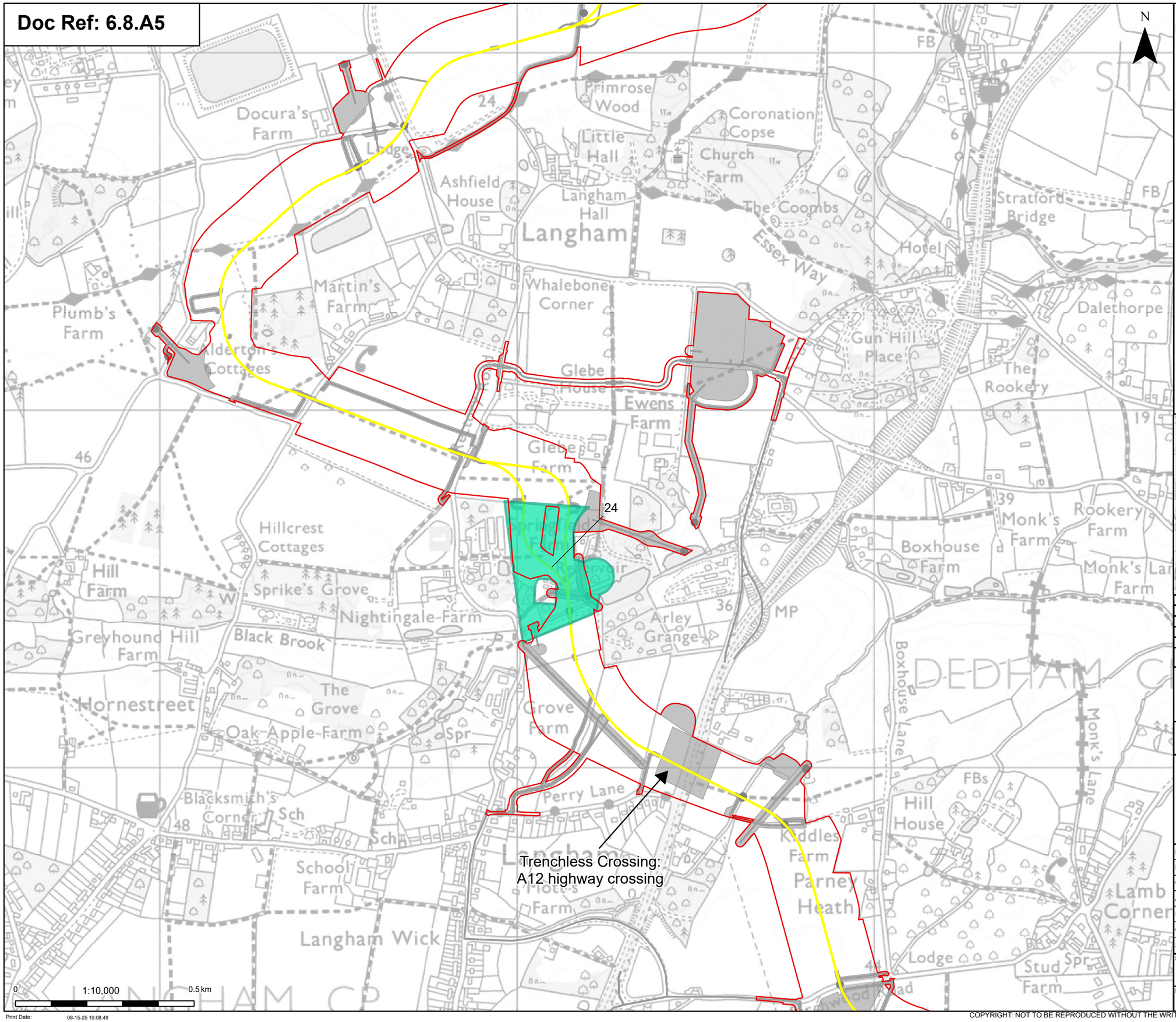
Doc Ref: 6.8.A5



Order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
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Title:

Figure 8.5.3 - Ecology and Biodiversity - Terrestrial Invertebrates Targeted Sampling Page 2 of 3

Designed	C. Horley	Date	21 Aug 25
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00370

Revision: A

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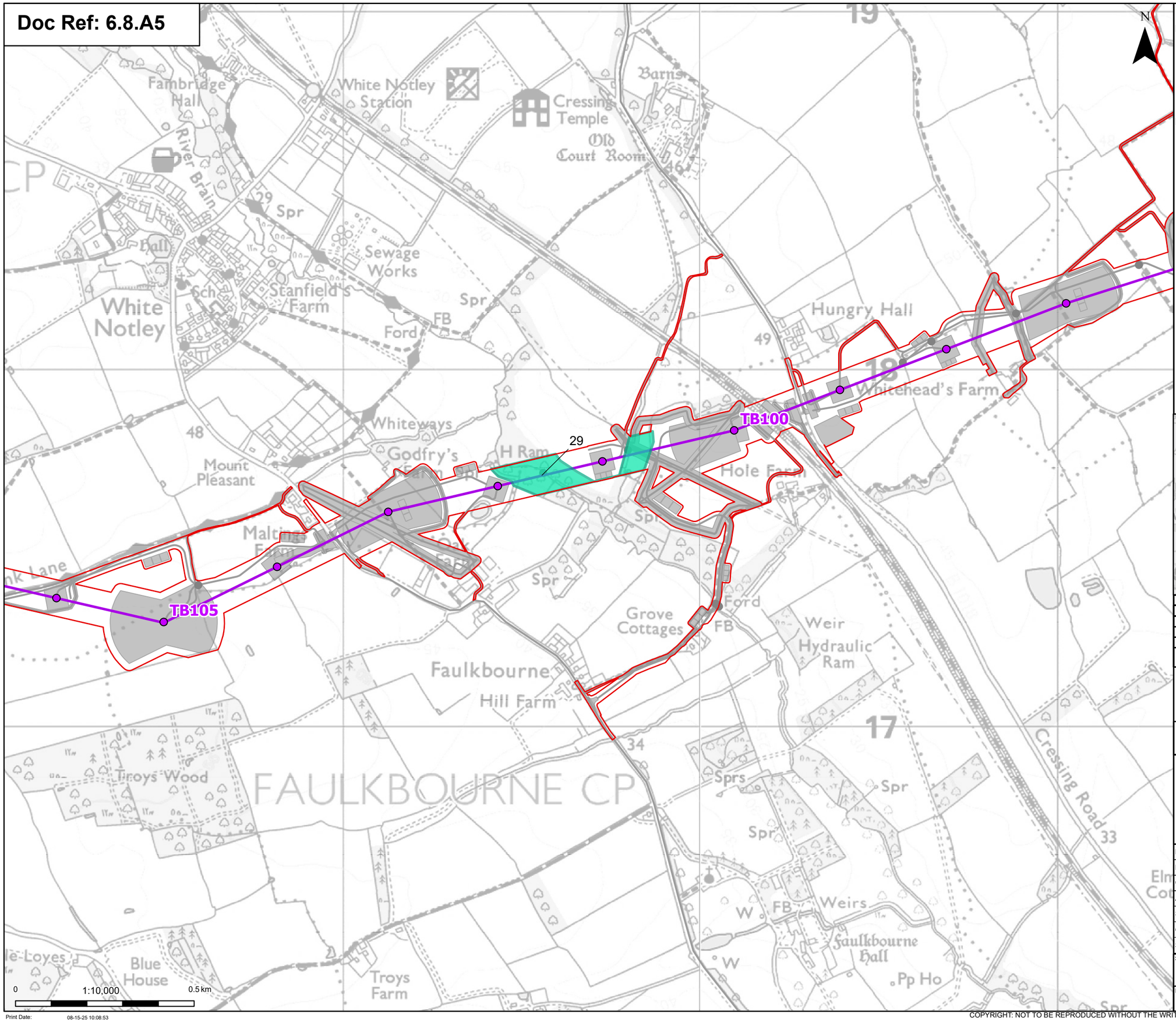
Doc Ref: 6.8.A5



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Order limits

Proposed project design details

Proposed standard lattice pylon location

Proposed overhead line alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Invertebrate survey area

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the alignment.For further details regarding the design, please refer to Figures 4.1 (document reference 6.4.F1) and 4.2 (document reference 6.4.F2).

Rev	Date	Description	Drawn	Check	Approv
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PROJECT: Norwich to Tilbury

Planning Inspectorate App Number: EN020027
Regulation 5(2)(a)

Title:

Figure 8.5.3 - Ecology and Biodiversity - Terrestrial Invertebrates Targeted Sampling Page 3 of 3

Designed	C. Horley	Date	21 Aug 25
Drawn	K. Fischer	Date	21 Aug 25
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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-EBD-ZZ-DR-ZZ-00370

Revision: A

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Annex C. Desk Study Records within Two km of the Order Limits

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Annex C: Desk Study Records within 2 km of the Order Limits

Table A8.5.50 Desk study records within 2 km of the Order Limits

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
Coleoptera				
H	Beetle	Acupalpus exiguus	*Acupalpus exiguus*	Nationally Scarce; Nationally Notable B, Essex Listed
H	Beetle	Bombardier Beetle	*Brachinus crepitans*	Nationally Scarce; Nationally Notable B, Essex Listed
H	Beetle	Ground-ivy Jewel Beetle	*Trachys scrobiculatus*	Nationally Scarce
H	Beetle	Harlequin Ladybird	*Harmonia axyridis*	Invasive Species
H	Beetle	Longitarsus parvulus	*Longitarsus parvulus*	Nationally Notable A; Essex Listed
H	Beetle	Magdalis cerasi	*Magdalis cerasi*	Nationally Notable B; Essex Listed
H	Beetle	Mordellistena acuticollis	*Mordellistena acuticollis*	Essex Listed
H	**Beetle**	**Mordellistena neuwaldeggiana**	**Mordellistena neuwaldeggiana**	**Nationally Scarce; Essex Listed**
H	Beetle	Neocoenorrhinus pauxillus	*Neocoenorrhinus pauxillus*	IUCN: Rare
H	Beetle	Olibrus flavicornis	*Olibrus flavicornis*	IUCN: Insufficiently Known; Essex Listed
H	Beetle	Ophonus ardosiacus	*Ophonus ardosiacus*	Essex Listed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
H	Beetle	Ophonus azureus	*Ophonus azureus*	Nationally Scarce; Essex Listed
H	Beetle	Phyllotreta vittula	*Phyllotreta vittula*	Nationally Notable A;
H	Beetle	Phytoecia cylindrica	*Phytoecia cylindrica*	Nationally Notable B; Essex Listed
H	Beetle	Podagrica fuscicornis	*Podagrica fuscicornis*	Nationally Scarce; Nationally Notable B; Essex Listed
H	Beetle	Podagrica fuscipes	*Podagrica fuscipes*	Nationally Scarce; Nationally Notable A; Essex Listed
H	Beetle	Scybalicus oblongiusculus	*Scybalicus oblongiusculus*	Nationally Rare, IUCN: Vulnerable; Essex Listed
D	Beetle	Stag Beetle	*Lucanus cervus*	Bern3; NERC S.41; HD: Annex 2; Nationally Scarce; Nationally Notable B; WCA Sch.5; Essex Listed
Dermaptera				
C	Earwig	European Earwig	*Apterygida media*	Nationally Scarce; Essex Listed
H	Earwig	Common Earwig	*Forficula lesnei*	Nationally Scarce; Essex Listed
Diptera				
H	True fly	Achalcus flavicollis	*Achalcus flavicollis*	Essex pListed
C	True fly	Agromyza anthracina	*Agromyza anthracina*	Essex pListed
H	True fly	Alloborborus pallifrons	*Alloborborus pallifrons*	Essex Listed
H	True fly	Anagnota bicolor	*Anagnota bicolor*	Nationally Notable; Essex pListed
H	True fly	Campiglossa malaris	*Campiglossa malaris*	IUCN: Endangered
H	True fly	Bishop's-mitre Parasite Fly	*Cistogaster globosa*	IUCN: Endangered

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
H	True fly	Hawthorn button-top gall-midge	*Dasineura crataegi*	Essex pListed
H	True fly	Dasineura urticae	*Dasineura urticae*	Essex pListed
H	True fly	Drapetis parilis	*Drapetis parilis*	Essex pListed
H	True fly	Empis stercorea	*Empis stercorea*	Essex pListed
H	True fly	Eumerus ornatus	*Eumerus ornatus*	Essex Listed
H	True fly	Incertella kerteszi	*Incertella kerteszi*	Essex pListed
H	True fly	Limonia nigropunctata	*Limonia nigropunctata*	IUCN: Rare
H	True fly	Lipara lucens	*Lipara lucens*	Essex pListed
H	True fly	Merzomyia westermanni	*Merzomyia westermanni*	Nationally Notable; Essex Listed
H	True fly	Myopa buccata	*Myopa buccata*	Essex pListed
H	True fly	Norrbomia sordida	*Norrbomia sordida*	Essex pListed
D	True fly	Odontomyia tigrina	*Odontomyia tigrina*	Nationally Notable; Essex Listed
H	True fly	Oscinella trochanterata	*Oscinella trochanterata*	Essex pListed
H	True fly	Oscinimorpha arcuata	*Oscinimorpha arcuata*	Nationally Notable
H	True fly	Parydra quadripunctata	*Parydra quadripunctata*	Essex pListed
H	True fly	Phytomyza glechomae	*Phytomyza glechomae*	Essex pListed
H	True fly	Pipizella virens	*Pipizella virens*	Essex Listed
H	True fly	Platypalpus cursitans	*Platypalpus cursitans*	Essex pListed
D	True fly	Rondaniola bursaria	*Rondaniola bursaria*	Essex pListed
H	True fly	Sapromyza quadricincta	*Sapromyza quadricincta*	Nationally Notable

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
H	True fly	Sphaerophoria taeniata	*Sphaerophoria taeniata*	Essex Listed
H	True fly	Stiphrosoma laetum	*Stiphrosoma laetum*	Essex pListed
H	True fly	Stiphrosoma sabulosum	*Stiphrosoma sabulosum*	Essex pListed
H	True fly	Volucella inanis	*Volucella inanis*	Essex Listed
Hemiptera				
H	True bug	Fallén's Leatherbug	*Arenocoris fallenii*	Nationally Scarce
H	True bug	Cryptic Leatherbug	*Bathysolen nubilus*	Nationally Notable B; Essex Listed
H	True bug	Slender-horned Leatherbug	*Ceraleptus lividus*	Nationally Scarce
H	True bug	Chlamydatus evanescens	*Chlamydatus evanescens*	IUCN: Rare
H	True bug	Deraeocoris olivaceus	*Deraeocoris olivaceus*	Nationally Notable B, Nationally Notable B; Essex Listed
H	True bug	Scarce Tortoise Shieldbug	*Eurygaster maura*	Nationally Scarce; Essex Listed
H	True bug	Raglius alboacuminatus	*Raglius alboacuminatus*	Nationally Notable B; Essex Listed
B	True bug	Ribautodelphax angulosa	*Ribautodelphax angulosa*	Nationally Notable
Hymenoptera				
H	Bee	Alfken's Mini-miner	*Andrena alfkenella*	IUCN: Rare; Essex Listed
H	Bee	Bryony Mining Bee	*Andrena florea*	IUCN: Rare; Essex Listed
C	Bee	Hawksbeard Mining Bee	*Andrena fulvago*	Nationally Notable A; Essex Listed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
H	Bee	Brown-banded Carder Bee	*Bombus humilis*	NERC S.41; Essex Listed
H	Bee	Red-shanked Carder Bee	*Bombus ruderarius*	NERC S.41
H	Bee	Red-tailed Cuckoo Bee	*Bombus rupestris*	Nationally Notable B; Essex Listed
H	Bee	Shrill Carder Bee	*Bombus sylvarum*	NERC S.41; Essex Listed
H	Bee	Blue Carpenter Bee	*Ceratina cyanea*	IUCN: Rare; Essex Listed
H	Bee	Large-headed Resin Bee	*Heriades truncorum*	IUCN: Insufficiently Known
H	Bee	Spined Hylaeus	*Hylaeus cornutus*	Nationally Notable A; Essex Listed
H	Bee	Furry-claspered Furrow Bee	*Lasioglossum lativentre*	Essex Listed
C; F; H	Bee	Lobe-spurred Furrow Bee	*Lasioglossum pauxillum*	Nationally Notable A
H	Bee	Ridge-cheeked Furrow Bee	*Lasioglossum puncticolle*	Nationally Notable B; Essex Listed
C	Bee	Ashy Furrow Bee	*Lasioglossum sexnotatum*	Nationally Notable A
C	Ant	Brown Tree Ant	*Lasius brunneus*	Nationally Notable A; Essex Listed
H	Ant	an ant	*Lasius platythorax*	Essex pListed
H	Ant	Large Velvet Ant	*Mutilla europaea*	Nationally Notable B; Essex Listed
H	Wasp	cuckoo wasp	*Pseudospinolia neglecta*	Essex Listed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
Lepidoptera				
H	Bee	Little Dark Bee	*Stelis breviuscula*	IUCN: Insufficiently Known; Essex pListed
B; C; E; H	Butterfly	Small Heath	*Coenonympha pamphilus*	NERC S.41; IUCN: Near Threatened; Essex Listed
H	Butterfly	Wall	*Lasiommata megera*	NERC S.41; IUCN: Near Threatened; Essex Listed
C; D	Butterfly	White Admiral	*Limenitis camilla*	NERC S.41; IUCN: Vulnerable; Essex Listed
G	Butterfly	Grizzled Skipper	*Pyrgus malvae*	NERC S.41; IUCN: Vulnerable; Essex Listed
C	Butterfly	White-letter Hairstreak	*Satyrium w-album*	NERC S.41; IUCN: Endangered; WCA She.5; Essex Listed
C; D; F; H	Moth	Rufous-margined button moth	*Acleris cristana*	Essex Listed
C; D; F; H	Moth	Rusty Birch Button	*Acleris ferrugana/notana*	Essex pListed
C; F	Moth	Sprinkled rough-wing	*Acleris literana*	Essex pListed
D; F	Moth	Grey Birch Button	*Acleris logiana*	Essex pListed
F; H	Moth	Viburnum Button	*Acleris schalleriana*	Essex pListed
D	Moth	Ash-coloured Sober	*Acompsia cinerella*	Essex pListed
B; C; D; F; G; H	Moth	Grey Dagger	*Acronicta psi*	NERC S.41
A; B; C; D; F; G; H	Moth	Knot Grass	*Acronicta rumicis*	NERC S.41
F	Moth	Small Barred Long-horn	*Adela croesella*	Essex pListed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
H	Moth	Long-barred Yellow Conch	*Aethes francillana*	Essex pListed
F	Moth	Downland Conch	*Aethes tesserana*	Essex pListed
D; F; H	Moth	Small Purple Flat-body	*Agonopterix purpurea*	Essex pListed
D	Moth	Broom Flat-body	*Agonopterix scopariella*	Essex pListed
D; F; H	Moth	Coastal flat-body	*Agonopterix yeatiana*	Essex pListed
D; H	Moth	White-streak Grass-veneer	*Agriphila latistria*	Essex Listed
C	Moth	Flounced Chestnut	*Agrochola helvola*	NERC S.41
A; C; D; F; G; H	Moth	Brown-spot Pinion	*Agrochola litura*	NERC S.41
A; B; C; D; F; G; H	Moth	Beaded Chestnut	*Agrochola lychnidis*	NERC S.41
D	Moth	Sloe Carpet	*Aleucis distinctata*	NERC S.41; Essex Listed
A; B; C; D; F; G; H	Moth	Green-brindled Crescent	*Allophyes oxyacanthae*	NERC S.41
D; H	Moth	Brindled Plume	*Amblyptilia punctidactyla*	Essex pListed
A; B; C; D; F; G; H	Moth	Ear Moth	*Amphipoea oculea*	NERC S.41
C; F	Moth	Ear Moth agg.	*Amphipoea oculea agg.*	Essex pListed
A; B; C; D; F; G; H	Moth	Mouse Moth	*Amphipyra tragopoginis*	NERC S.41
B; C	Moth	Brown-spot Pinion	*Anchoscelis litura*	NERC S.41
F	Moth	Red roller	*Ancylis mitterbacheriana*	Essex pListed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
H	Moth	Bridge roller	*Ancylis uncella*	Essex pListed
B; F; H	Moth	Saltmarsh Knot-horn	*Ancylosis oblitella*	Nationally Notable
A; B; C; D; F; G; H	Moth	Large Nutmeg	*Apamea anceps*	NERC S.41
D	Moth	Crescent Striped	*Apamea oblonga*	Essex Listed
A; B; C; D; F; G; H	Moth	Dusky Brocade	*Apamea remissa*	NERC S.41
F	Moth	Bilberry Tortrix	*Aphelia viburnana*	Essex pListed
E; H	Moth	Rest Harrow	*Aplasta ononaria*	NERC S.41; IUCN: Rare
D; G; H	Moth	Lesser Treble-bar	*Aplocera efformata*	Essex Listed
C; D; H	Moth	Festoon	*Apoda limacodes*	Essex Listed
H	Moth	Dark Fleabane Neb	*Apodia bifractella*	Essex pListed
B; C; D; F; G; H	Moth	Deep-brown Dart	*Aporophyla lutulenta*	NERC S.41
F	Moth	Willow Marble	*Apotomis lineana*	Essex Listed
D; F	Moth	Short-barred Marble	*Apotomis semifasciana*	Essex Listed
C; D; F	Moth	Brown Oak Tortrix	*Archips crataegana*	Essex pListed
D	Moth	Pine tortrix	*Archips oporana*	Essex Listed
A; B; C; D; H	Moth	Garden Tiger	*Arctia caja*	NERC S.41; Essex Listed
D	Moth	Purple argent	*Argyresthia albistria*	Essex pListed
D	Moth	Apple Fruit Moth	*Argyresthia conjugella*	Essex pListed
D; F; G; H	Moth	Triple-barred Argent	*Argyresthia trifasciata*	Essex Listed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
A; B; C; D; F; H	Moth	Sprawler	*Asteroscopus sphinx*	NERC S.41
A; B; C; D; F; G; H	Moth	Centre-barred Sallow	*Atethmia centrago*	NERC S.41
C; F	Moth	Red-necked Footman	*Atolmis rubricollis*	Essex Listed
F; H	Moth	Six-belted Clearwing	*Bembecia ichneumoniformis*	Essex Listed
B; D; G	Moth	Minor Shoulder-knot	*Brachylomia viminalis*	NERC S.41
D; F; G	Moth	Cinerous neb	*Bryotropha terrella*	Essex Listed
D	Moth	Alder Bent-wing	*Bucculatrix cidarella*	Essex pListed
H	Moth	Daisy Bent-wing	*Bucculatrix nigricomella*	Essex pListed
A; B; C; D; F; G; H	Moth	Bulrush Veneer	*Calamotropha paludella*	Nationally Notable B; Essex Listed
B; C; D; F; G; H	Moth	Toadflax Brocade	*Calophasia lunula*	IUCN: Rare; Essex Listed
G	Moth	Azalea Leaf Miner	*Caloptilia azaleella*	Essex pListed
D	Moth	Clouded slender	*Caloptilia populetorum*	Essex pListed
C; F	Moth	Maple Slender	*Caloptilia semifascia*	Essex pListed
F; H	Moth	Little Slender	*Calybites phasianipennella*	Essex pListed
A; B; C; D; F; G; H	Moth	Mottled Rustic	*Caradrina morpheus*	NERC S.41
F	Moth	Ruddy Carpet	*Catarhoe rubidata*	Essex Listed
D; F; G; H	Moth	Chequered Grass-veneer	*Catoptria falsella*	Essex Listed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
F	Moth	Thyme Marble	*Celypha cespitana*	Essex pListed
E	Moth	Broom Moth	*Ceramica pisi*	NERC S.41
C; H	Moth	Streak	*Chesias legatella*	NERC S.41
B; C; D; E; F; G; H	Moth	Latticed Heath	*Chiasmia clathrata*	NERC S.41
B	Moth	Latticed Heath	*Chiasmia clathrata clathrata*	NERC S.41
D	Moth	Autumn Green Carpet	*Chloroclysta miata*	Essex pListed
F	Moth	Choristoneura hebenstreitella	*Choristoneura hebenstreitella*	Essex pListed
H	Moth	Orache leafminer moth	*Chrysoesthia sexguttella*	Essex pListed
A; B; D; F; H	Moth	Dusky-lemon Sallow	*Cirrhia gilvago*	NERC S.41
A; B; C; D; F; G; H	Moth	Sallow	*Cirrhia icteritia*	NERC S.41
F; H	Moth	Rose Plume	*Cnaemidophorus rhododactyla*	Essex Listed
F	Moth	Dover Shade	*Cnephasia genitalana*	Essex Listed
D	Moth	Birch Conch	*Cochylis nana*	Essex pListed
H	Moth	Mugwort Case-bearer	*Coleophora artemisicolella*	Essex pListed
F	Moth	Black-stigma Case-bearer	*Coleophora hemerobiella*	Essex Listed
F	Moth	Coleophora potentillae	*Coleophora potentillae*	Essex pListed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
F	Moth	Coleophora salicorniae	*Coleophora salicorniae*	Essex pListed
F	Moth	Coleophora striatipennella	*Coleophora striatipennella*	Essex pListed
F	Moth	Coleophora taeniipennella	*Coleophora taeniipennella*	Essex pListed
F	Moth	Coleophora versurella	*Coleophora versurella*	Essex pListed
D	Moth	Red-headed Chestnut	*Conistra erythrocephala*	Essex Listed
C; D; F; G	Moth	Dotted Chestnut	*Conistra rubiginea*	Essex Listed
C	Moth	White-spotted Pinion	*Cosmia diffinis*	NERC S.41; Essex Listed
F	Moth	Crambus ericella	*Crambus ericella*	Nationally Notable B; Essex pListed
F; H	Moth	Crambus uliginosellus	*Crambus uliginosellus*	Nationally Notable B
H	Moth	Crocidosema plebejana	*Crocidosema plebejana*	Essex Listed
H	Moth	Star-wort	*Cucullia asteris*	Essex Listed
D; F	Moth	Cydia amplana	*Cydia amplana*	Essex pListed
F; G	Moth	Oak Lutestring	*Cymatophorina diluta*	NERC S.41
H	Moth	Cynaeda dentalis	*Cynaeda dentalis*	Nationally Notable B; Essex Listed
D	Moth	Dasycera oliviella	*Dasycera oliviella*	Essex Listed
D; G	Moth	Satin Beauty	*Deileptenia ribeata*	Essex pListed
F	Moth	Depressaria daucella	*Depressaria daucella*	Essex pListed
H	Moth	Depressaria ultimella	*Depressaria ultimella*	Essex pListed
A; B; C; D; F; G; H	Moth	Small Square-spot	*Diarsia rubi*	NERC S.41

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
F	Moth	Dichrorampha aeratana	*Dichrorampha aeratana*	Essex pListed
F	Moth	Dichrorampha plumbagana	*Dichrorampha plumbagana*	Essex pListed
D; F	Moth	Dichrorampha plumbana	*Dichrorampha plumbana*	Essex pListed
F	Moth	Dichrorampha sequana	*Dichrorampha sequana*	Essex pListed
D; F	Moth	Dioryctria abietella	*Dioryctria abietella*	Essex Listed
H	Moth	Dioryctria schuetzeella	*Dioryctria schuetzeella*	Essex Listed
D	Moth	Dioryctria simplicella	*Dioryctria simplicella*	Essex Listed
D	Moth	Diurnea lipsiella	*Diurnea lipsiella*	Essex pListed
B; C; D; F	Moth	Small Phoenix	*Ecliptopera silaceata*	NERC S.41
F; G; H	Moth	Hoary Footman	*Eilema caniola*	Essex Listed
D; F	Moth	Elachista albifrontella	*Elachista albifrontella*	Essex pListed
D	Moth	Elachista triatomea	*Elachista triatomea*	Essex pListed
F; G; H	Moth	Elegia similella	*Elegia similella*	Nationally Notable B; Essex Listed
C	Moth	Endothenia oblongana	*Endothenia oblongana*	Essex pListed
H	Moth	Large Thorn	*Ennomos autumnaria*	Essex Listed
D; G; H	Moth	September Thorn	*Ennomos erosaria*	NERC S.41
A; B; C; D; F; G; H	Moth	Dusky Thorn	*Ennomos fuscantaria*	NERC S.41
A; C; D; G; H	Moth	August Thorn	*Ennomos quercinaria*	NERC S.41
D	Moth	Epermenia falciformis	*Epermenia falciformis*	Essex pListed

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D	Moth	Epiblema cirsiana	*Epiblema cirsiana*	Essex pListed
D; G	Moth	Epiblema costipunctana	*Epiblema costipunctana*	Essex pListed
F; H	Moth	Epichnopterix plumella	*Epichnopterix plumella*	Essex Listed
D; G	Moth	Willow Tortrix	*Epinotia cruciana*	Essex pListed
F	Moth	Epinotia fraternana	*Epinotia fraternana*	Essex pListed
F	Moth	Epinotia signatana	*Epinotia signatana*	Essex pListed
G	Moth	Epinotia subocellana	*Epinotia subocellana*	Essex pListed
D; F; G	Moth	Nut Bud Moth	*Epinotia tenerana*	Essex pListed
C	Moth	Small Argent and Sable	*Epirrhoe tristata*	Essex pListed
C; D; F; H	Moth	Autumnal Moth	*Epirrita autumnata*	Essex pListed
F	Moth	Eriocrania sangii	*Eriocrania sangii*	Essex pListed
B	Moth	Comfrey Ermel	*Ethmia quadrillella*	IUCN: Vulnerable; Essex Listed
D; F; H	Moth	Eucosma conterminana	*Eucosma conterminana*	Essex Listed
F; G; H	Moth	Eudonia delunella	*Eudonia delunella*	Nationally Notable B: Essex pListed
D; F; H	Moth	Eudonia pallida	*Eudonia pallida*	Essex Listed
B; C; D; F; H	Moth	Autumnal Rustic	*Eugnorisma glareosa*	NERC S.41
H	Moth	Eulamprotes atrella	*Eulamprotes atrella*	Essex pListed
H	Moth	Eulamprotes immaculatella	*Eulamprotes immaculatella*	Nationally Notable
B	Moth	Spinach	*Eulithis mellinata*	NERC S.41
F	Moth	Haworth's Pug	*Eupithecia haworthiata*	Essex Listed

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D; F; G; H	Moth	Maple Pug	*Eupithecia inturbata*	Essex Listed
F; H	Moth	Yarrow Pug	*Eupithecia millefoliata*	Essex Listed
H	Moth	Pimpinel Pug	*Eupithecia pimpinellata*	Essex Listed
D	Moth	Golden-rod Pug	*Eupithecia virgaureata*	Essex pListed
B; C; D; F; G; H	Moth	Jersey Tiger	*Euplagia quadripunctaria*	HD: Annex 2; Essex pListed
D	Moth	Eupoecilia angustana	*Eupoecilia angustana*	Essex pListed
B; D; F; G	Moth	Garden Dart	*Euxoa nigricans*	NERC S.41
A; B; D; F; G	Moth	White-line Dart	*Euxoa tritici*	NERC S.41
B	Moth	Wormwood Knot-horn	*Euzophera cinerosella*	Nationally Notable B; Essex Listed
H	Moth	Evergestis extimalis	*Evergestis extimalis*	Nationally Notable B; Essex Listed
C	Moth	Evergestis pallidata	*Evergestis pallidata*	Essex Listed
H	Moth	Lappet	*Gastropacha quercifolia*	Essex Listed
F	Moth	Gelechia scotinella	*Gelechia scotinella*	IUCN: Insufficiently Known; Essex Listed
F	Moth	Glyphipterix forsterella	*Glyphipterix forsterella*	Essex pListed
A	Moth	Double Dart	*Graphiphora augur*	NERC S.41
D; F; G; H	Moth	Plum Fruit Moth	*Grapholita funebrana*	Essex pListed
F	Moth	Grapholita internana	*Grapholita internana*	Essex Listed
F; G	Moth	Gypsonoma minutana	*Gypsonoma minutana*	Essex Listed
D	Moth	Tawny Shears	*Hadena perplexa*	Essex pListed
B; D; G; H	Moth	Small Ranunculus	*Hecatera dysodea*	IUCN: Extinct; Essex Listed

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H	Moth	Hedya ochroleucana	*Hedya ochroleucana*	Essex pListed
A; G; H	Moth	Crescent	*Helotropha leucostigma*	NERC S.41
A; B; C; D; E; F; G; H	Moth	Small Emerald	*Hemistola chrysoprasaria*	NERC S.41
A; B; C; F; G	Moth	Ghost Moth	*Hepialus humuli*	NERC S.41
F	Moth	Homoeosoma nebulella	*Homoeosoma nebulella*	Nationally Notable B; Essex pListed
A; B; C; D; E; F; G; H	Moth	Rustic	*Hoplodrina blanda*	NERC S.41
A; B; C; D; F; G; H	Moth	Rosy Rustic	*Hydraecia micacea*	NERC S.41
D	Moth	Butterbur	*Hydraecia petasitis*	Essex pListed
D; F; H	Moth	Buttoned Snout	*Hypena rostralis*	Essex Listed
C; D	Moth	Great Oak Beauty	*Hypomecis roboraria*	Essex Listed
D	Moth	Silky Wave	*Idaea dilutaria*	NERC S.41; IUCN: Rare; Essex pListed
D; H	Moth	Dotted Border Wave	*Idaea sylvestraria*	Essex pListed
D	Moth	Isotrias rectifasciana	*Isotrias rectifasciana*	Essex pListed
E	Moth	Beautiful Brocade	*Lacanobia contigua*	Essex pListed
C; D; E; F; G; H	Moth	Beautiful Hook-tip	*Laspeyria flexula*	Essex Listed
A; B; C; D; F; G; H	Moth	Shoulder-striped Wainscot	*Leucania comma*	NERC S.41
F	Moth	Four-spotted Footman	*Lithosia quadra*	Essex pListed
B; C; F; G; H	Moth	Rosy Minor	*Litoligia literosa*	NERC S.41

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H	Moth	Luffia lapidella	*Luffia lapidella*	Essex Listed
C; F	Moth	Sandhill Rustic	*Luperina nickerlii*	Essex Listed
D	Moth	Luquetia lobella	*Luquetia lobella*	Essex Listed
A; B; C; D; F; G; H	Moth	Brindled Beauty	*Lycia hirtaria*	NERC S.41
B; D; F; G; H	Moth	Gypsy Moth	*Lymantria dispar*	IUCN: Extinct
B	Moth	V-moth	*Macaria wauaria*	NERC S.41
G; H	Moth	Dewick's Plusia	*Macdunnoughia confusa*	Essex pListed
F; H	Moth	Dotted Fan-foot	*Macrochilo cribrumalis*	Essex Listed
D; E; F; G; H	Moth	Lackey	*Malacosoma neustria*	NERC S.41
F; H	Moth	Crescent Plume	*Marasmarcha lunaedactyla*	Essex pListed
C; F; H	Moth	Kent Black Arches	*Meganola albula*	Essex Listed
A; B; C; D; F; G; H	Moth	Dot Moth	*Melanchra persicariae*	NERC S.41
B; C; F	Moth	Pretty Chalk Carpet	*Melanthia procellata*	NERC S.41
A; B; D	Moth	Dark Brocade	*Mniotype adusta*	NERC S.41
H	Moth	Moitrelia obductella	*Moitrelia obductella*	IUCN: Vulnerable
D; F; G; H	Moth	Mompha sturnipennella	*Mompha sturnipennella*	Essex Listed
A; B; F; G; H	Moth	Wainscot Neb	*Monochroa palustrellus*	Nationally Notable B; Essex Listed
C; D; F; G; H	Moth	L-album Wainscot	*Mythimna l-album*	Essex Listed
D	Moth	Narycia duplicella	*Narycia duplicella*	Essex pListed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
D	Moth	Nemapogon clematella	*Nemapogon clematella*	Essex Listed
F	Moth	Nemapogon ruricolella	*Nemapogon ruricolella*	Essex Listed
F	Moth	Nematopogon metaxella	*Nematopogon metaxella*	Essex pListed
A; F; H	Moth	Horehound Long-horn	*Nemophora fasciella*	NERC S.41; Essex Listed
D	Moth	Nemophora metallica	*Nemophora metallica*	Essex pListed
G	Moth	Neofaculta ericetella	*Neofaculta ericetella*	Essex pListed
D; F; G	Moth	Neosphaleroptera nubilana	*Neosphaleroptera nubilana*	Essex pListed
B; C; D; F; H	Moth	Spindle Knot-horn	*Nephopterix angustella*	Nationally Notable B; Essex Listed
A; B; C; D; F; G	Moth	Lunar Yellow Underwing	*Noctua orbona*	NERC S.41; Essex Listed
F	Moth	Muslin Footman	*Nudaria mundana*	Essex pListed
D; F; G; H	Moth	Oegoconia caradjai	*Oegoconia caradjai*	Nationally Notable B; Essex Listed
F; H	Moth	Oegoconia quadripuncta	*Oegoconia quadripuncta*	Essex pListed
B; C; D; F; H	Moth	Rosy-striped Knot-horn	*Oncocera semirubella*	Nationally Notable B; Essex Listed
B; D	Moth	Oblique Carpet	*Orthonama vittata*	NERC S.41; Essex pListed
A; B; C; D; E; F; G	Moth	Powdered Quaker	*Orthosia gracilis*	NERC S.41
F	Moth	Northern Drab	*Orthosia opima*	Essex Listed
C	Moth	Painted Neb	*Oxypteryx wilkella*	Nationally Notable B
D; G; H	Moth	Palpita vitrealis	*Palpita vitrealis*	Essex pListed
F	Moth	Pammene albuginana	*Pammene albuginana*	Essex Listed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
F	Moth	Pammene argyrana	*Pammene argyrana*	Essex pListed
F	Moth	Pammene aurana	*Pammene aurana*	Essex pListed
F; G; H	Moth	Pammene fasciana	*Pammene fasciana*	Essex Listed
G	Moth	Pammene gallicana	*Pammene gallicana*	Essex pListed
F	Moth	Pammene giganteana	*Pammene giganteana*	Essex pListed
F	Moth	Pandemis dumetana	*Pandemis dumetana*	Essex Listed
F	Moth	Square Spot	*Paradarisa consonaria*	Essex pListed
C; D; F; G; H	Moth	Waved Black	*Parascotia fuliginaria*	Essex Listed
H	Moth	Bordered Pearl	*Paratalanta pandalis*	Nationally Notable A; Essex pListed
B; D; F; H	Moth	Waste Grass-veneer	*Pediasia contaminella*	Nationally Notable B; Essex pListed
G	Moth	Dotted Footman	*Pelosia muscerda*	IUCN: Rare; Essex Listed
B; F; H	Moth	Dark Spinach	*Pelurga comitata*	NERC S.41
F; H	Moth	Pempelia genistella	*Pempelia genistella*	Nationally Notable A; Essex pListed
H	Moth	Grass Rivulet	*Perizoma albulata*	Essex pListed
C; D; F; G	Moth	Hollyhock Seed Moth	*Pexicopia malvella*	Nationally Notable B
D; F	Moth	Phalonidia manniana	*Phalonidia manniana*	Essex Listed
C; F	Moth	Phyllocnistis saligna	*Phyllocnistis saligna*	Essex pListed
C	Moth	Kent Bent-wing	*Phyllocnistis xenia*	IUCN: Vulnerable; Essex Listed
D	Moth	Phyllonorycter spinicolella	*Phyllonorycter spinicolella*	Essex pListed
D; F	Moth	Piniphila bifasciana	*Piniphila bifasciana*	Essex pListed

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D	Moth	Barred Umber	*Plagodis pulveraria*	Essex pListed
F; G; H	Moth	Platyedra subcinerea	*Platyedra subcinerea*	Nationally Notable; Essex Listed
C; F	Moth	Goldenrod Plume	*Platyptilia calodactyla*	Essex Listed
D; H	Moth	Platytes alpinella	*Platytes alpinella*	IUCN: Rare; Essex Listed
D	Moth	Prochoreutis myllerana	*Prochoreutis myllerana*	Essex pListed
D	Moth	Pseudopostega crepusculella	*Pseudopostega crepusculella*	Essex pListed
D	Moth	Pseudotelphusa paripunctella	*Pseudotelphusa paripunctella*	Essex pListed
F	Moth	Psoricoptera gibbosella	*Psoricoptera gibbosella*	Essex Listed
E	Moth	Ptocheuusa paupella	*Ptocheuusa paupella*	Essex pListed
F; G; H	Moth	Recurvaria leucatella	*Recurvaria leucatella*	Essex Listed
F; H	Moth	Recurvaria nanella	*Recurvaria nanella*	Nationally Notable B
A; B; C; D; F; H	Moth	Large Wainscot	*Rhizedra lutosa*	NERC S.41
D	Moth	Dotted Rustic	*Rhyacia simulans*	Essex Listed
A; B; D; F; G; H	Moth	Giant Water-veneer	*Schoenobius gigantella*	Nationally Notable B; Essex Listed
D	Moth	Schreckensteinia festaliella	*Schreckensteinia festaliella*	Essex pListed
D	Moth	Scoparia ancipitella	*Scoparia ancipitella*	Nationally Notable B; Essex Listed
H	Moth	Rosy Wave	*Scopula emutaria*	Essex Listed
C; F; G; H	Moth	Mullein Wave	*Scopula marginepunctata*	NERC S.41

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G	Moth	Smoky Wave	*Scopula ternata*	Essex pListed
A; B; D; F; G; H	Moth	Shaded Broad-bar	*Scotopteryx chenopodiata*	NERC S.41
D; F	Moth	Beet Moth	*Scrobipalpa ocellatella*	Nationally Notable; Essex pListed
B	Moth	Flame Wainscot	*Senta flammea*	IUCN: Rare
D; F; H	Moth	Hornet Moth	*Sesia apiformis*	Essex Listed
F	Moth	Lunar Hornet Moth	*Sesia bembeciformis*	Essex Listed
D; F; H	Moth	Sitochroa palealis	*Sitochroa palealis*	Nationally Notable
F	Moth	White-banded Carpet	*Spargania luctuata*	Essex Listed
D; G	Moth	Spatalistis bifasciana	*Spatalistis bifasciana*	Essex Listed
F	Moth	Spilonota laricana	*Spilonota laricana*	Essex pListed
A; B; C; D; F; G; H	Moth	White Ermine	*Spilosoma lubricipeda*	NERC S.41
A; B; C; D; E; F; G; H	Moth	Buff Ermine	*Spilosoma lutea*	NERC S.41
D	Moth	Water Ermine	*Spilosoma urticae*	Essex Listed
D; H	Moth	Stathmopoda pedella	*Stathmopoda pedella*	Nationally Notable B; Essex pListed
D; H	Moth	Twin-spot Plume	*Stenoptilia bipunctidactyla*	Essex pListed
F; H	Moth	Dowdy Plume	*Stenoptilia zophodactylus*	Essex pListed
D; F; H	Moth	Stigmella aceris	*Stigmella aceris*	Essex pListed
G	Moth	Stigmella assimilella	*Stigmella assimilella*	Essex Listed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
D	Moth	Stigmella continuella	*Stigmella continuella*	Essex pListed
C; F	Moth	Stigmella obliquella	*Stigmella obliquella*	Essex pListed
C	Moth	Stigmella splendidissimella	*Stigmella splendidissimella*	Essex pListed
D	Moth	Strophedra weirana	*Strophedra weirana*	Essex pListed
D; F	Moth	Orange-tailed Clearwing	*Synanthedon andrenaeformis*	Essex Listed
D; F; H	Moth	Red-tipped Clearwing	*Synanthedon formicaeformis*	Essex Listed
F; G	Moth	Red-belted Clearwing	*Synanthedon myopaeformis*	Essex Listed
D; F	Moth	Currant Clearwing	*Synanthedon tipuliformis*	Essex Listed
D; F	Moth	Yellow-legged Clearwing	*Synanthedon vespiformis*	Essex Listed
C; D; F; G; H	Moth	Synaphe punctalis	*Synaphe punctalis*	Nationally Notable B
G	Moth	Scarce Silver Y	*Syngrapha interrogationis*	Essex pListed
D	Moth	Teleiopsis diffinis	*Teleiopsis diffinis*	Essex pListed
C; F; G; H	Moth	Oak Processionary	*Thaumetopoea processionea*	Essex pListed
C; D; E; F; G; H	Moth	Cypress Carpet	*Thera cupressata*	Essex pListed
B; C; D; H	Moth	Hedge Rustic	*Tholera cespitis*	NERC S.41
A; B; C; D; F; G; H	Moth	Feathered Gothic	*Tholera decimalis*	NERC S.41

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
A; B; C; D; E: F; G; H	Moth	Blood-vein	*Timandra comae*	NERC S.41
D	Moth	Large Pale Clothes Moth	*Tinea pallescentella*	Essex pListed
D; F	Moth	Common Clothes Moth	*Tineola bisselliella*	Essex pListed
F	Moth	Triaxomasia caprimulgella	*Triaxomasia caprimulgella*	Essex pListed
A; F; G	Moth	Pale Eggar	*Trichiura crataegi*	NERC S.41
D; F	Moth	Ni Moth	*Trichoplusia ni*	Essex pListed
H	Moth	Tissue	*Triphosa dubitata*	Essex pListed
A; B; C; D; E; F; G; H	Moth	Cinnabar	*Tyria jacobaeae*	NERC S.41
C	Moth	Four-spotted	*Tyta luctuosa*	NERC S.41; IUCN: Vulnerable; Essex Listed
A; B; C; D; F; G; H	Moth	Oak Hook-tip	*Watsonalla binaria*	NERC S.41
A; B; C; D; G	Moth	Dark-barred Twin-spot Carpet	*Xanthorhoe ferrugata*	NERC S.41
D	Moth	Dotted Clay	*Xestia baja*	Essex Listed
D; G	Moth	Triple-spotted Clay	*Xestia ditrapezium*	Essex Listed
D	Moth	Willow Ermine	*Yponomeuta rorrella*	Essex Listed
D	Moth	Yponomeuta sedella	*Yponomeuta sedella*	Essex Listed
D	Moth	Ypsolopha alpella	*Ypsolopha alpella*	Essex pListed
D	Moth	Ypsolopha nemorella	*Ypsolopha nemorella*	Essex pListed

Project Section	Taxonomic Group	Common Name	Latin Name	Designation
D	Moth	Larch Tortrix	*Zeiraphera griseana*	Essex pListed
Mollusc				
C	Snail	Copse Snail	*Arianta arbustorum*	Essex Listed
E	Slug	Large Black Slug	*Arion (Arion) ater*	IUCN: Data Deficient
Odonata				
H	Damselfly	Scarce Emerald Damselfly	*Lestes dryas*	IUCN: Near Threatened; Essex Listed
B; C	Dragonfly	Scarce Chaser	*Libellula fulva*	IUCN: Near Threatened
Spider				
H	Spider	Ballus chalybeius	*Ballus chalybeius*	Nationally Scarce
H	Spider	formerly Bianor aurocinctus	*Sibianor aurocinctus*	Nationally Scarce; Essex Listed

Annex D. Species recorded during 2024 targeted sampling surveys

nationalgrid

Annex D: Species recorded during 2024 targeted sampling surveys

Table A8.5.51 ISA 4 - land north of Ling Road, Diss, Norfolk

Order	Family	Taxon	Conservation Status
Araneae	Tetragnathidae	*Tetragnatha montana*	Local
Coleoptera	Cantharidae	*Cantharis rustica*	None
Coleoptera	Carabidae	*Amara anthobia*	Local
Coleoptera	Carabidae	*Amara familiaris*	None
Coleoptera	Carabidae	*Amara montivaga*	Nationally Scarce (NS)
Coleoptera	Carabidae	*Bembidion guttula*	None
Coleoptera	Carabidae	*Calathus rotundicollis*	None
Coleoptera	Carabidae	*Cychrus caraboides*	Local
Coleoptera	Carabidae	*Harpalus affinis*	None
Coleoptera	Carabidae	*Harpalus rufipes*	None
Coleoptera	Carabidae	*Laemostenus terricola*	Local
Coleoptera	Carabidae	*Leistus spinibarbis*	Local
Coleoptera	Carabidae	*Nebria brevicollis*	None
Coleoptera	Carabidae	*Notiophilus biguttatus*	None
Coleoptera	Carabidae	*Notiophilus rufipes*	Local
Coleoptera	Carabidae	*Ophonus puncticeps*	Local
Coleoptera	Carabidae	*Poecilus versicolor*	Local
Coleoptera	Carabidae	*Pterostichus madidus*	None
Coleoptera	Carabidae	*Pterostichus strenuus*	None

Order	Family	Taxon	Conservation Status
Coleoptera	Carabidae	*Tachinus rufipes*	None
Coleoptera	Chrysomelidae	*Chaetocnema concinna*	None
Coleoptera	Chrysomelidae	*Chrysolina oricalcia*	Local
Coleoptera	Chrysomelidae	*Cryptocephalus labiatus*	None
Coleoptera	Chrysomelidae	*Phaedon tumidulus*	None
Coleoptera	Chrysomelidae	*Phyllotreta ochripes*	Local
Coleoptera	Coccinellidae	*Propylea quatuordecimpunctata*	None
Coleoptera	Coccinellidae	*Subcoccinella vigintiquatuorpunctata*	None
Coleoptera	Coccinellidae	*Tytthaspis sedecimpunctata*	Local
Coleoptera	Cryptophagidae	*Cryptophagus lycoperdi*	None
Coleoptera	Curculionidae	*Microplontus campestris*	NS
Coleoptera	Curculionidae	*Nedyus quadrimaculatus*	None
Coleoptera	Curculionidae	*Parethelcus pollinarius*	None
Coleoptera	Curculionidae	*Philopedon plagiatum*	Local
Coleoptera	Curculionidae	*Phyllobius glaucus*	None
Coleoptera	Curculionidae	*Strophosoma melanogrammum*	None
Coleoptera	Elateridae	*Agriotes obscurus*	None
Coleoptera	Elateridae	*Limonius poneli*	None
Coleoptera	Hydrophilidae	*Helophorus brevipalpis*	None
Coleoptera	Hydrophilidae	*Hydrobius fuscipes*	None
Coleoptera	Kateretidae	*Brachypterus urticae*	None
Coleoptera	Latridiidae	*Enicmus transversus*	None
Coleoptera	Malachiidae	*Cordylepherus viridis*	Local

Order	Family	Taxon	Conservation Status
Coleoptera	Malachiidae	*Malachius bipustulatus*	None
Coleoptera	Nitidulidae	*Cryptarcha strigata*	Nationally scares
Coleoptera	Nitidulidae	*Glischrochilus hortensis*	None
Coleoptera	Nitidulidae	*Meligethes aeneus*	None
Coleoptera	Nitidulidae	*Meligethes morosus*	None
Coleoptera	Nitidulidae	*Meligethes nigrescens*	None
Coleoptera	Oedemeridae	*Oedemera lurida*	Local
Coleoptera	Oedemeridae	*Oedemera nobilis*	None
Coleoptera	Ptinidae	*Anobium punctatum*	None
Coleoptera	Pyrochroidae	*Pyrochroa serraticornis*	None
Coleoptera	Scraptiidae	*Anaspis garneysi*	None
Coleoptera	Staphylinidae	*Anotylus rugosus*	None
Coleoptera	Staphylinidae	*Mycetoporus lepidus*	None
Coleoptera	Staphylinidae	*Mycetoporus longulus*	None
Coleoptera	Staphylinidae	*Ocypus olens*	None
Coleoptera	Staphylinidae	*Othius punctulatus*	None
Coleoptera	Staphylinidae	*Philonthus decorus*	None
Coleoptera	Staphylinidae	*Quedius lateralis*	Local
Coleoptera	Staphylinidae	*Quedius levicollis*	None
Coleoptera	Staphylinidae	*Quedius nigriceps*	Local
Coleoptera	Staphylinidae	*Quedius picipes*	None
Coleoptera	Staphylinidae	*Sepedophilus marshami*	None
Coleoptera	Staphylinidae	*Tachinus marginellus*	None

Order	Family	Taxon	Conservation Status
Coleoptera	Staphylinidae	*Tasgius melanarius*	None
Coleoptera	Staphylinidae	*Tasgius morsitans*	Local
Coleoptera	Staphylinidae	*Xantholinus longiventris*	None
Coleoptera	Tenebrionidae	*Scaphidema metallicum*	Local
Diptera	Asilidae	*Dioctria atricapilla*	Local
Diptera	Asilidae	*Dioctria rufipes*	Local
Diptera	Asilidae	*Lasiopogon cinctus*	NS
Diptera	Asilidae	*Leptogaster cylindrica*	None
Diptera	Scathophagidae	*Scathophaga stercoraria*	None
Diptera	Stratiomyidae	*Chloromyia formosa*	None
Diptera	Syrphidae	*Cheilosia illustrata*	None
Diptera	Syrphidae	*Helophilus pendulus*	None
Diptera	Syrphidae	*Merodon equestris*	None
Diptera	Tipulidae	*Limonia nubeculosa*	None
Glomerida	Glomeridae	*Glomeris marginata*	None
Hemiptera	Anthocoridae	*Anthocoris nemorum*	None
Hemiptera	Aphrophoridae	*Philaenus spumarius*	None
Hemiptera	Cicadellidae	*Evacanthus acuminatus*	None
Hemiptera	Cicadellidae	*Megophthalmus scabripennis*	None
Hemiptera	Coreidae	*Coreus marginatus*	None
Hemiptera	Coreidae	*Coriomeris denticulatus*	None
Hemiptera	Lygaeidae	*Drymus sylvaticus*	None
Hemiptera	Lygaeidae	*Megalonotus chiragra*	None

Order	Family	Taxon	Conservation Status
Hemiptera	Miridae	*Leptopterna dolabrata*	None
Hemiptera	Miridae	*Liocoris tripustulatus*	None
Hemiptera	Miridae	*Stenotus binotatus*	None
Hemiptera	Nabidae	*Himacerus mirmicoides*	None
Hemiptera	Pentatomidae	*Aelia acuminata*	Local
Hemiptera	Rhopalidae	*Rhopalus subrufus*	Local
Hymenoptera	Andrenidae	*Andrena chrysosceles*	None
Hymenoptera	Andrenidae	*Andrena nitida*	None
Hymenoptera	Andrenidae	*Andrena subopaca*	None
Hymenoptera	Apidae	*Apis mellifera*	None
Hymenoptera	Apidae	*Bombus lapidarius*	None
Hymenoptera	Apidae	*Ceratina cyanea*	Nationally Rare (NR)
Hymenoptera	Apidae	*Nomada flavoguttata*	None
Hymenoptera	Formicidae	*Formica fusca*	None
Hymenoptera	Formicidae	*Lasius niger*	None
Hymenoptera	Formicidae	*Myrmica ruginodis*	None
Hymenoptera	Melittidae	*Dasypoda hirtipes*	NS
Hymenoptera	Philanthidae	*Philanthus triangulum*	NR
Hymenoptera	Vespidae	*Vespula vulgaris*	None
Isopoda	Armadillidiidae	*Armadillidium nasatum*	Local
Isopoda	Armadillidiidae	*Armadillidium vulgare*	None
Isopoda	Philosciidae	*Philoscia muscorum*	None
Isopoda	Porcellionidae	*Porcellio scaber*	None

Order	Family	Taxon	Conservation Status
Julida	Julidae	*Cylindroiulus punctatus*	None
Lepidoptera	Crambidae	*Anania hortulata*	None
Lepidoptera	Crambidae	*Ostrinia nubilalis*	None
Lepidoptera	Depressariidae	*Carcina quercana*	None
Lepidoptera	Erebidae	*Eilema lurideola*	None
Lepidoptera	Erebidae	*Hypena proboscidalis*	None
Lepidoptera	Erebidae	*Rivula sericealis*	None
Lepidoptera	Erebidae	*Tyria jacobaeae*	None
Lepidoptera	Geometridae	*Alcis repandata*	None
Lepidoptera	Geometridae	*Cabera pusaria*	None
Lepidoptera	Geometridae	*Hemithea aestivaria*	None
Lepidoptera	Geometridae	*Lomaspilis marginata*	None
Lepidoptera	Geometridae	*Opisthograptis luteolata*	None
Lepidoptera	Geometridae	*Ourapteryx sambucaria*	None
Lepidoptera	Lycaenidae	*Lycaena phlaeas*	None
Lepidoptera	Lycaenidae	*Polyommatus icarus*	None
Lepidoptera	Noctuidae	*Agrotis exclamationis*	None
Lepidoptera	Noctuidae	*Apamea monoglypha*	None
Lepidoptera	Noctuidae	*Noctua pronuba*	None
Lepidoptera	Noctuidae	*Orthosia gothica*	None
Lepidoptera	Notodontidae	*Notodonta dromedarius*	None
Lepidoptera	Notodontidae	*Pterostoma palpina*	None
Lepidoptera	Nymphalidae	*Aglais io*	None

Order	Family	Taxon	Conservation Status
Lepidoptera	Nymphalidae	*Maniola jurtina*	None
Lepidoptera	Nymphalidae	*Pararge aegeria*	None
Lepidoptera	Nymphalidae	*Pyronia tithonus*	None
Lepidoptera	Pieridae	*Anthocharis cardamines*	None
Lepidoptera	Pieridae	*Pieris napi*	None
Lepidoptera	Pieridae	*Pieris rapae*	None
Lepidoptera	Tortricidae	*Agapeta hamana*	None
Lepidoptera	Tortricidae	*Notocelia uddmanniana*	None
Lepidoptera	Yponomeutidae	*Yponomeuta rorrella*	None
Lepidoptera	Zygaenidae	*Adscita statices*	None
Odonata	Coenagrionidae	*Enallagma cyathigerum*	None
Orthoptera	Tettigoniidae	*Leptophyes punctatissima*	None
Polydesmida	Polydesmidae	*Polydesmus angustus*	None
Pseudoscorpiones	Chthoniidae	*Chthonius ischnocheles*	None

Table A8.5.52 ISA 24 - Land east of Nightingale Hill, Langham, Essex

Order	Family	Taxon	Conservation Status
Araneae	Dysderidae	*Dysdera erythrina*	None
Araneae	Gnaphosidae	*Zelotes latreillei*	Local
Araneae	Thomisidae	*Xysticus cristatus*	None
Coleoptera	Cantharidae	*Cantharis decipiens*	None
Coleoptera	Carabidae	*Abax parallelepipedus*	None
Coleoptera	Carabidae	*Amara anthobia*	Local
Coleoptera	Carabidae	*Amara montivaga*	NS

Order	Family	Taxon	Conservation Status
Coleoptera	Carabidae	*Asaphidion curtum*	None
Coleoptera	Carabidae	*Badister bullatus*	None
Coleoptera	Carabidae	*Bembidion biguttatum*	None
Coleoptera	Carabidae	*Calathus fuscipes*	None
Coleoptera	Carabidae	*Calathus rotundicollis*	None
Coleoptera	Carabidae	*Carabus nemoralis*	Local
Coleoptera	Carabidae	*Carabus violaceus*	None
Coleoptera	Carabidae	*Leistus ferrugineus*	None
Coleoptera	Carabidae	*Leistus spinibarbis*	Local
Coleoptera	Carabidae	*Nebria brevicollis*	None
Coleoptera	Carabidae	*Paranchus albipes*	None
Coleoptera	Carabidae	*Pterostichus madidus*	None
Coleoptera	Cerambycidae	*Grammoptera ruficornis*	None
Coleoptera	Chrysomelidae	*Aphthona euphorbiae*	None
Coleoptera	Chrysomelidae	*Longitarsus dorsalis*	Local
Coleoptera	Chrysomelidae	*Longitarsus flavicornis*	None
Coleoptera	Coccinellidae	*Coccinella septempunctata*	None
Coleoptera	Coccinellidae	*Harmonia axyridis*	None
Coleoptera	Coccinellidae	*Propylea quatuordecimpunctata*	None
Coleoptera	Curculionidae	*Euophryum confine*	None
Coleoptera	Curculionidae	*Nedyus quadrimaculatus*	None
Coleoptera	Curculionidae	*Otiorhynchus singularis*	None
Coleoptera	Dytiscidae	*Agabus bipustulatus*	None

Order	Family	Taxon	Conservation Status
Coleoptera	Elateridae	*Agriotes obscurus*	None
Coleoptera	Elateridae	*Agriotes sputator*	None
Coleoptera	Elateridae	*Athous haemorrhoidalis*	None
Coleoptera	Histeridae	*Hister unicolor*	None
Coleoptera	Histeridae	*Margarinotus ventralis*	None
Coleoptera	Hydrophilidae	*Anacaena lutescens*	None
Coleoptera	Hydrophilidae	*Sphaeridium lunatum*	None
Coleoptera	Kateretidae	*Brachypterus urticae*	None
Coleoptera	Latridiidae	*Cortinicara gibbosa*	None
Coleoptera	Leiodidae	*Catops grandicollis*	None
Coleoptera	Leiodidae	*Ptomaphagus subvillosus*	None
Coleoptera	Lucanidae	*Dorcus parallelipipedus*	None
Coleoptera	Malachiidae	*Malachius bipustulatus*	None
Coleoptera	Nitidulidae	*Meligethes ruficornis*	None
Coleoptera	Oedemeridae	*Oedemera lurida*	Local
Coleoptera	Pyrochroidae	*Pyrochroa serraticornis*	None
Coleoptera	Rhynchitidae	*Lasiorhynchites cavifrons*	NS
Coleoptera	Scarabaeidae	*Acrossus rufipes*	None
Coleoptera	Scarabaeidae	*Melinopterus prodromus*	None
Coleoptera	Scarabaeidae	*Onthophagus coenobita*	Local
Coleoptera	Scarabaeidae	*Onthophagus joannae*	Local
Coleoptera	Scarabaeidae	*Onthophagus similis*	Local
Coleoptera	Scarabaeidae	*Volinus sticticus*	None

Order	Family	Taxon	Conservation Status
Coleoptera	Silphidae	*Nicrophorus vespilloides*	Local
Coleoptera	Silphidae	*Phosphuga atrata*	None
Coleoptera	Staphylinidae	*Anotylus rugosus*	None
Coleoptera	Staphylinidae	*Anotylus sculpturatus*	None
Coleoptera	Staphylinidae	*Bisnius fimetarius*	None
Coleoptera	Staphylinidae	*Ocypus aeneocephalus*	Local
Coleoptera	Staphylinidae	*Ocypus olens*	None
Coleoptera	Staphylinidae	*Omalium rivulare*	None
Coleoptera	Staphylinidae	*Philonthus addendus*	Local
Coleoptera	Staphylinidae	*Philonthus carbonarius*	None
Coleoptera	Staphylinidae	*Philonthus cognatus*	None
Coleoptera	Staphylinidae	*Philonthus decorus*	None
Coleoptera	Staphylinidae	*Philonthus splendens*	None
Coleoptera	Staphylinidae	*Philonthus tenuicornis*	Local
Coleoptera	Staphylinidae	*Philonthus varians*	None
Coleoptera	Staphylinidae	*Platydracus stercorarius*	Local
Coleoptera	Staphylinidae	*Quedius cinctus*	None
Coleoptera	Staphylinidae	*Quedius lateralis*	Local
Coleoptera	Staphylinidae	*Rugilus rufipes*	None
Coleoptera	Staphylinidae	*Sepedophilus marshami*	None
Coleoptera	Staphylinidae	*Tachinus humeralis*	None
Coleoptera	Staphylinidae	*Tachinus rufipes*	None
Coleoptera	Tenebrionidae	*Nalassus laevioctostriatus*	None

Order	Family	Taxon	Conservation Status
Dermaptera	Forficulidae	*Forficula auricularia*	None
Diptera	Asilidae	*Machimus cingulatus*	Local
Diptera	Rhagionidae	*Rhagio scolopaceus*	None
Diptera	Scathophagidae	*Scathophaga stercoraria*	None
Diptera	Scathophagidae	*Scathophaga stercoraria*	None
Diptera	Stratiomyidae	*Beris chalybata*	None
Diptera	Stratiomyidae	*Chorisops nagatomii*	None
Diptera	Syrphidae	*Criorhina berberina*	Local
Diptera	Syrphidae	*Helophilus pendulus*	None
Diptera	Syrphidae	*Sphaerophoria scripta*	None
Glomerida	Glomeridae	*Glomeris marginata*	None
Hemiptera	Acanthosomatidae	*Elasmucha grisea*	None
Hemiptera	Aphrophoridae	*Philaenus spumarius*	None
Hemiptera	Cicadellidae	*Adarrus ocellaris*	None
Hemiptera	Cicadellidae	*Anoscopus flavostriatus*	None
Hemiptera	Cicadellidae	*Aphrodes makarovi*	None
Hemiptera	Cicadellidae	*Doratura stylata*	None
Hemiptera	Cicadellidae	*Eupteryx aurata*	None
Hemiptera	Cicadellidae	*Euscelis incisus*	None
Hemiptera	Coreidae	*Coreus marginatus*	None
Hemiptera	Coreidae	*Leptoglossus occidentalis*	None
Hemiptera	Cydnidae	*Legnotus limbosus*	None
Hemiptera	Lygaeidae	*Kleidocerys resedae*	None

Order	Family	Taxon	Conservation Status
Hemiptera	Lygaeidae	*Peritrechus geniculatus*	None
Hemiptera	Miridae	*Liocoris tripustulatus*	None
Hemiptera	Miridae	*Lygus wagneri*	None
Hemiptera	Nabidae	*Nabis flavomarginatus*	None
Hemiptera	Nabidae	*Nabis rugosus*	None
Hemiptera	Pentatomidae	*Pentatoma rufipes*	None
Hymenoptera	Andrenidae	*Andrena dorsata*	None
Hymenoptera	Andrenidae	*Andrena nitida*	None
Hymenoptera	Andrenidae	*Andrena russula*	NS
Hymenoptera	Andrenidae	*Andrena scotica*	None
Hymenoptera	Andrenidae	*Andrena subopaca*	None
Hymenoptera	Apidae	*Apis mellifera*	None
Hymenoptera	Apidae	*Bombus pascuorum*	None
Hymenoptera	Apidae	*Nomada flava*	None
Hymenoptera	Apidae	*Nomada flavoguttata*	None
Hymenoptera	Apidae	*Nomada ruficornis*	None
Hymenoptera	Chrysididae	*Hedychridium ardens*	None
Hymenoptera	Chrysididae	*Hedychrum niemelai*	NR
Hymenoptera	Colletidae	*Hylaeus dilatatus*	Local
Hymenoptera	Crabronidae	*Cerceris rybyensis*	None
Hymenoptera	Crabronidae	*Nysson dimidiatus*	NS
Hymenoptera	Crabronidae	*Nysson trimaculatus*	NS
Hymenoptera	Crabronidae	*Oxybelus uniglumis*	None

Order	Family	Taxon	Conservation Status
Hymenoptera	Crabronidae	*Tachysphex pompiliformis*	None
Hymenoptera	Crabronidae	*Trypoxylon attenuatum*	None
Hymenoptera	Formicidae	*Formica cunicularia*	None
Hymenoptera	Formicidae	*Lasius brunneus*	NS
Hymenoptera	Formicidae	*Lasius flavus*	None
Hymenoptera	Formicidae	*Lasius niger*	None
Hymenoptera	Formicidae	*Myrmica ruginodis*	None
Hymenoptera	Halictidae	*Halictus rubicundus*	None
Hymenoptera	Halictidae	*Halictus tumulorum*	None
Hymenoptera	Halictidae	*Lasioglossum leucopus*	None
Hymenoptera	Halictidae	*Lasioglossum malachurum*	NS
Hymenoptera	Halictidae	*Lasioglossum morio*	None
Hymenoptera	Halictidae	*Lasioglossum pauxillum*	NS
Hymenoptera	Halictidae	*Lasioglossum quadrinotatum*	NS
Hymenoptera	Halictidae	*Sphecodes ephippius*	None
Hymenoptera	Halictidae	*Sphecodes longulus*	NS
Hymenoptera	Halictidae	*Sphecodes puncticeps*	Local
Hymenoptera	Megachilidae	*Osmia bicornis*	None
Hymenoptera	Vespidae	*Dolichovespula media*	NS
Hymenoptera	Vespidae	*Vespula germanica*	None
Isopoda	Armadillidiidae	*Armadillidium vulgare*	None
Isopoda	Porcellionidae	*Porcellio scaber*	None
Julida	Julidae	*Cylindroiulus caeruleocinctus*	Local

Order	Family	Taxon	Conservation Status
Julida	Julidae	*Cylindroiulus punctatus*	None
Julida	Julidae	*Ophyiulus pilosus*	None
Lepidoptera	Erebidae	*Tyria jacobaeae*	None
Lepidoptera	Geometridae	*Chloroclysta siterata*	None
Lepidoptera	Lycaenidae	*Celastrina argiolus*	None
Lepidoptera	Noctuidae	*Autographa gamma*	None
Lepidoptera	Nymphalidae	*Aglais io*	None
Lepidoptera	Nymphalidae	*Coenonympha pamphilus*	None
Lepidoptera	Nymphalidae	*Maniola jurtina*	None
Lepidoptera	Nymphalidae	*Pararge aegeria*	None
Lepidoptera	Nymphalidae	*Pyronia tithonus*	None
Lepidoptera	Nymphalidae	*Vanessa atalanta*	None
Lepidoptera	Pieridae	*Pieris rapae*	None
Lepidoptera	Pyralidae	*Pyralis farinalis*	None
Mecoptera	Panorpidae	*Panorpa communis*	None
Mecoptera	Panorpidae	*Panorpa germanica*	None
Odonata	Coenagrionidae	*Enallagma cyathigerum*	None
Opiliones	Sclerosomatidae	*Leiobunum rotundum*	None
Orthoptera	Acrididae	*Chorthippus brunneus*	None
Orthoptera	Acrididae	*Chorthippus parallelus*	None
Orthoptera	Tettigoniidae	*Meconema thalassinum*	None

Table A8.5.53 ISA 29 – Land west of Cressing Road, Witham, Essex

Order	Family	Taxon	Conservation Status
Coleoptera	Cantharidae	*Cantharis pellucida*	None
Coleoptera	Carabidae	*Abax parallelepipedus*	None
Coleoptera	Carabidae	*Agonum emarginatum*	Local
Coleoptera	Carabidae	*Amara eurynota*	Local
Coleoptera	Carabidae	*Calathus rotundicollis*	None
Coleoptera	Carabidae	*Carabus violaceus*	None
Coleoptera	Carabidae	*Cychrus caraboides*	Local
Coleoptera	Carabidae	*Harpalus latus*	None
Coleoptera	Carabidae	*Harpalus rufipes*	None
Coleoptera	Carabidae	*Leistus rufomarginatus*	Local
Coleoptera	Carabidae	*Leistus spinibarbis*	Local
Coleoptera	Carabidae	*Loricera pilicornis*	None
Coleoptera	Carabidae	*Nebria brevicollis*	None
Coleoptera	Carabidae	*Notiophilus biguttatus*	None
Coleoptera	Carabidae	*Oxypselaphus obscurus*	Local
Coleoptera	Carabidae	*Poecilus cupreus*	Local
Coleoptera	Carabidae	*Pterostichus diligens*	None
Coleoptera	Carabidae	*Pterostichus madidus*	None
Coleoptera	Carabidae	*Pterostichus melanarius*	None
Coleoptera	Carabidae	*Pterostichus nigrita*	None
Coleoptera	Carabidae	*Pterostichus strenuus*	None
Coleoptera	Chrysomelidae	*Altica palustris*	None

Order	Family	Taxon	Conservation Status
Coleoptera	Chrysomelidae	*Aphthona euphorbiae*	None
Coleoptera	Chrysomelidae	*Batophila aerata*	Local
Coleoptera	Chrysomelidae	*Crepidodera aurea*	None
Coleoptera	Chrysomelidae	*Gastrophysa viridula*	None
Coleoptera	Chrysomelidae	*Longitarsus suturellus*	None
Coleoptera	Chrysomelidae	*Phyllotreta astrachanica*	Local
Coleoptera	Chrysomelidae	*Phyllotreta nemorum*	None
Coleoptera	Chrysomelidae	*Psylliodes chrysocephala*	Local
Coleoptera	Coccinellidae	*Coccinella septempunctata*	None
Coleoptera	Coccinellidae	*Harmonia axyridis*	None
Coleoptera	Coccinellidae	*Propylea quatuordecimpunctata*	None
Coleoptera	Coccinellidae	*Subcoccinella vigintiquatuorpunctata*	None
Coleoptera	Corylophidae	*Sericoderus brevicornis*	None
Coleoptera	Cryptophagidae	*Cryptophagus scanicus*	None
Coleoptera	Curculionidae	*Exomias pellucidus*	None
Coleoptera	Curculionidae	*Liparus coronatus*	NS
Coleoptera	Curculionidae	*Nedyus quadrimaculatus*	None
Coleoptera	Curculionidae	*Parethelcus pollinarius*	None
Coleoptera	Dytiscidae	*Agabus bipustulatus*	None
Coleoptera	Elateridae	*Athous haemorrhoidalis*	None
Coleoptera	Elateridae	*Melanotus villosus*	None
Coleoptera	Histeridae	*Dendrophilus punctatus*	Local
Coleoptera	Histeridae	*Hister unicolor*	None

Order	Family	Taxon	Conservation Status
Coleoptera	Hydrophilidae	*Cercyon impressus*	None
Coleoptera	Hydrophilidae	*Hydrobius fuscipes*	None
Coleoptera	Latridiidae	*Cortinicara gibbosa*	None
Coleoptera	Leiodidae	*Apocatops nigrita*	None
Coleoptera	Nitidulidae	*Meligethes morosus*	None
Coleoptera	Oedemeridae	*Oedemera nobilis*	None
Coleoptera	Pyrochroidae	*Pyrochroa serraticornis*	None
Coleoptera	Scarabaeidae	*Onthophagus coenobita*	Local
Coleoptera	Scarabaeidae	*Volinus sticticus*	None
Coleoptera	Silphidae	*Nicrophorus vespilloides*	Local
Coleoptera	Silphidae	*Phosphuga atrata*	None
Coleoptera	Staphylinidae	*Anotylus rugosus*	None
Coleoptera	Staphylinidae	*Anotylus sculpturatus*	None
Coleoptera	Staphylinidae	*Lathrobium brunnipes*	None
Coleoptera	Staphylinidae	*Ocypus olens*	None
Coleoptera	Staphylinidae	*Philonthus decorus*	None
Coleoptera	Staphylinidae	*Philonthus marginatus*	None
Coleoptera	Staphylinidae	*Philonthus varians*	None
Coleoptera	Staphylinidae	*Quedius fumatus*	Local
Coleoptera	Staphylinidae	*Quedius lateralis*	Local
Coleoptera	Staphylinidae	*Quedius nemoralis*	Local
Coleoptera	Staphylinidae	*Tachinus humeralis*	None
Coleoptera	Staphylinidae	*Tachinus rufipes*	None

Order	Family	Taxon	Conservation Status
Coleoptera	Staphylinidae	*Tachyporus nitidulus*	None
Coleoptera	Staphylinidae	*Tasgius morsitans*	Local
Coleoptera	Tenebrionidae	*Isomira murina*	None
Dermaptera	Forficulidae	*Forficula auricularia*	None
Diptera	Asilidae	*Machimus atricapillus*	None
Diptera	Scathophagidae	*Scathophaga stercoraria*	None
Diptera	Stratiomyidae	*Chloromyia formosa*	None
Diptera	Stratiomyidae	*Chorisops nagatomii*	None
Diptera	Syrphidae	*Chalcosyrphus nemorum*	Local
Diptera	Syrphidae	*Chrysogaster chalybeata*	Local
Diptera	Syrphidae	*Episyrphus balteatus*	None
Diptera	Syrphidae	*Eristalis arbustorum*	None
Diptera	Syrphidae	*Eristalis pertinax*	None
Diptera	Syrphidae	*Helophilus pendulus*	None
Diptera	Syrphidae	*Neoascia podagrica*	None
Diptera	Syrphidae	*Volucella inflata*	Local
Diptera	Syrphidae	*Xylota segnis*	None
Diptera	Tipulidae	*Tipula maxima*	Local
Glomerida	Glomeridae	*Glomeris marginata*	None
Hemiptera	Acanthosomatidae	*Elasmucha grisea*	None
Hemiptera	Aphrophoridae	*Aphrophora alni*	None
Hemiptera	Aphrophoridae	*Neophilaenus lineatus*	None
Hemiptera	Cicadellidae	*Agallia consobrina*	None

Order	Family	Taxon	Conservation Status
Hemiptera	Cicadellidae	*Anoscopus flavostriatus*	None
Hemiptera	Cicadellidae	*Aphrodes makarovi*	None
Hemiptera	Cicadellidae	*Eupteryx aurata*	None
Hemiptera	Cicadellidae	*Oncopsis avellanae*	None
Hemiptera	Lygaeidae	*Kleidocerys resedae*	None
Hemiptera	Miridae	*Deraeocoris ruber*	None
Hemiptera	Miridae	*Halticus luteicollis*	Local
Hemiptera	Miridae	*Liocoris tripustulatus*	None
Hemiptera	Miridae	*Miris striatus*	None
Hemiptera	Miridae	*Pantilius tunicatus*	None
Hemiptera	Miridae	*Stenodema laevigata*	None
Hemiptera	Nabidae	*Himacerus apterus*	None
Hemiptera	Nabidae	*Himacerus mirmicoides*	None
Hemiptera	Nabidae	*Nabis flavomarginatus*	None
Hemiptera	Nabidae	*Nabis rugosus*	None
Hemiptera	Rhopalidae	*Corizus hyoscyami*	Local
Hymenoptera	Colletidae	*Hylaeus brevicornis*	None
Hymenoptera	Colletidae	*Hylaeus confusus*	None
Hymenoptera	Crabronidae	*Crossocerus annulipes*	None
Hymenoptera	Formicidae	*Lasius brunneus*	NS
Hymenoptera	Formicidae	*Lasius niger*	None
Hymenoptera	Formicidae	*Myrmica ruginodis*	None
Hymenoptera	Halictidae	*Halictus tumulorum*	None

Order	Family	Taxon	Conservation Status
Hymenoptera	Halictidae	*Lasioglossum pauxillum*	NS
Hymenoptera	Halictidae	*Lasioglossum punctatissimum*	None
Hymenoptera	Tenthredinidae	*Macrophya ribis*	Local
Hymenoptera	Vespidae	*Dolichovespula media*	NS
Hymenoptera	Vespidae	*Vespula vulgaris*	None
Isopoda	Armadillidiidae	*Armadillidium vulgare*	None
Julida	Julidae	*Tachypodoiulus niger*	None
Lepidoptera	Choreutidae	*Anthophila fabriciana*	None
Lepidoptera	Erebidae	*Hypena proboscidalis*	None
Lepidoptera	Geometridae	*Gymnoscelis rufifasciata*	None
Lepidoptera	Geometridae	*Idaea aversata*	None
Lepidoptera	Geometridae	*Opisthograptis luteolata*	None
Lepidoptera	Lasiocampidae	*Malacosoma neustria*	None
Lepidoptera	Noctuidae	*Orthosia cerasi*	None
Lepidoptera	Nymphalidae	*Aglais urticae*	None
Lepidoptera	Nymphalidae	*Maniola jurtina*	None
Lepidoptera	Nymphalidae	*Polygonia c-album*	None
Lepidoptera	Nymphalidae	*Pyronia tithonus*	None
Lepidoptera	Pieridae	*Pieris napi*	None
Lepidoptera	Pieridae	*Pieris rapae*	None
Lepidoptera	Tortricidae	*Tortrix viridana*	None
Lithobiomorpha	Lithobiidae	*Lithobius forficatus*	None
Mecoptera	Panorpidae	*Panorpa communis*	None

Order	Family	Taxon	Conservation Status
Odonata	Calopterygidae	*Calopteryx splendens*	None
Odonata	Coenagrionidae	*Enallagma cyathigerum*	None
Orthoptera	Tetrigidae	*Tetrix undulata*	None
Orthoptera	Tettigoniidae	*Meconema thalassinum*	None
Orthoptera	Tettigoniidae	*Pholidoptera griseoaptera*	None
Polydesmida	Polydesmidae	*Polydesmus angustus*	None

Annex E. Survey and Assessment Photographs

nationalgrid

Annex E: Survey and Assessment Photographs

	
ISA 1 - Land south of Bunwell Hill, Norwich, Norfolk (Section A)	ISA 1 - Land south of Bunwell Hill, Norwich, Norfolk (Section A)
	
ISA 1 - Land south of Bunwell Hill, Norwich, Norfolk (Section A)	ISA 1 - Land south of Bunwell Hill, Norwich, Norfolk (Section A)

	
ISA 1 - Land south of Bunwell Hill, Norwich, Norfolk (Section A)	ISA 1 - Land south of Bunwell Hill, Norwich, Norfolk (Section A)
	
ISA 1 - Land south of Bunwell Hill, Norwich, Norfolk (Section A)	ISA 1 - Land south of Bunwell Hill, Norwich, Norfolk (Section A)

	
ISA 1 - Land south of Bunwell Hill, Norwich, Norfolk (Section A)	ISA 1 - Land south of Bunwell Hill, Norwich, Norfolk (Section A)
	
ISA 4 - Land north of Ling Road, Diss, Norfolk (Section A)	ISA 4 - Land north of Ling Road, Diss, Norfolk (Section A)
	
ISA 4 - Land north of Ling Road, Diss, Norfolk (Section A)	ISA 4 - Land north of Ling Road, Diss, Norfolk (Section A)

	
ISA 4 - Land north of Ling Road, Diss, Norfolk (Section A)	ISA 4 - Land north of Ling Road, Diss, Norfolk (Section A)
	
ISA 5 - Land north of Lion Road, Palgrave, Suffolk (Section A)	ISA 5 - Land north of Lion Road, Palgrave, Suffolk (Section A)

	
ISA 5 - Land north of Lion Road, Palgrave, Suffolk (Section A)	ISA 5 - Land north of Lion Road, Palgrave, Suffolk (Section A)
	
ISA 5 - Land north of Lion Road, Palgrave, Suffolk (Section A)	ISA 5 - Land north of Lion Road, Palgrave, Suffolk (Section A)
	
ISA 6 - Land east of Mellis Road, Mellis, Suffolk (Section B)	ISA 6 - Land east of Mellis Road, Mellis, Suffolk (Section B)

	
ISA 6 - Land east of Mellis Road, Mellis, Suffolk (Section B)	ISA 6 - Land east of Mellis Road, Mellis, Suffolk (Section B)
	
ISA 6 - Land east of Mellis Road, Mellis, Suffolk (Section B)	ISA 6 - Land east of Mellis Road, Mellis, Suffolk (Section B)

	
ISA 7 - Land adjacent to Wickham Road, Finningham, Suffolk (Section B)	ISA 7 - Land adjacent to Wickham Road, Finningham, Suffolk (Section B)
	
ISA 7 - Land adjacent to Wickham Road, Finningham, Suffolk (Section B)	ISA 7 - Land adjacent to Wickham Road, Finningham, Suffolk (Section B)

	
ISA 7 - Land adjacent to Wickham Road, Finningham, Suffolk (Section B)	ISA 7 - Land adjacent to Wickham Road, Finningham, Suffolk (Section B)
	
ISA 9 - Land south of Badley Lane, Needham Market, Suffolk (Section B)	ISA 9 - Land south of Badley Lane, Needham Market, Suffolk (Section B)

	
ISA 9 - Land south of Badley Lane, Needham Market, Suffolk (Section B)	ISA 9 - Land south of Badley Lane, Needham Market, Suffolk (Section B)
	
ISA 9 - Land south of Badley Lane, Needham Market, Suffolk (Section B)	ISA 9 - Land south of Badley Lane, Needham Market, Suffolk (Section B)

	
ISA 10 - Land south of Badley Lane, Needham Market, Suffolk (Section B)	ISA 10 - Land south of Badley Lane, Needham Market, Suffolk (Section B)
	
ISA 10 - Land south of Badley Lane, Needham Market, Suffolk (Section B)	ISA 10 - Land south of Badley Lane, Needham Market, Suffolk (Section B)

	
ISA 11 - Land north of Hascot Hill, Battisford, Suffolk (Section B)	ISA 11 - Land north of Hascot Hill, Battisford, Suffolk (Section B)
	
ISA 11 - Land north of Hascot Hill, Battisford, Suffolk (Section B)	ISA 11 - Land north of Hascot Hill, Battisford, Suffolk (Section B)

	
ISA 12 - Land at Hascot Hill, Battisford, Suffolk (Section B)	ISA 13 - Land south of Hascot Hill, Battisford, Suffolk (Section B)
	
ISA 13 - Land south of Hascot Hill, Battisford, Suffolk (Section B)	ISA 13 - Land south of Hascot Hill, Battisford, Suffolk (Section B)

	
ISA 15 - Land west of Barking Road, Barking, Suffolk (Section B)	ISA 15 - Land west of Barking Road, Barking, Suffolk (Section B)
	
ISA 15 - Land west of Barking Road, Barking, Suffolk (Section B)	ISA 15 - Land west of Barking Road, Barking, Suffolk (Section B)
	
ISA 16 - Land off Bildeston Road, Offton, Suffolk (Section B)	ISA 16 - Land off Bildeston Road, Offton, Suffolk (Section B)

	
Land off Bildeston Road, Offton, Suffolk (Section B)	Land off Bildeston Road, Offton, Suffolk (Section B)
	
ISA 16 - Land off Bildeston Road, Offton, Suffolk (Section B)	ISA 16 - Land off Bildeston Road, Offton, Suffolk (Section B)
	
ISA 16 - Land off Bildeston Road, Offton, Suffolk (Section B)	ISA 16 - Land off Bildeston Road, Offton, Suffolk (Section B)

	
ISA 17 – Land north of Bullen Lane, Bramford, Suffolk (Section B)	ISA 17 – Land north of Bullen Lane, Bramford, Suffolk (Section B)
	
ISA 17 – Land north of Bullen Lane, Bramford, Suffolk (Section B)	ISA 17 – Land north of Bullen Lane, Bramford, Suffolk (Section B)

	
ISA 18 – Land south of Bullen Lane, Bramford, Suffolk (Section B)	ISA 18 – Land south of Bullen Lane, Bramford, Suffolk (Section B)
	
ISA 18 – Land south of Bullen Lane, Bramford, Suffolk (Section B)	ISA 18 – Land south of Bullen Lane, Bramford, Suffolk (Section B)

	
ISA 18 – Land south of Bullen Lane, Bramford, Suffolk (Section B)	ISA 18 – Land south of Bullen Lane, Bramford, Suffolk (Section B)
	
ISA 19 - Land east of Church Hill, Burstall, Suffolk (Section B)	ISA 19 - Land east of Church Hill, Burstall, Suffolk (Section B)

	
ISA 19 - Land east of Church Hill, Burstall, Suffolk (Section B)	ISA 19 - Land east of Church Hill, Burstall, Suffolk (Section B)
	
ISA 19 - Land east of Church Hill, Burstall, Suffolk (Section B)	ISA 19 - Land east of Church Hill, Burstall, Suffolk (Section B)

	
ISA 20 - Land north of Pigeon’s Lane, Hintlesham, Suffolk (Section C)	ISA 20 - Land north of Pigeon’s Lane, Hintlesham, Suffolk (Section C)
	
ISA 20 - Land north of Pigeon’s Lane, Hintlesham, Suffolk (Section C)	ISA 20 - Land north of Pigeon’s Lane, Hintlesham, Suffolk (Section C)

	
ISA 20 - Land north of Pigeon’s Lane, Hintlesham, Suffolk (Section C)	ISA 20 - Land north of Pigeon’s Lane, Hintlesham, Suffolk (Section C)
	
ISA 21 - Land south-east of Lower Barn Road, Chattisham, Suffolk (Section C)	ISA 21 - Land south-east of Lower Barn Road, Chattisham, Suffolk (Section C)
	
ISA 21 - Land south-east of Lower Barn Road, Chattisham, Suffolk (Section C)	ISA 21 - Land south-east of Lower Barn Road, Chattisham, Suffolk (Section C)

	
Land south-east of Lower Barn Road, Chattisham, Suffolk (Section C)	ISA 21 - Land south-east of Lower Barn Road, Chattisham, Suffolk (Section C)
	
ISA 22 - Land west of Higham Road, Stratford St Mary, Suffolk (Section C)	ISA 22 - Land west of Higham Road, Stratford St Mary, Suffolk (Section C)
	
ISA 22 - Land west of Higham Road, Stratford St Mary, Suffolk (Section C)	ISA 22 - Land west of Higham Road, Stratford St Mary, Suffolk (Section C)

	
ISA 24 - Land east of Nightingale Hill, Langham, Essex (Section C)	ISA 24 - Land east of Nightingale Hill, Langham, Essex (Section C)
	
ISA 24 - Land east of Nightingale Hill, Langham, Essex (Section C)	ISA 24 - Land east of Nightingale Hill, Langham, Essex (Section C)
	
ISA 24 - Land east of Nightingale Hill, Langham, Essex (Section C)	ISA 24 - Land east of Nightingale Hill, Langham, Essex (Section C)

	
ISA 24 - Land east of Nightingale Hill, Langham, Essex (Section C)	ISA 24 - Land east of Nightingale Hill, Langham, Essex (Section C)
	
ISA 25 - Land west of Ipswich Road, Langham, Colchester, Essex (Section C)	ISA 25 - Land west of Ipswich Road, Langham, Colchester, Essex (Section C)
	
ISA 25 - Land west of Ipswich Road, Langham, Colchester, Essex (Section C)	ISA 25 - Land west of Ipswich Road, Langham, Colchester, Essex (Section C)

	
ISA 27 - Land west of Mill Road, Fordham, Colchester, Essex (Section D)	ISA 27 - Land west of Mill Road, Fordham, Colchester, Essex (Section D)
	
ISA 27 - Land west of Mill Road, Fordham, Colchester, Essex (Section D)	ISA 27 - Land west of Mill Road, Fordham, Colchester, Essex (Section D)
	
ISA 27 - Land west of Mill Road, Fordham, Colchester, Essex (Section D)	ISA 27 - Land west of Mill Road, Fordham, Colchester, Essex (Section D)

ISA 28 - Land west of Coggeshall Road, Feering, Colchester, Essex (Section E)

ISA 28 - Land west of Coggeshall Road, Feering, Colchester, Essex (Section E)

ISA 28 - Land west of Coggeshall Road, Feering, Colchester, Essex (Section E)

ISA 28 - Land west of Coggeshall Road, Feering, Colchester, Essex (Section E)

ISA 28 - Land west of Coggeshall Road, Feering, Colchester, Essex (Section E)

ISA 28 - Land west of Coggeshall Road, Feering, Colchester, Essex (Section E)

	
ISA 28 - Land west of Coggeshall Road, Feering, Colchester, Essex (Section E)	ISA 28 - Land west of Coggeshall Road, Feering, Colchester, Essex (Section E)
	
ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)	ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)
	
ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)	ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)

	
ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)	ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)
	
ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)	ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)

	
ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)	ISA 29 - Land west of Cressing Road, Witham, Essex (Section E)
	
ISA 30 - Land south of Mashbury Road, Chelmsford, Essex (Section F)	ISA 30 - Land south of Mashbury Road, Chelmsford, Essex (Section F)
	
ISA 30 - Land south of Mashbury Road, Chelmsford, Essex (Section F)	ISA 30 - Land south of Mashbury Road, Chelmsford, Essex (Section F)

	
ISA 30 - Land south of Mashbury Road, Chelmsford, Essex (Section F)	ISA 30 - Land south of Mashbury Road, Chelmsford, Essex (Section F)
	
ISA 31 - Land west of Margaretting Road, Chelmsford, Essex (Section F)	ISA 31 - Land west of Margaretting Road, Chelmsford, Essex (Section F)
	
ISA 31 - Land west of Margaretting Road, Chelmsford, Essex (Section F)	ISA 31 - Land west of Margaretting Road, Chelmsford, Essex (Section F)

	
ISA 32 - Land west of Writtle Road, Margaretting, Essex (Section F)	ISA 32 - Land west of Writtle Road, Margaretting, Essex (Section F)
	
ISA 32 - Land west of Writtle Road, Margaretting, Essex (Section F)	ISA 32 - Land west of Writtle Road, Margaretting, Essex (Section F)
	
ISA 33 - Land north of Ivy Barns Lane, Margaretting, Essex (Section F)	ISA 33 - Land north of Ivy Barns Lane, Margaretting, Essex (Section F)

	
ISA 33 - Land north of Ivy Barns Lane, Margaretting, Essex (Section F)	ISA 33 - Land north of Ivy Barns Lane, Margaretting, Essex (Section F)
	
ISA 34 - Land south of Old Church Lane, Mountnessing, Essex (Section G)	ISA 34 - Land south of Old Church Lane, Mountnessing, Essex (Section G)
	
ISA 34 - Land south of Old Church Lane, Mountnessing, Essex (Section G)	ISA 34 - Land south of Old Church Lane, Mountnessing, Essex (Section G)

	
ISA 34 - Land south of Old Church Lane, Mountnessing, Essex (Section G)	ISA 34 - Land south of Old Church Lane, Mountnessing, Essex (Section G)
	
ISA 36 - Land adjacent to Buckingham Hill Road, Orsett, Essex (Section H)	ISA 36 - Land adjacent to Buckingham Hill Road, Orsett, Essex (Section H)

	
ISA 36 - Land adjacent to Buckingham Hill Road, Orsett, Essex (Section H)	ISA 36 - Land adjacent to Buckingham Hill Road, Orsett, Essex (Section H)
	
ISA 36 - Land adjacent to Buckingham Hill Road, Orsett, Essex (Section H)	ISA 36 - Land adjacent to Buckingham Hill Road, Orsett, Essex (Section H)

	
ISA 37 - Land at Rainbow Wood and Ashen Shaw (Section H)	ISA 37 - Land at Rainbow Wood and Ashen Shaw (Section H)
	
ISA 37 - Land at Rainbow Wood and Ashen Shaw (Section H)	ISA 37 - Land at Rainbow Wood and Ashen Shaw (Section H)

	
ISA 37 - Land at Rainbow Wood and Ashen Shaw (Section H)	ISA 37 - Land at Rainbow Wood and Ashen Shaw (Section H)

Annex F.
Status Definitions

nationalgrid

Annex F: Status Definitions

Much invertebrate conservation evaluation hinges on nationally threatened and scarce species. For many invertebrate groups, species rarity has often been gauged by the number of national 10 km grid squares in which they occur. The fewer '*spots on a map*', the rarer it is. This however, does not exactly equate with how threatened a species is, since some species may be naturally confined to very few localities but are very abundant where they do occur and under no immediate threat of extinction. The matter of how threatened the 'rarest' species are, has been addressed in a series of Red Data Books (RDB), such as for insects[4]. Here, the listing as RDB1 (Endangered), RDB2 (Vulnerable) and RDB3 (Rare) is an assessment of how threatened or endangered the species is in Britain, rather than how scarce it is in terms of map spot counting.

Over the last decade the RDB categories are slowly being replaced by IUCN red-list categories (Critically Endangered, Endangered and Vulnerable), which use different criteria to those developed for the RDBs. The process of replacing RDB categories with IUCN ones is however slow, and IUCN categories are not available for all groups. Accordingly, wherever IUCN categories have been allocated in the report, these are also shown in preference, ahead of RDB categories.

IUCN also recognised the value of a Near Threatened category to identify species that need to be kept under review to ensure that they have not become vulnerable to extinction. This category is used for species which have been evaluated against the criteria but do not qualify for a threatened category, although they may be close to qualifying or likely to qualify in the near future.

At the national level, countries are permitted to refine the definitions for the non-threatened categories and to define additional ones of their own, which essentially sit below RDB/IUCN status (i.e., Near Threatened). Thus, less rare but still significant species can be defined as Nationally Scarce (formerly called Nationally Notable), which is often sub-divided into Na (scarce), Nb (less scarce). These sub-categories are based on 10 km square spot counting for the Great Britain grid system[5]. The Na sub-category represents scarce taxa that are thought to occur in 30 or fewer 10 km squares of the Great Britain grid system. The Nb sub-category represents less scarce taxa that occur in 31 to 100 10 km squares. Taxa in the N- sub-category are those listed as 'Notable', but not always distinguished into sub-category Na or Nb. These species are thought to occur in 16 to 100 10 km squares of the National Grid but are too poorly known for their status to be more precisely estimated.

[4] Shirt, D. B (ed) (1987) British Red Data Books: Insects. JNCC

[5] Ball, S.G. (1986) Terrestrial and freshwater invertebrates with Red Data Book, Notable or habitat indicator status. Invertebrate **Red Data Book category 1 (RDB 1) – Endangered**

Site Register internal report number 66. NCC

Red Data Book Definitions

Species that are known or believed to occur as only a single population within one 10-km square of the National Grid.

Red Data Book category 2 (RDB 2) – Vulnerable

Species declining throughout their range or in vulnerable habitats.

Red Data Book category 3 (RDB 3) – Rare

Species that are estimated to exist in only 15 or fewer post-1970 10-km squares. This criterion may be relaxed where populations are likely to exist in over 15 10-km squares but occupy small areas of especially vulnerable habitat.

Nationally Notable (Scarce) category A (NS A) – Notable A

Taxa that do not fall within the RDB category but that are nonetheless uncommon in Great Britain and thought to occur in 30 or fewer 10-km squares of the National Grid or, for less well-recorded groups, between eight and 20 vice counties.

Nationally Notable (Scarce) category B (NS B) – Notable B

Taxa that do not fall within the RDB category but that are nonetheless uncommon in Great Britain and thought to occur in 31–100 10-km squares of the National Grid or, for less well-recorded groups, between eight and 20 vice counties.

Nationally Notable (Scarce) (N) – Notable

Species that are estimated to occur within the range of 16–100 10-km squares. The subdividing of this category into Notable A and Notable B has not been attempted for many species in this part of the review.

IUCN categories

EXTINCT (EX)

A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range, have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

CRITICALLY ENDANGERED (CR)

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

ENDANGERED (EN)

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.

VULNERABLE (VU)

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

NEAR THREATENED (NT)

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered, or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

LEAST CONCERN (LC)

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable, or Near Threatened. Widespread and abundant taxa are included in this category.

DATA DEFICIENT

A taxon is Data Deficient (DD) when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. DD is therefore not a category of threat.

GB Rarity Status categories and criteria

Broadly speaking, the Nationally Rare category is equivalent to the Red Data Book, namely: Endangered (RDB1), Vulnerable (RDB2), Rare (RDB3), Insufficiently Known (RDBK), and Extinct.

The Nationally Scarce category is directly equivalent to the combined Nationally Notable A (Na) and Nationally Notable B (Nb) categories used in the assessment of various taxonomic groups, e.g. by Hyman and Parsons (1992) in assessing the status of beetles but never used in a published format to assess these three families.

Nationally Rare Native species recorded from 15 or fewer hectads of the Ordnance Survey National Grid in Great Britain since 31 December 1989 and where there is reasonable confidence that exhaustive recording would not find them in more than 15 hectads. This category includes species that are probably extinct.

Nationally Scarce Native species that are not regarded as Nationally Rare AND have not been recorded from more than 100 hectads of the Ordnance Survey National Grid in Great Britain since 31 December 1989 and where there is reasonable confidence that exhaustive recording would not find them in more than 100 hectads.

England NERC S.41 Biodiversity Lists – England NERC S.41 Species '*of principal importance for the purpose of conserving biodiversity*' covered under Section 41 (England) of the NERC Act (2006) and therefore need to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity. 2008 Natural Environment and Rural Communities Act 2006 – Species of Principal Importance in England (Section 41) and Wales (Section 42).

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