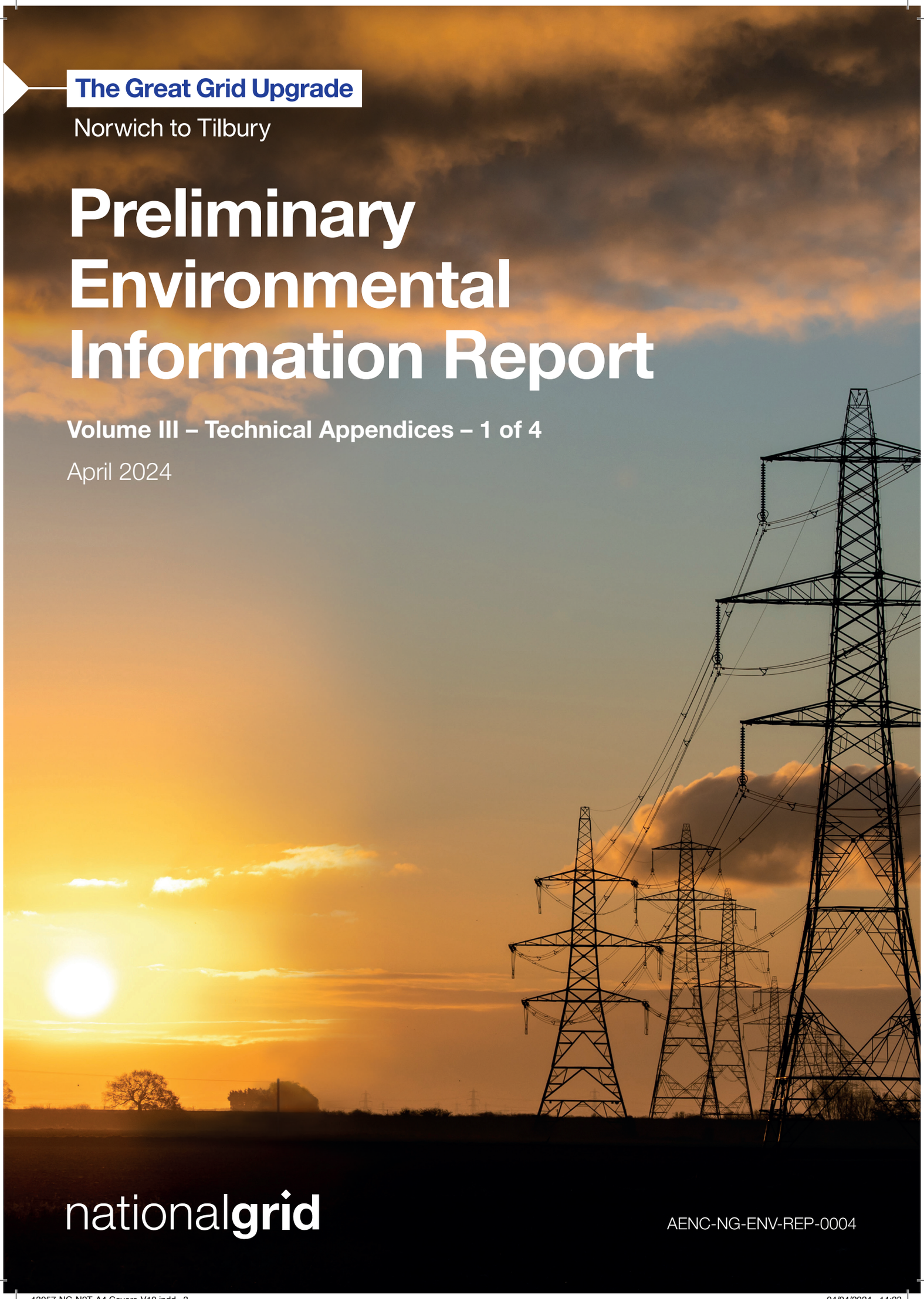
The Great Grid Upgrade

Norwich to Tilbury

Preliminary Environmental Information Report

Volume III – Technical Appendices – 1 of 4

April 2024



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Appendix 1.1: List of Competent Experts

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Appendix 1.1 – List of Competent Experts

1.1.1 The Project Team are all part of experienced, professional planning consultancies with many years' experiences working on strategic development projects, including Nationally Significant Infrastructure Projects. The preparation of chapters and input into the delivery of the Preliminary Environmental Information Report has been undertaken by:

Topic/role	Relevant academic and professional qualifications	Relevant experience in the environmental assessment of infrastructure projects
EIA Lead	• BSc (Hons) Biology • Member of Institute of Environmental Sciences	They have over 17 years' experience directing multidisciplinary teams to deliver robust and defensible planning and EIA positions for major infrastructure projects, often in the context of challenging programmes. They are an expert in securing consent through applications for DCOs having led and integrated large teams.
Agriculture and Soils	• BSc (Hons) Forestry and Soil Science • PhD Soil Science • Fellow, British Society of Soil Science • Member, Chartered Institute of Ecology and Environmental Management • Chartered Environmentalist	They have over 30 years' experience as a soil and environmental scientist. They have led numerous soil and Agricultural Land Classification assessments as part of Environmental Statements on highways projects (such as the Lower Thames Crossing), linear electricity network reinforcement schemes (such as Bramford to Twinstead Reinforcement) and major development such as the Sizewell C nuclear new build.
Air Quality	• BSc (Hons) Geography • MSc Environmental Technology • Chartered Environmentalist • Chartered Scientist • Institute of Air Quality Management • Institute of Environmental Management and Assessment	They have 14 years' experience leading air quality assessments for major infrastructure schemes in the UK, including, A14 DCO, M25 J10-16, A30 DCO, A417 DCO, A66 DCO, HS2 phase 2b (Leeds), Luton airport expansion DCO, Gatwick Northern Runway expansion DCO. These schemes have included detailed modelling, analysis of monitoring data, assessment of human and

Topic/role	Relevant academic and professional qualifications	Relevant experience in the environmental assessment of infrastructure projects
		ecological receptors and assessment of significance.
Ecology and Biodiversity	• BSc (Hons) Ecology and Environmental Management • MCIEEM • Bat Survey Licence • GCN Licence • NPTC Tree Climbing and Aerial Rescue	They are a Principal Ecologist with considerable local project management experience of strategic planning and delivery of a wide variety of developments, primarily for linear and energy schemes local to the region with a strong background in Environmental Impact Assessment. In addition to an excellent technical knowledge, specialising in ornithology, knowledge of current planning guidance and legislation
Contaminated Land, Geology and Hydrology	• BEng (hons) Industrial Geology • MSc Geotechnical Engineering	They have 22 years' experience in geotechnical and geoenvironmental engineering across a full range of greenfield and brownfield land development schemes. They have considerable EIA and DCO experience and has acted as Geology and Ground Conditions lead on several DCO schemes including Millbrook Power Project, Riverside Energy Park and M3 J9 and is currently fulfilling this role on several National Grid DCO Projects.
Health and Wellbeing	• BSc (Hons) Environmental Conservation • Member of Institute of Environmental Management and Assessment • Chartered Environmentalist	They are a Chartered Environmentalist, specialising in Impact Assessment. With over 12 years' experience, they have project managed and provided technical and quality expertise for several environmental assessment projects. Their varied experience and technical interests include health in EIA, Health Impact Assessment (HIA) , equality impact assessment, Strategic Environmental Assessment (SEA) and Integrated Impact Assessment (IIA). Recent project experience includes the health and wellbeing assessments of the Humber Low Carbon Pipelines, the ISA of England's

Topic/role	Relevant academic and professional qualifications	Relevant experience in the environmental assessment of infrastructure projects
		Economic Heartland's regional Transport Strategy, HS2 Phase 2b, East West Rail, and the assessment of health and equality across a range of other highways and commercial schemes.
Historic Environment	• PhD Archaeology • MPhil Archaeological Practice • BA (Hons) Ancient History and Archaeology	They are a Principal Archaeologist with 11 years relevant experience and has led the cultural heritage assessment on the DCO for an electricity transmission project and contributed to the heritage assessment on a high-pressure gas pipeline replacement DCO. They have most recently worked on the heritage assessment for the Lower Thames Crossing scheme for National Highways.
Hydrology and Land Drainage	• BSc (Hons) Environmental Biology • MSc Water Management • Member of the Chartered Institution of Water and Environmental Management	They have been working in water environment assessment for 19 years and has acted as the water environment lead on numerous projects including the Silvertown Tunnel, the M4 J3 to J12 Smart Motorway and A585 Skippool to Windy Harbour DCO applications and currently is fulfilling this role on the Lower Thames Crossing, Humber Low Carbon Pipelines and Bramford to Twinstead Reinforcement DCO projects also acting as an Expert Witness.
Landscape and Visual	• MA Landscape Design • BSc (Hons) Geography • Chartered Member of the Landscape Institute	They have over 25 years of experience in the field of LVIA and have worked on numerous grid connection and renewable energy projects across the UK. They are experienced in working with the wider team to influence project design and minimise environmental impacts, whilst helping to develop practical solutions. They are a respected Expert Witness who has prepared precognitions, proofs of evidence and written and graphical productions for Public Inquiries, Hearings and Examinations throughout the UK and Ireland.

Topic/role	Relevant academic and professional qualifications	Relevant experience in the environmental assessment of infrastructure projects
Arboriculture	• Technicians Certificate in Arboriculture • HND in Horticulture • Professional Tree Inspector • Level 5 Diploma in Management & Leadership • Professional member of the Arboricultural Association • Associate member of the Chartered Institute of Forestry	They have over 30 years of experience within Arboriculture and Horticulture working in the private sector in both contracting and consultancy. They have experience in managing and delivering environmental arboricultural reports for large scale infrastructure projects across the highways, rail, utility, and environmental sectors throughout the United Kingdom. Other experience extends to tree asset management, health and safety tree condition assessment, tree related subsidence, tree planting and establishment, and forestry windthrow assessment.
Noise and Vibration	• BSc (Hons) Acoustics • Corporate Member of the Institute of Acoustics (MIOA)	They have over 16 years' experience working on a wide range of projects in the field of acoustics, noise, and vibration. They have been involved in all aspects of measuring, modelling, and assessing the potential environmental noise impact at noise sensitive receptors in a variety of contexts, ranging from small-scale industrial and residential schemes to large-scale mixed-use developments and infrastructure projects, including rail, road, and electrical infrastructure projects.
Socio-economics, Recreation and Tourism	• BSc (Hons) Environmental Science • MSc Environmental Consultancy • Practitioner membership for the Institute of Environmental Management and Assessment (PIEMA) • Registered Environmental Practitioner (REnvP)	They are a Senior Consultant having 6 years' experience in undertaking EIA assessment for public and private sector clients, including Socio-economics assessment for energy sector developments. They have produced numerous Socio-economics and Population and Human health impact assessments to support medium to large scale infrastructure schemes.

Topic/role	Relevant academic and professional qualifications	Relevant experience in the environmental assessment of infrastructure projects
Traffic and Transport	• BSc Geography (Hons) • MCILT (Chartered Member of Institute of Logistics Transport) • MSoRSA (Member of Society of Road Safety Auditors	They are an Associate Technical Director with over 20 year experience. They have been involved in numerous multi-discipline schemes covering transport planning, urban realm / streetscape design, sustainable travel, traffic management and diversion planning, environmental assessment, highway design and stakeholder engagement. These include Richborough, North West Coast Connections and Lower Thames Crossing. They have experience assessing traffic impacts on the local and strategic highway network, identifying risks, constraints, and mitigation and have acted as an Expert Witness.

Appendix 4.1: Draft Outline Code of Construction Practice (CoCP)

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The Great Grid Upgrade

Norwich to Tilbury

Norwich to Tilbury

Draft Outline Code of Construction Practice

April 2024

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1. Introduction

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1. Introduction and Background

1.1 Introduction

1.1.1 The Project is a proposal by National Grid to reinforce the high voltage power network in East Anglia. The reinforcement is needed because the existing transmission network, even with current upgrading, will not have sufficient capacity for the new renewable energy (a substantial proportion of which is generated by offshore wind) that is expected to connect to the network over the next ten years and beyond. Completion of the Project, together with other new reinforcements across the country will meet this future energy transmission demand both in East Anglia and across the UK.

1.1.2 The Project comprises:

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

1.1.3 An alternative design at the Waveney Valley (referred to as the Waveney Valley Alternative) is also being considered and is the subject of consultation and ongoing assessment. This design alternative, if taken forward, would result in changes to those elements of the Project set out below. This would instead comprise:

- Installation of approximately 157 km of new 400 kV overhead line
- Installation of approximately 27 km of 400kV underground cabling (some of which is located through the Dedham Vale National Landscape (an AONB))
- Eight new CSE compounds (each with a permanent access) to connect the overhead lines to the underground cables

1.1.4 All other works not listed above would be consistent with either alternative.

1.1.5 In other words, the Waveney Valley Alternative, if taken forward and based on the 2024 preferred draft alignment would comprise approximately 2 km less new 400 kV overhead

line and approximately an additional 2 km of 400kV underground cabling and 2 additional new CSE compounds, each with a permanent access, to connect the overhead lines to the underground cables.

1.1.6 In addition, third party utilities diversions and / or modifications would also be required to facilitate the construction of the Project. There would also be land required for mitigation, compensation and enhancement of the environment including Biodiversity Net Gain (BNG).

1.1.7 As well as the permanent infrastructure, land would also be required temporarily for construction activities including for example working areas for construction equipment and machinery, site offices, welfare, storage and temporary construction access.

1.1.8 Further details of the Project are included within Chapter 4: Project Description in Volume I of the PEIR.

1.1.9 The Project has also been broken down in eight geographical sections, based largely on Local Authority boundaries. These are presented on Figure 1.1: Site Location Plan and Project Sections in Volume II 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
- Section G – Basildon Borough Council and Brentwood Borough Council
- Section H – Thurrock Council

1.1.10 Key environmental constraints are also provided on Figure 1: CoCP Environmental Constraints Plan in Annex A.

1.2 Purpose of this Draft Outline Code of Construction Practice

1.2.1 This document is the Draft Outline Code of Construction Practice (CoCP) that has been produced to support the Preliminary Environmental Information Report (PEIR). This Draft Outline CoCP sets out the required mitigation measures and environmental commitments that will be implemented during the construction phase of the Project if consent is granted, as identified through the preliminary environmental assessments in the PEIR.

1.2.2 The mitigation measures and commitments are required to avoid or reduce potential effects of the Project on the environment during construction.

1.2.3 This document is a live document that will be updated through the development of the Project and throughout construction, as detailed in Section 1.3.

1.2.4 The objectives of the CoCP are to:

- Provide the framework for recording environmental risks, commitments and other environmental constraints and clearly identify the structures and processes that will be used to manage and control these aspects

- Demonstrate compliance with legislation and identify where it will be necessary to obtain authorisation from relevant statutory bodies for relevant permits, consents and licences not covered by the Development Consent Order (DCO)
- Provide a framework for monitoring, compliance auditing and inspection of agreed environmental aims to check that the aims are met
- Provide a prompt response to any non-compliance, including reporting, remediation and any additional mitigation measures required to prevent a recurrence

1.3 Preparation of the CoCP

1.3.1 This section describes the four-stage iterative approach to developing the CoCP from the Initial Outline through to the CoCP that the Main Works Contractor(s) will implement throughout the construction of the Project.

Stage 1: Initial Outline CoCP

1.3.2 The Initial Outline CoCP for the Project, was produced to support the EIA Scoping Report and to identify the mechanism in which the Project would capture and present the environmental commitments / mitigation measures that are required to manage, minimise, and mitigate the environmental effects of the Project.

Stage 2: Draft Outline CoCP (PEIR)

1.3.3 This current iteration of the document is the draft Outline CoCP, which has been prepared to support the PEIR. This draft Outline CoCP has been prepared in parallel with the preliminary design, based on known Project information at the time of writing. Mitigation measures and environmental commitments within this draft Outline CoCP include proposed design and construction mitigation which has been identified through the preliminary technical assessments reported in Chapters 6 – 17 of Volume I in the PEIR.

Stage 3: Outline CoCP (ES)

1.3.4 This draft Outline CoCP will be updated to form the Outline CoCP which will be submitted to support the DCO application. The Outline CoCP will be supported by relevant outline or draft Environmental Control Plans (ECPs).

1.3.5 The mitigation measures and environmental commitments within the Outline CoCP will be presented with reference to relevant Project sections, ensuring that commitments and controls are reported in relation to their specific locations.

1.3.6 The format of the Outline CoCP is also likely to differ from this draft Outline CoCP to allow for the CoCP to be managed and implemented by multiple Main Works Contractor(s) appointed to construct the Project.

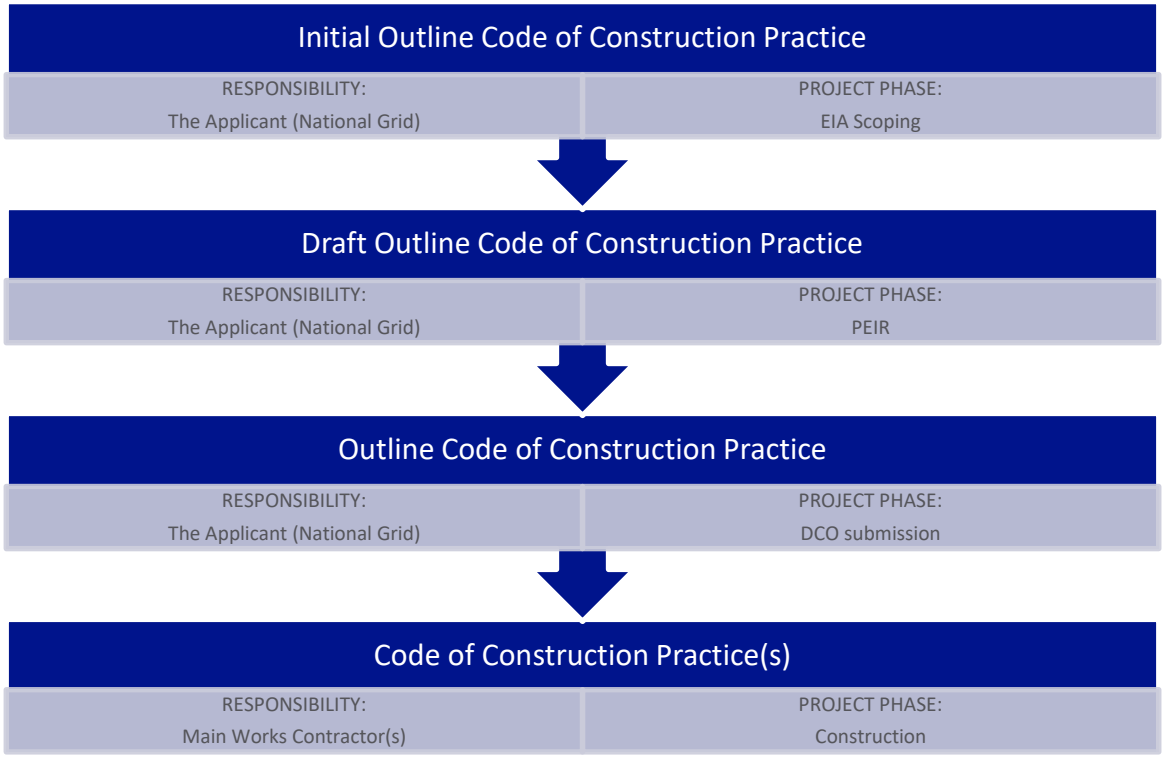
Stage 4: CoCP

1.3.7 The Outline CoCP will be developed into the CoCP or multiple CoCPs (following detailed design) by the Main Works Contractor(s) to discharge a DCO Requirement. The CoCP(s) will follow the same format as the Outline CoCP and will be developed, prior to commencement of the main construction and adhered to throughout the construction phase.

1.3.8 The CoCP(s) will include specific organisational information such as organograms, contact details of the Environmental Managers / Environmental Clerks of Works, specific organisational commitments etc.

1.3.9 The ECPs will be developed by the Main Works Contractor(s) prior to the commencement of construction into final control plans and appended to the CoCP. Where relevant the ECPs will include contractor specific working methodologies.

Image 1.1: Iterative Code of Construction Practice Process



1.4 Compliance with the CoCP

1.4.1 The CoCP(s) will be secured by a Requirement in the DCO, together with being a contractual obligation the appointed Main Works Contractor(s) will have to follow.

1.4.2 The CoCP(s) will be prepared by the Main Works Contractor(s) to discharge a Requirement in the DCO (there may be more than one submission e.g., if the Project is split into sections to allow for multiple Main Works Contractor(s) to deliver the Project in phases).

1.5 Construction Schedule

1.5.1 Should consent be granted in 2026, it is anticipated that access and construction of the Project would commence in 2027, starting with enabling works including, site clearance activities, the installation of construction compounds and access roads. It is expected the main construction works would continue through to 2031.

1.5.2 While the phasing of the programme is yet to be confirmed, further information will be contained in the Outline CoCP, as previously noted.

1.5.3 Certain advance works (such as archaeological trial trenching or protected species mitigation) would likely take place in advance of the main construction period as they aren't construction works. Further detail will be provided within the Outline CoCP.

2. Project Team Roles and Responsibilities

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2. Project Team Roles and Responsibilities

2.1 Environmental Management Systems

2.1.1 National Grid will implement management processes and briefings so that the works are carried out in accordance with current legislation and guidance at the time of construction. This will be achieved by application of well-established work processes that apply the recognised British Standard (BS) EN ISO 14001:2015 or equivalent.

2.1.2 The Main Works Contractor(s) will have an Environmental Policy that meets the requirements of ISO 14001 or equivalent, through their internal Business Management System procedures. The policy statement will be displayed on the site notice boards, publicised to all site staff and operatives, and made available to interested parties upon request.

2.2 Project Responsibilities

2.2.1 A management structure that includes an organisational chart encompassing all staff roles responsible for environmental work would be included within the Outline CoCP. This will set out the respective roles and responsibilities about the environment and identify the nominated Construction Environmental Manager(s). Illustrative key roles and responsibilities are set out in Table 2.1.

Table 2.1 – Illustrative key roles and responsibilities for the Project

Role	Organisation	Responsibilities
Environmental Manager(s)	Main Works Contractor(s)	The Environmental Manager(s) will be responsible for the maintenance of all environmental plans and registers, including monitoring that the environmental measures and mitigations are implemented on site and as recorded within the CoCP. They will be the main point of contact for all environmental matters on the Project. They will also develop good working relationships with external stakeholders such as the Environment Agency, Natural England, and the relevant planning authorities.
Environmental Clerk of Works (EnvCoWs)	National Grid	The EnvCoW(s) will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required mitigation measures. The EnvCoW will be supported by appropriate technical specialist advisors depending on the location and potential effects.
Ecological Clerk of Works (ECoWs)	Main Works Contractor(s)	The ECoW(s) will monitor the works to ensure compliance with any licences, permits and consents obtained to avoid effects on protected species and habitats, along with ensuring compliance with environmental legislation. The ECoW will oversee ecological pre-construction surveys and will also manage ecological operatives engaged in ecological mitigation activities – such as undertaking ecological watching briefs and translocation of protected species.

Role	Organisation	Responsibilities
Arboricultural Clerk of Works (ACoW)	Main Works Contractor(s)	The ACoW(s) will monitor works conducted by a suitably qualified and experienced arborist to/within proximity to high grade trees, including trees under Tree Preservation Orders and veteran trees, to ensure relevant control measures are in place to protect these trees.
Permits and Consent Manager(s)	Main Works Contractor(s)	The Permits and Consents Manager(s) will collaborate with the Environmental Manager to draft and submit permits and consents on behalf of the Project, track the progress, provide updates, and communicate approvals.
Works Supervisor(s)	Main Works Contractor(s)	The Works Supervisor(s) will be responsible for delivering the works in accordance with the requirements of the CoCP and implementing good environmental practices required by the Environmental Manager(s). They are responsible for managing operatives, plant, and their areas of work in accordance with the principles of good environmental practice
Land Officer(s)	Main Works Contractor(s)	The Land Officer will have an agricultural background and experience of working with utility companies. They will provide a single point of contact for both the Main Works Contractor(s) and the landowner/occupier of the land. They will be responsible for delivering site access in line with pre-agreed timescales, help facilitate the dialogue between the Main Works Contractor(s) and the landowner/occupier as necessary and will be the first point of contact for any issues escalated by the landowner/occupier or the Main Works Contractor(s). They will be responsible for witnessing and agreeing all land condition surveys conducted by the Main Works Contractor(s)
Technical specialist advisors	Main Works Contractor(s)/ National Grid	These will have the relevant experience to supervise the relevant aspects of the works, which might include an arboriculturist, land contamination specialist, soil specialist, ecologist, archaeologist

2.2.2 As previously stated, this section will be further developed within the Outline CoCP, and subsequently within the CoCP, by the Main Works Contractor(s) to include the following:

- Project organograms and contact details of the key staff
- Lines of communication and reporting
- Approaches for engagement with the community and stakeholders
- Emergency procedures
- Specific organisational commitments

3. Training and Awareness

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3. Training and Awareness

3.1.1 In accordance with standard mitigation measure GG05 (refer to Table 5.1), all staff and operatives working on the Project will undergo training to increase their awareness of environmental issues as applicable to their role on the Project. Topics would include but not be limited to:

- Pollution prevention and pollution incident response
- Dust management and control measures
- Location and protection of sensitive environmental sites and features
- Adherence to protected environmental areas around sensitive features
- Working hours and noise and vibration reduction measures
- Working with potentially contaminated materials
- Waste management and storage
- Flood risk response actions
- Agreed traffic routes, access points, etc.

3.1.2 Specific training needs will be identified and provided for all personnel involved in work activities that could result in an adverse effect on the environment. The training will include reference to the importance of adhering to the contents of the CoCP and the potential consequences of departure from specified method statements.

3.1.3 Environmental training in the form of toolbox talks will also be undertaken on site, evidence of which (along with all other training) will be maintained on record as part of the Main Works Contractor(s) management system.

3.1.4 Prior to commencing work on site, all personnel will also undergo a site induction, where the Main Works Contractor(s) will communicate the environmental objectives, requirements, and responsibilities to the workforce. Environmental Site Rules will detail site personnel's obligations while on site. This will introduce accountability for personnel working on the Project.

3.1.5 Site specific environmental information will be made available for reference by the site teams where required and will be included in the site supervisors safe work pack.

4. Consents, Commitments and Permissions

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4. Consents, Commitments and Permissions

4.1.1 The Project will be operated and constructed in accordance with all relevant legislation, consents and permits. The Permits and Consent Manager(s) for the Main Works Contractor(s) will be responsible for drafting and submitting permits and consents on behalf of the Project, tracking the progress, providing updates, and communicating approvals, as detailed in Table 4.1. This is with the exception of any consents, commitments and permissions that would be included within the DCO.

4.1.2 A list of the anticipated licences, assents, consents and permits required to deliver the Project are detailed in Table 4.1. This will be developed and confirmed within the Outline CoCP together with confirmation as to which consents will be included in the DCO and which would need to be secured outside of the DCO.

Table 4.1 - Anticipated licences, assents, consents and permits

Consent Type	Consenting Agency
European Protected Species (EPS) Licensing – Bats	Natural England
Protected Species Licence – District Level Licencing (DLL) – Great Crested Newts	Natural England
Protected Species Licence – Otter	Natural England
Protected Species Licence – Water Vole	Natural England
Protected Species Licence – Dormice	Natural England
Badger Licence	Natural England
Flood Risk Activity Permit (FRAP)	Environment Agency
Land Drainage Consent (ordinary watercourse outside of Internal Drainage Boards (IDB) areas)	Lead Local Flood Authority
Land Drainage Consent (ordinary watercourse)	Relevant Internal Drainage Board
Consent to discharge surface water to watercourses within an IDB district	Relevant Internal Drainage Board
Permit to discharge waste water to watercourse (main river)	Relevant Drainage Authority (Environment Agency or relevant Internal Drainage Board)
Abstraction licence	Environment Agency

Consent Type	Consenting Agency
Storage of waste permit	Environment Agency
Waste Permit (soil contamination)	Environment Agency
Control of pollution consent (Section 61 of the Control of Pollution Act 1974)	Relevant Local Authority
Consent to remove hedgerows (including any 'important hedgerows')	Natural England
Consent to carry out works within a Site of Special Scientific Interest (SSSI) under section 28E and 28H of the Wildlife and Countryside Act 1981	Natural England

5. Mitigation Measures, Environmental Commitments, Monitoring and Enhancement

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5. Mitigation Measures, Environmental Commitments, Monitoring and Enhancement

5.1 Mitigation Measures and Environmental Commitments

5.1.1 Standard mitigation measures / environmental commitments have been identified that will reduce effects from the Project on the environment and are presented in Table 5.1. At this stage, these are based on the available Project details, in line with the preliminary environmental assessments undertaken within this PEIR. Measures in dark blue text relate to the Waveney Valley Alternative only.

5.1.2 These are generally measures that would normally be implemented on a well-run construction site, but also include several measures that have been identified through scoping. They also include measures that have typically been employed on other National Grid projects. Standard mitigation measures / environmental commitments in Table 5.1 are assigned a reference number, for example (GG01) for ease of cross-reference.

5.1.3 Table 5.1 will be updated within the Outline CoCP (submitted with the DCO application) to include all embedded, standard, and additional mitigation required during construction based on the design presented in the DCO application. Mitigation within the Outline CoCP, will be consistent with mitigation outlined within the ES topic chapters.

5.1.4 Alongside the mitigation measures / environmental commitments outlined in Table 5.1, the following ECPs are anticipated to be required, which would be included within the Outline CoCP. This list will be reviewed following the receipt of the Project design to be presented in the DCO application for development consent:

- Landscape and Ecological Management Plan (LEMP) (an outline LEMP will be submitted as part of the DCO application)
- Construction Traffic Management Plan (CTMP) and Construction Staff Travel Plan (a Draft Outline CTMP has been developed for statutory consultation and an Outline CTMP will be submitted as part of the DCO application)
- Site Waste Management Plan (SWMP) (an outline SWMP will be submitted as part of the DCO application)
- Emergency Action Plan (including but not limited to site flooding and pollution incidents) (details of the contents of this plan will be included within the outline CoCP)
- Construction Surface Water Management Plan (this plan will demonstrate how runoff across the site will be controlled and how any off-site effects will be managed and mitigated - details of the contents of this plan will be included within the outline CoCP)
- Dust Management Plan (DMP) (including details of how to supress construction dust - an outline DMP will be submitted as part of the DCO application)
- Soil Resources Plan (including but not limited to details of soil resources present, soil management and storage, and measures for soil restoration) (details of the contents of this plan will be included within the outline CoCP)

- An Archaeological Mitigation Strategy and Written Scheme of Investigation (WSI) (a Draft Archaeological Mitigation Strategy and Outline Written Scheme of Investigation will be submitted as part of the DCO application)
- Public Rights of Way Management Strategy – This is provided in Annex B
- Stakeholder Communications Plan (an outline Stakeholder Communications Plan will be submitted as part of the DCO application)
- A Noise and Vibration Management Plan (to set out the framework for how noise and vibration will be managed during construction) (details of the contents of this plan will be included within the outline CoCP)

5.1.5 As previously mentioned, Outline ECPs will be produced to support the Outline CoCP. The ECPs will then be developed by the Main Works Contractor(s) prior to the commencement of construction into final control plans and appended to the CoCP.

5.2 Environmental Monitoring and Enhancement Measures

5.2.1 The assessment within the ES will identify and propose certain requirements for environmental monitoring to ensure mitigation measures and actions can be tracked and monitored to ensure that any significant effects are not experienced at certain receptors. Some of these will be generic (for example, covered by regular inspections, etc) and some will be more specific (for example, noise monitoring).

5.2.2 The ES will also identify enhancement measures.

5.2.3 Details of monitoring requirements and enhancement measures will be included within the Outline CoCP.

Table 5.1: Mitigation Measures / Environmental Commitments

Ref	Mitigation Measures / Environmental Commitments	
General Project Commitments		
GG01	The Project will be run in compliance with all relevant legislation, consents and permits – a list will be included within the Outline CoCP submitted with the DCO application.	
GG02	The Project design will be compliant with the guidelines and policies relating to Electric and Magnetic Fields (EMF) stated in National Policy Statement EN-5, including the International Commission on Non-Ionizing Radiation Protection guidelines (1998).	
GG03	A CoCP(s) will be produced prior to the defined 'commencement' of construction – which will be defined within the DCO.	
GG04	Suitably experienced team of Environmental Managers / Environmental Clerk of Works will be appointed for the duration of the construction phase. The qualified and experienced Environmental Clerk of Works will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CoCP. The Environmental Clerk of Works will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and standard mitigation measures. The Environmental Clerk of Works will be supported as necessary by appropriate specialists, including ecologists (EcoW(s) and AcoW(s)).	
GG05	Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the Project. Topics will include but not be limited to: • Pollution prevention and pollution incident response • Dust management and control measures • Location and protection of sensitive environmental sites and features • Adherence to protected environmental areas around sensitive features • Working hours and noise and vibration reduction measures • Working with potentially contaminated materials • Waste management and storage • Flood risk response actions • Agreed traffic routes, access points, etc. • Training of construction and maintenance workers in the handling and use of potentially hazardous substances and the associated risks	

Ref	Mitigation Measures / Environmental Commitments	
GG06	A record of condition will be carried out (photographic and descriptive) of the working areas that may be affected by the construction activities. This record will be available for comparison following reinstatement after the works have been completed to ensure that the standard of reinstatement at least meets that recorded in the pre-condition survey.	
GG07	Land used temporarily will be reinstated where practicable to its pre-construction condition and use (or a condition discussed with the landowner). Hedgerows, fences, and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, in discussion with the landowner and to the satisfaction of National Grid.	
GG08	Where sensitive features are to be retained (i.e., veteran, and mature trees, and Ancient Woodland), an appropriate protective area or protection mechanisms will be established using appropriate equipment or fencing and signage and will be inspected, repaired, and replaced as necessary. The protective areas will be shown on the 'Retention and Reinstatement Plans' contained within the LEMP.	
GG09	A CTMP will be produced prior to the defined 'commencement' of construction. The Main Works Contractor(s) will undertake regular visual site inspections to check conformance to the Management Plans – which will be defined within the DCO.	
GG10	The Project will be constructed in compliance with the required ECPs. Those anticipated to be required, at this stage include: • LEMP (an outline LEMP will be submitted as part of the DCO application) • CTMP and Construction Staff Travel Plan (an outline CTMP will be submitted as part of the DCO application) • SWMP (an outline SWMP will be submitted as part of the DCO application) • Emergency Action Plan (including but not limited to site flooding and pollution incidents) (details of the contents of this plan will be included within the outline CoCP) • Soil Resources Plan (including but not limited to details of soil resources present, soil management and storage, and measures for soil restoration) (details of the contents of this plan will be included within the outline CoCP) • An Archaeological Mitigation Strategy and WSI (a draft Mitigation Strategy and outline WSI will be submitted as part of the DCO application) • Public Rights of Way Management Strategy – This is provided in Annex B • DMP (an outline DMP will be submitted as part of the DCO application) • Stakeholder Communication Plan (an outline plan will be submitted as part of the DCO application) • Construction Surface Water Management Plan (plan will demonstrate how runoff across the site will be controlled and how any off-site effects will be managed and mitigated) (details of the contents of this plan will be included within the outline CoCP)	

Ref	Mitigation Measures / Environmental Commitments	
	• A Noise and Vibration Management Plan (to set out the framework for how noise and vibration will be managed during construction) (details of the contents of this plan will be included within the outline CoCP)	
GG11	The Project will be designed in accordance with National Grid design standards and would be compliant with the guidelines and policies relating to EMFs stated in NPS EN-5 (DESNZ, 2024), including the ICNIRP guidelines (ICNIRP, 1998)	
GG12	The Project would be designed to comply with design safety standards including NETS SQSS and the suite of National Grid policies and processes which contains details on design standards required to be met when designing, constructing, and operating its projects	
GG13	The Project has committed to delivering minimum 10% Biodiversity Net Gain (BNG). – The Project would deliver an overall net improvement to biodiversity in the area through a combination of on-site and off-site mitigation. This will be reported as an Appendix to the ES to avoid overlap or double counting of any required EIA mitigation.	
GG14	The Project would include triple Araucaria conductors (or alternative technology that performs to the same or better standard in relation to noise on standard lattice pylons)	
GG15	For the overhead line sections, following detailed design and prior to construction all vegetation will be subject to a full tree / vegetation survey and site specific assessment where vegetation removal will be defined.	
GG16	For the underground cable sections, following detailed design and prior to construction all vegetation will be subject to a full tree / vegetation survey and site specific assessment where vegetation removal will be defined.	
GG17	For the haul road prior to construction all vegetation will be subject to a full tree / vegetation survey and site specific assessment where vegetation removal will be defined.	
GG18	The Main Works Contractor(s) will undertake pre-site condition surveys as part of the site setup. This will include making a record of the condition of existing features such as tracks and roads. Post-site condition surveys will be undertaken by the contractor after construction and the results of these will be discussed with the landowner prior to handover.	
Construction Site Set Up		
GG21	The name and contact details for the Project will be displayed at the entrance to all compounds. This will include an emergency number.	

Ref	Mitigation Measures / Environmental Commitments	
GG22	Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration, and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where reasonably practicable.	
GG23	Appropriate site layout and housekeeping measures will be implemented by the Main Works Contractor(s) at all construction sites. This will include but not be limited to: • Preventing pests and vermin control and treating any infestation promptly, including arrangements for the proper storage and disposal of waste produced on site • Inspecting and collecting any waste or litter found on site • Locating or designing site offices and welfare facilities to prevent the overlooking of residential properties where possible • Locating designated smoking/vaping areas to avoid nuisance to neighbours • Managing staff/vehicles entering or leaving site, potentially through using a 'gate man', especially at the beginning and end of the working day • Managing potential off-site contractor and visitor parking to ensure they are safe	
GG24	Plant and construction vehicles (not including construction worker private vehicles) will conform to relevant applicable standards for the vehicle type which will be defined in the outline CoCP. Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so.	
GG25	Materials and equipment will be moved, handled and stored in the most efficient and appropriate manner. When loading and unloading materials from vehicles, including cable drums and excavated materials, drop heights will be limited.	
GG26	Fuels, oils, and chemicals will be stored responsibly, away from sensitive water receptors. Where practicable, they will be stored >15 m from watercourses, ponds, and groundwater dependent terrestrial ecosystems. Where it is not practicable to maintain a >15 m distance, additional measures will be identified. All refuelling, oiling, and greasing of construction plant and equipment will take place above drip trays and also away from drains as far as is reasonably practicable. Vehicles and plant will not be left unattended during refuelling. Appropriate spill kits will be made readily accessible for these activities and a maintenance and inspection regime will be in place to ensure spill kits are maintained with appropriate stock. Potentially hazardous materials used during construction will be safely and securely stored including use of secondary containment where appropriate. Stored flammable liquids such as diesel will be protected either by double walled tanks or stored in a bunded area with a capacity of 110% of the maximum stored volume. Spill kits will be located nearby.	

Ref	Mitigation Measures / Environmental Commitments	
GG27	The appointed Main Works Contractor(s) will prepare a Construction Surface Water Management Plan. The Plan will demonstrate how runoff across the site will be controlled and how any off-site effects will be managed and mitigated. A variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding, are likely to be adopted. There will be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority (except in the case of an emergency).	
GG28	Wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps.	
GG29	Earthwork mounds and stockpiled soil will be protected (to avoid dust generation) by covering, seeding, or using water suppression where appropriate (to be determined by the soil type and the likely storage duration).	
GG30	Bonfires and the burning of waste material will be prohibited.	
GG31	Construction lighting will be of the lowest luminosity to safely perform each task and include motion sensors or switched off when not in use where it is safe and efficient to do so. Permanent Lighting will be designed, positioned, and directed to reduce the intrusion into adjacent properties, protected species, and habitats. Task specific lighting will be assessed and considered by all necessary specialists to also so far as is reasonably practicable be directed to reduce intrusion.	
GG32	A SWMP will be developed prior to construction. The Main Works Contractor(s) will maintain and monitor the SWMP throughout the construction phase and oversee that any sub-contractor(s) adhere to the SWMP. The SWMP will set out, in an auditable manner, how waste will be reduced, reused, managed, and disposed of in accordance with the waste hierarchy. Dedicated areas will be identified on the construction plans to allow materials and wastes to be segregated at source, reducing the risk of damage or contamination.	
GG33	An Emergency Action Plan will be developed for the construction phase which will outline procedures to be implemented in case of unplanned events, including but not limited to site flooding and pollution incidents.	
GG34	Where necessary stone pads will be installed in areas where heavy equipment, such as cranes and piling rigs, are to be used. The stone pads will provide stable working areas and will reduce disturbance to the ground by spreading loads and reducing soil compaction. Also refer to AS10.	
GG35	Working areas will be appropriately fenced. The type of fencing installed will depend on the area to be fenced and will take into consideration the level of security required in relation to the surrounding land and public access, rural or urban environment and arable or stock farming. For some locations the fence used may also serve to provide acoustic and visual screening of the work sites and reduce the potential for disturbance of users in the surrounding areas. Fencing will be regularly inspected and maintained and removed as part of the demobilisation unless otherwise specified.	

Ref	Mitigation Measures / Environmental Commitments	
GG36	Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will typically include the notification of 'noisy activities', heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the Project. All construction-related complaints will be logged by the Main Works Contractor(s) in a complaints register, together with a record of the responses given and actions taken.	
GG37	Active private water supplies will be identified with landowners through the landowner discussions. Appropriate measures will be considered during construction. In the event of a landowner or tenant reporting that installation activities have affected their private water supplies, an initial response will be provided. Where the installation works have been shown to affect a private water supply, an alternative water supply will be provided, as appropriate.	
GG38	Stockpiles, material storage, vehicle tracking, and soil bunds will be located away from trees and hedgerows, where practical, to ensure no damage to these features occur and works remain outside of the root protection zone of the features. Works that cannot be undertaken without entering into a root protection zone will be addressed in a bespoke way to ensure all appropriate measures are in place to protect the area (where required).	
GG39	Run-off across the site will be controlled through a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There will be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority (except in the case of an emergency).	
GG40	The inclusion of a largely continuous haul road to reduce effects on the local highway network during construction, that will only be discontinuous at major obstructions along the corridor (major roads, railways, areas of environmental or historical significance and/or major watercourses).	
Agriculture and Soils		
AS01	Soil management measures will be detailed in a Soil Resources Plan which will form part of the COCP (a draft SRP will be appended to the Outline CoCP within the DCO application). Measures will include but not be limited to the following: • Details of the soil resources present • How topsoil and subsoil will be stripped and stockpiled • Suitable conditions for when handling soil will be undertaken • Indicative soil storage locations • How soil stockpiles will be designed taking into consideration site conditions and the nature/composition of the soil • Specific measures for managing sensitive soils	

Ref	Mitigation Measures / Environmental Commitments	
	• Suitable protective surfacing where soil stripping can be avoided, based on sensitivity of the environment and proposed works • Approach to reinstating soil that has been compacted, where required • Details of measures required for soil restoration	
AS02	Land required temporarily for construction will be returned to its former use / condition or a use / condition as discussed with the landowner, where practicable.	
AS03	Where practicable and safe to do so, existing access to and from residential, commercial, community and agricultural land uses will be maintained throughout the construction period or as agreed through the landowner discussions. This may require signed diversions or temporary restrictions to access. The means of access to affected properties, facilities and land parcels will be communicated to affected parties at the start of the Project / at the start of the relevant sections, with any changes communicated in advance of the change being implemented. Where field-to-field access points require alteration because of construction, alternative field access will be provided in consultation with the landowner/occupier.	
AS04	Existing water supplies for livestock that have been notified to the Project by the landowner before construction commences will be maintained or alternatives put in place in advance of any disturbance. Where supplies will be lost or access compromised by construction works, temporary alternative supplies will be provided where necessary. Water supplies will be reinstated following construction, where practicable.	
AS05	Consultation with affected landowners will be carried out to investigate the current extent of land drainage. A scheme of pre-construction land drainage will be designed with the intent of maintaining the efficiency of the existing known land drainage system and to assist in maintaining the integrity of the working area during construction. The Project may include a system of 'cut-off' drains which feed into a new header drain and the Project will also consider surface water runoff measures. The Main Works Contractor(s) will ensure any affected land drains, within the draft Order Limits, as a result of the Project, will be reinstated. Those outside the draft Order Limits will be the responsibility of the landowner.	
AS06	Should animal bones be discovered during construction, which may indicate a potential burial site, works will cease, and advice will be sought from the Animal Health Regional Office on how to proceed, relevant to the origin and age of the materials found.	
AS07	In the event of a notification by the Department for Environment, Food and Rural Affairs (Defra) of a disease outbreak in the vicinity of the site that requires the cessation of activities all movement of plant and vehicles between fields will cease. Advice will be sought from Defra to develop suitable working methods required to reduce the biosecurity risk associated with the continuation of works.	
AS08	Where deemed necessary, clay bungs or other vertical barriers will be constructed within trench excavations by a suitably experienced person, to prevent the creation of preferential drainage pathways.	
AS09	Measures will be implemented to manage dust, waste, water, noise, vibration, and soil during construction. The Main Works Contractor(s) will undertake regular site inspections to check conformance.	

Ref	Mitigation Measures / Environmental Commitments	
AS10	Stone pads will be installed in areas where heavy equipment, such as cranes and piling rigs, are to be used, as outlined in GG35. The stone pads will provide stable working areas and will reduce disturbance to the ground. The stone pad area will be stripped of the topsoil (and subsoil where required), which will be stored and reinstated (following removal of the stone pad material) in accordance with the soil management measures contained in the Outline CoCP.	
Air Quality		
AQ1	Dust-emitting activities will be reduced by applying site-specific mitigation measures for high risk sites during construction. These would include the following controls: Communications: • Develop and implement a stakeholder communications plan that includes community engagement before work commences on site • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager • Display the head or regional office contact information • Develop and implement a DMP, which may include measures to control other emissions, approved by the local authority Site Management: • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner and record the measures taken • Make the complaints log available to the local authority when asked • Record any exceptional incidents that cause dust and/or air emissions, either on or off-site and the action taken to resolve the situation in the log book • Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised Monitoring: • Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary	

Ref	Mitigation Measures / Environmental Commitments	
	• Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results and make an inspection log available to the local authority, when asked • Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions • Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the local authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction Preparing and maintaining the site: • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible • Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site (where appropriate and practical) • Adopt site specific operations where there is a high potential for dust production and the site is active for an extensive period (where noted in the DMP and appropriate and practical) • Avoid site runoff of water or mud • Keep site fencing, barriers and scaffolding clean using wet methods where appropriate • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site • Cover, seed or fence stockpiles to prevent wind whipping (where needed and depending on duration) Operating vehicle/machinery and sustainable travel: • Ensure all on-road vehicles comply with non-road mobile machinery (NRMM) requirements • Ensure all vehicles switch off engines when stationary – no idling vehicles where practicable • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable • Impose and signpost a maximum-speed-limit on haul roads and work areas • Implement a Construction Staff Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing), and encourage construction workers to report to an offsite location before loading into a site vehicle and travelling to site, where practicable	

Ref	Mitigation Measures / Environmental Commitments	
	Operations: • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques, such as water sprays or local extraction • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate • Use enclosed chutes and conveyors and covered skips where reasonably practicable • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use the fine water sprays on such equipment wherever appropriate • Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods Waste Management: • Bonfires and burning of waste materials is prohibited Demolition: • Avoid explosive blasting, use appropriate manual or mechanical alternatives where reasonably practicable • Bag and remove any biological debris or damp down such material before demolition Earthworks: • Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable – where appropriate Construction: • Avoid scabbling (roughening of concrete surfaces) if possible • Ensure sand and other aggregates are stored in bundled areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery • For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust Trackout:	

Ref	Mitigation Measures / Environmental Commitments	
	• Regularly use water-assisted dust sweeper(s) on the access and local roads, to remove, as soon as practicable any material tracked out of the site • Avoid dry sweeping of large areas • Ensure vehicles entering and leaving the site are covered to prevent escape of materials during transport • Inspect on-site haul roads for integrity and instigate necessary repairs to the surface as soon as reasonably practicable • Record all inspections of haul roads and any subsequent action in a site log book • Install hard surfaced haul roads, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned so far as is reasonably practicable • Access gates to be located at least 10 m from receptors where possible	
AQ02	Where generators are located next to sensitive sites consideration will be given to increasing the release height of emissions for sufficient dispersion, and relevant abatement technology.	
AQ03	The Waveney Valley Alternative would introduce the need for an additional Primary Access Route, along the A1066 from Thetford, which would be used to bring in cable drums. Effects associated with the Waveney Valley Alternative would be mitigated through standard mitigation as per the overhead line design listed above	
Ecology and Biodiversity		
B01	The Main Works Contractor(s) will comply with relevant protected species legislation. Appropriate licences will be obtained where necessary from Natural England for all works affecting protected species as identified in the ES and through pre-construction surveys. All applicable works will be undertaken in accordance with the relevant requirements and conditions set out in those licences. Where certain biodiversity receptors have been identified or where there is potential for them, and effects cannot be avoided during construction, Reasonable Avoidance Measures and/or Precautionary Working Methods may also be developed and implemented under supervision by an EcoW.	
B02	Construction effects will be designed out/minimised as far as possible through, for example, minimising land-take/habitat loss and locating access tracks/haul roads and site compound/material storage areas outside of ecologically sensitive sites/habitats (such as statutory and non-statutory designated sites, priority habitats and wetlands). Clearly demarcated, dedicated access routes will be provided during construction and any areas required for temporary works will be reinstated on completion.	

Ref	Mitigation Measures / Environmental Commitments	
B03	Best environmental practice techniques will be followed with regards to: • The control of dust and other emissions from construction • Appropriate preventative measures to prevent sediment run-off and silt dispersal into watercourses • Chemicals and fuels storage and pollution incidence response procedures • Imposed and signposted site speed limits on all construction haul roads and access tracks to minimise the risk of road traffic collisions with fauna • The control of noise and vibration to ensure it is kept to the minimum necessary • Appropriate protective area will be established using appropriate fencing and signage and will be inspected, repaired, and replaced as necessary. The protective areas will be shown on the Retention and Reinstatement Plans contained within the LEMP	
B04	Measures must be taken to prevent the spread of Non-Native Invasive Species (NNIS) of terrestrial and aquatic plants. Appropriate exclusion zones will be demarcated and enforced around areas of NNIS (informed by an up-to-date site walkover) to avoid spread or propagation (through seeds, rhizomes, fragments, etc.). Appropriate biosecurity measures will be documented in a method statement and implemented during construction to prevent the spread of NNIS via personnel, vehicles, plant, or machinery. Workers will be equipped with the necessary equipment, Personal Protective Equipment (PPE) and substances to implement biosecurity control measures, including effective hygiene and sanitation practices. This will most frequently comprise disinfectant tablets, sprayers, and brushes to clean and disinfect equipment and PPE prior to entering/leaving NNIS exclusion zones. Water used to clean vehicles will be controlled to prevent spreading of NNIS.	
B05	Excavations must be covered or securely fenced (with no potential access points beneath fencing) when not in use (e.g., overnight) to prevent entrapment of animals. Alternatively, the excavation will include measures, such as a battered edge or ramp, that allows animals to escape.	
B06	Lighting used for construction must be switched-off when not in use and positioned to minimise spill on to adjacent land or retained vegetation. Lighting should be directional, away from biodiversity receptors and kept to a minimum so that the surrounding landscape remains unlit. All lighting (i.e., construction and operation) will also be designed following the joint guidance provided by the Institution of Lighting Professionals and Bat Conservation Trust (Institution of Lighting Professionals, 2023). The lighting design will account for the potential effects on ecology by taking measures to minimise lighting usage, minimise light spill, use most appropriate wave lengths of light and locate lighting in the most appropriate locations to decrease the potential displacement effects on the natural environment and light sensitive fauna such as bats.	
B07	Construction Exclusion Zones (CEZ) will be established prior to construction to define working areas and ensure protection of habitats, and retained habitats within, throughout development. A minimum buffer of 10 m (where practicable) will be retained around biodiversity receptors to reduce any potential direct or indirect effects on the species and habitats associated with	

Ref	Mitigation Measures / Environmental Commitments	
	them and the CEZ may need to be extended beyond 10 m for certain biodiversity receptors, such as woodlands and trees for example, to protect root protection zones.	
B08	The avoidance of periods of sensitivity is considered best practice for a range of protected and notable species and construction activities where reasonably practicable will be planned accordingly. For example, vegetation removal will be undertaken outside of the bird breeding season (where possible) to avoid potential effects on nesting birds. If vegetation clearance is required within the bird breeding season, all such vegetation will be checked by an ecologist/EcoW for the presence of nesting birds no more than 48 hours prior to clearance. Wherever nests are found, an appropriate CEZ (species specific but minimum 15 m) will be established around the nest and no works will be permitted within that area until the ecologist/EcoW provides confirmation that the nest is no longer in use and work can proceed.	
B09	Any required vegetation removal that is suitable to harbour amphibians, reptiles and small mammals will be subject to a two-stage cut and overseen by an EcoW. Firstly, vegetation will be cut to approximately 150 mm (with the arisings removed). Following a minimum of 24 hours (to allow animals to naturally disperse from the area), a second cut down to ground level will be undertaken. Vegetation will be cleared during suitable weather and seasonal conditions and using appropriate equipment based on the type of vegetation to be removed, the area affected, and the risk of mortality or injuring animals.	
B10	Potential Roost Features (PRFs) will be graded as PRF-I and PRF-M (in line with current guidance) and an alternative roost structure(s), i.e., bat box(es), will be provided for all losses. The Project is committed to an artificial roost site package that provides an increase in roost site availability from the baseline. These will be situated on retained trees within the Order Limits or areas outside of the Order Limits (with landowner consent).	
B11	Method statements will be developed to ensure that any flumes installed within watercourses include suitable measures to allow the passage of animals (i.e., otters, water vole and fish) throughout construction, accounting for fluctuating water levels. For otter and water vole this may comprise an adjacent dry pipe. Where appropriate, in-channel works will be supported using a cofferdam, and for certain watercourses this will require fish rescue to be carried out under licence from the Environment Agency. This will entail using stop nets or equivalent to enclose the area of work and electric fishing the area a minimum of three times. Rescued fish will then be released a suitable distance downstream. The duration of construction activities within watercourses will be kept to a minimum to minimise effects.	
B12	Where temporary habitat removal is required to facilitate construction, this will be reinstated. Reinstatement will aim to provide habitats of equal or better value to those affected and permanent land take will be compensated;10 % BNG is being sought. Accordingly, hedgerows scheduled for removal will be reinstated and, where appropriate, be improved from their baseline condition e.g., defunct, or species-poor hedgerows will be replanted to achieve species-rich and continuous hedgerows, once re-established.	
B13	The location of CEZs will be defined within the LEMP and informed by a pre-construction ecological walkover (to identify any changes to the baseline), a tree survey (to British Standard BS 5837:2012 (British Standards Institution, 2012)) and would be in line with regional Environment Agency and Internal Drainage Board requirements (excluding required access crossing points). The LEMP will also include Retention and Reinstatement Plans, defining the location of specific protective measures (i.e., fencing and signage) detailing habitat reinstatement and creation measures.	

Ref	Mitigation Measures / Environmental Commitments	
B14	Wherever possible, habitat connectivity will be retained by using existing access routes, reducing working widths through biodiversity receptors, and maintaining connectivity through green corridors such as hedgerows and watercourses.	
B15	Where tree surgery to the crown or roots is necessary (such as where tree surgery is required to achieve electrical safety clearances), this will be undertaken in accordance with BS 3998:2010 (British Standards Institution, 2010); however, the Project, and specific construction tasks, will take a hierarchal approach to trees: aiming to retain as many trees as possible in the first instance; and avoiding total loss of habitat where possible (i.e. by pollarding or coppicing rather than complete removal).	
B16	Where construction activities are found to conflict with the presence of other protected or notable species, method statements will be produced and (where appropriate) construction will only proceed under a derogation licence issued by Natural England. Natural England will only issue a derogation licence in relation to a development proposal if the licensed actions maintain the favourable conservation status of a species or provide a conservation benefit. Thus, overall effects are anticipated to be neutral/beneficial. Species (and habitat) specific mitigation and the requirement for pre-construction surveys and/or monitoring will be developed during production of the ES (and will be included within the ES) in accordance with licencing expectations	
B17	Ancient Woodlands will be protected throughout the works, with a minimum exclusion zone of 15 m offset from the edge of the Ancient Woodland being installed to ensure no effects occur as a result of construction works. For the works proposed within Round Wood in Section B, and Writtle – Writtlepark Wood in Section F, works will comply with the following: • Third party works proposed for the gas pipeline within Writtle – Writtlepark Wood (Section F) will be retained within the works footprint that was used for the installation of the gas pipeline • Following third party works proposed to remove the existing 132 kV cable through Round Wood (Sections B) the habitat will be allowed to regenerate For the works proposed adjacent to Bullen Wood in Section B, the construction swathe is located outside the boundary of Bullen Wood.	
B18	Following the completion of the detailed design for the Project, and prior to commencement of construction in the affected area, all vegetation will be subject to a full tree / vegetation survey and site specific assessment to determine where vegetation removal may be reduced.	
B19	Where construction activities are found to conflict with the presence of other protected or notable species, method statements will be produced and (where appropriate) construction will only proceed under a derogation licence issued by Natural England. Natural England will only issue a derogation licence in relation to a development proposal if the licensed actions maintain the favourable conservation status of a species or provide a conservation benefit. Thus, overall effects are anticipated to be neutral/beneficial. Species (and habitat) specific mitigation and the requirement for pre-construction surveys and/or monitoring will be developed during production of the ES in accordance with licencing expectations.	

Ref	Mitigation Measures / Environmental Commitments	
B20	Natural England have agreed to the use of a DLL approach to mitigate effects on great crested newt. Implementation of the DLL will be conducted and overseen by Natural England.	
B21	The Project is also committed to adopting a sustainable approach to development by pro-actively taking measures to ensure that the Project leaves the environment in a better condition than it was before development (including but not limited to the delivery of 10% BNG). The Project will seek to provide strategic habitat enhancement and creation, aiming to identify and implement opportunities to improve habitat quality and connectivity and align with national nature recovery objectives and projects. Such measures may include specific habitat creation and enhancement measures and additional receptor specific measures such as the creation of habitat piles and installation of bird and bat boxes. Further details will be outlined within the outline CoCP.	
Contaminated Land, Geology and Hydrogeology		
GH01	Intrusive ground investigations and assessment will be undertaken prior to construction which will inform appropriate geotechnical design in relation to the site/structure specific ground conditions including ground instability/adverse ground conditions/ground gas.	
GH02	A Foundation Works Risk Assessment (FWRA) will be undertaken by the Main Works Contractor(s) at locations of pylons, CSE compounds, and substations (where the use of piled foundations are anticipated prior to construction. The Main Works Contractor(s) will use construction methods such as appropriate piling techniques to minimise and avoid the risk of introducing new contamination (if required), creating new contamination pathways, and mixing of aquifer bodies. The FWRA would be undertaken once the proposed foundation solutions are known, in accordance with Environment Agency guidance 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination' (Environment Agency, 2001).	
GH03	Use of appropriate occupational health and safety measures e.g., PPE, and statutory health and safety compliance (e.g., compliance with the Confined Spaces Regulations, 1997 in relation to ground gas from working in confined spaces/trenches) to minimise the risks associated with potential contamination.	
GH04	Appropriate training of construction and maintenance workers in the handling and use of potentially hazardous substances and the associated risks.	
GH05	All use and storage of chemicals and fuels are to be undertaken in accordance with Environment Agency guidance and the Control of Pollution (Oil Storage) Regulations 2001. The use and storage of chemicals and fuels will also be controlled and monitored under the CoCP which will include, for example, procedures for good general construction site practices, environmental and waste management procedures, regular vehicle checks, use of spill kits, correct waste storage and disposal, use of oil-water separators as necessary (for example, for drainage from refuelling areas), collection of process water from the washout/cleaning of ready-mix concrete vehicles and equipment for treatment/disposal.	

Ref	Mitigation Measures / Environmental Commitments	
GH06	The control of earthworks or materials movement (including any re-use of materials) under appropriate Environmental Permits, exemptions, or CL:AIRE The definition of Waste: The development industry Code of Practice.	
GH07	Any temporary dewatering activities during construction will be undertaken in accordance with Environment Agency guidance including appropriate assessment undertaken as required by the guidance, and if required, an Abstraction Licence and Environmental Permit (for the discharge) will be obtained, and the works will be limited to the depth and time required to facilitate construction activities.	
GH08	A protocol for dealing within any unexpected contamination (this would be included within the Outline CoCP submitted with the DCO application).	
GH09	Restrictions will be applied for any work within Groundwater Source Protection Zones (SPZ) 1 and 2 and discussed with the Environment Agency, restrictions may include: 1. Construction vehicle parking, fuel storage, de-icer storage, rock salt storage, and washout/cleaning of ready-mix concrete vehicles and equipment will be sited outside SPZ1 and where possible outside SPZ2 designations. 2. Application of salt grit (for example, to prevent access tracks freezing) to comply with recommended rates in CIRIA 64830 with control of run-off during any application in SPZ's.	
GH10	Where specific sites within the draft Order Limits have been assessed in the ES as presenting a moderate (or above) risk to sensitive receptors from potential existing contamination, and there is potential for ground disturbance at the sites during the construction of the Project, these sites will be individually investigated and assessed (in accordance with guidance described within Land Contamination Risk Management (Environment Agency, 2023)) prior to construction. This will inform the assessment of the risks to receptors, and good practice measures and working methods to control those risks will be developed. The results will be discussed with the Environment Agency and/or relevant Local Authority, as appropriate., and the nature and scope of any mitigation or remediation will be agreed with the Environment Agency and Local Authority (as appropriate). Made ground and materials known or strongly suspected of being contaminated will be segregated from natural and inert materials; and ground arisings determined as unsuitable for reuse within the Project will be disposed of appropriately, for example to a soil treatment centre or landfill.	
GH11	At trenchless crossings, and where otherwise indicated in the ES, a Hydrogeological Risk Assessment will be undertaken to assess the specific risks to groundwater and groundwater receptors (including the risk of breakout of drilling fluids, where appropriate) at those locations and identify any additional mitigation or remediation that may be required. The nature and scope of any mitigation or remediation will be agreed with the Environment Agency or other stakeholders, as appropriate.	
GH12	The Project has been designed to avoid sensitive features/receptors, as far as is practicable, such as groundwater, landfills, and geological SSSIs, through the routeing and siting stages. Works should remain compliant with this approach.	

Ref	Mitigation Measures / Environmental Commitments	
Historic Environment		
H01	The location of known archaeological remains or areas where archaeological investigations will be undertaken (i.e., excavations) will be signposted/ fenced off to avoid unintentional damage.	
H02	Where a previously unknown heritage asset has been discovered, or a known heritage asset has proven to be more significant than foreseen at the time of application, the Project will inform the Local Planning Authority and discuss a solution that protects the significance of the new discovery, so far as is practicable within the Project construction requirements.	
H03	Where practicable, maintain elements within the landscape such as vegetation and hedgerows. Where vegetation cannot be retained, replacement will be used as appropriate (including re-instating hedgerows, fences, and walls).	
H04	Archaeological mitigation in the form of excavation and recording. This will be specified through a draft Heritage Mitigation Strategy and Outline WSI to be submitted with the DCO application.	
Hydrology and Land Drainage		
W01	All works within main rivers or ordinary watercourses will be in accordance with a method approved under environmental permits issued under the Environmental Permitting Regulations or the protective provisions of the DCO for the benefit of the Environment Agency and the Lead Local Flood Authorities.	
W02	For open cut watercourse crossings and installation of vehicle crossing points, good practice measures will include but not be limited to: • Where practicable, reducing the working width for open cut crossings of a main or ordinary watercourse whilst still providing safe working and reinstating the riparian vegetation and natural bed of the watercourse, using the material removed when appropriate on completion of the works and compacting as necessary • Installation of a pollution boom downstream of open cut works • The use and maintenance of temporary lagoons, tanks, bunds, silt fences or silt screens as required • Have spill kits and straw bales readily available at all crossing points for downstream emergency use in the event of a pollution incident • The use of all static plant such as pumps in appropriately sized spill trays • Prevent refuelling of any plant or vehicle within 15 m of a watercourse • Prevent storing of soil stockpiles within 15 m of a main river • Inspect all plant prior to work adjacent to watercourses for leaks of fuel or hydraulic fluids	

Ref	Mitigation Measures / Environmental Commitments	
	• Reinstating the riparian vegetation and natural bed of the watercourse, using the material removed when appropriate, on completion of the works and compacting as necessary. If additional material is required, appropriately sized material of similar composition will be used	
W03	Riverbank and in-channel vegetation will be retained where not directly affected by installation works. Natural substrate will be provided through box culverts at temporary watercourse crossings.	
W04	Active private water supplies will be identified with landowners through the landowner discussions. Appropriate measures will be considered during construction to protect these private water supplies. In the event of a landowner or tenant reporting that installation activities have affected their private water supplies, an initial response will be provided within 24 hours. Where the installation works have been shown to affect a private water supply, an alternative water supply will be provided, as appropriate.	
W05	In the event of a significant spill during construction, all relevant landowners/tenants will be contacted in proximity of the spill, to determine if there are any private water supplies that might be affected; an assessment of the likelihood of groundwater contamination reaching identified private water supplies will be undertaken, and where a private water supply is judged likely to be affected, an alternative water supply will be provided, as appropriate.	
W06	Where a main river is crossed by a trenchless crossing, the cables will be laid at least 1 m below the hard bed level of the river and will remain at or below this level for not less than 3 m from the brink of the riverbank. Marker posts shall also be positioned on each bank of the river to indicate the location of the under-crossing and the nature of the works. The Project proposed the following trenchless crossings (as detailed in Table 4.5 within Chapter 4: Project Description in Volume I): • Section A: Higham Road, Waveney Valley Alternative (north channel) and Waveney Valley Alternative (south channel) • Section C: River Stour (north part), River Stour (south part), Woodland crossing near St Mary's Church Langham, A12 highway crossing and Railway crossing (east of Ardleigh) • Section H: Lower Thames Crossing (west of Tarmac), Lower Thames Crossing (Muckingford Road)[1] and Tilbury Loop Railway and existing overhead lines (NGET and DNO)	

[1] Subject to phasing of the two schemes, ideally pre-installed ducts below the LTC alignment – refer to Table 4.3 in Chapter 4: Project Description in Volume I.

Ref	Mitigation Measures / Environmental Commitments	
W07	Where construction activities take place in Flood Zone 3, construction compounds and other working areas will be laid out in accordance with the Sequential Test and incorporate flood resilience measures where necessary. Storage of construction equipment and materials will be done in such a way as to avoid forming barriers to floodplain flows. Material storage areas will be located outside of the fluvial floodplain where practicable.	
W08	Surface water runoff from operational above ground infrastructure will be managed in accordance with the requirements and standards of the relevant Lead Local Flood Authority (LLFA), and adopt suitable sustainable drainage techniques, designed to allow for climate change resilience.	
W09	Where construction activities take place within surface water flood zones, prior to works commencing appropriate site drainage will be put in place to reduce the risk of standing water and avoid substantial delays to the construction programme.	
W10	Where construction haul roads pass within or cross watercourses and/or their floodplains, the haul road design will include for flood mitigation/drainage to allow for the flow of water within the floodplain (i.e., ducting). The design of the haul roads themselves will include for some resilience to flooding for example, incorporating suitable geo-textiles to stabilise the road surfacing, as well as allowing water to flow within the floodplain. Suitable materials would be used to surface the haul roads. In some cases, bespoke construction methodologies may be used based on site constraints and ground conditions.	
W11	Construction activities within Flood Zones 2 and 3 will include mitigations to avoid effects on the flood storage capacity of the zone.	
W12	For access roads and haul roads, the Project requires the crossing of multiple ditches, drains and watercourses. Large or sensitive watercourses, for example those designated as main river, and those with Water Framework Directive (WFD) status, would be crossed using clear span bridges or suitably assessed and approved alternatives.	
W13	Surface water drainage features, based on Sustainable Drainage (SuDS) techniques, will be installed at the CSE compound sites during construction. Access roads and haul roads will also have suitable drainage provisions. Drainage features will provide attenuation and treatment of runoff.	
W14	Once the Project has been constructed, the working areas will be removed, and the sites reinstated. Temporary construction haul roads (including temporary bridges and culverts) are likely to be removed unless identified as offering a long-term improvement to the environment and land usage during the design. Any stripped topsoil will be reinstated, and the site will be returned to its former use, subject to any planting restrictions or agreements with landowners. Replacement drainage schemes will be installed where appropriate. A specialised drainage contractor(s) will review the drainage designs and provide advice to National Grid and the Main Works Contractor(s) during all relevant construction and reinstatement activities. Permanent records of the land drainage locations will be made and passed to the landowners/occupiers.	

Ref	Mitigation Measures / Environmental Commitments	
W15	Temporary and permanent drainage outfalls proposed will comprise only a small diameter buried pipe and a small outfall structure. A wide swathe is included within the draft Order Limits at this stage to allow flexibility to aid the selection of an outfall location and pipe alignment that is technically feasible and one that minimises effects on vegetation loss. Works will minimise effects where possible.	
W16	The water supply needs of the Project during construction will be sourced either from mains water supply or in remote locations, where this option may not be available, water will be tankered in. With regards to grey water generated from welfare facilities, this will be discharged to the public sewer, or where this is not practicable, be collected and tankered off site to a licenced disposal facility.	
Landscape and Visual (including Trees)		
LV01	An Environmental Manager(s)/ Environmental Clerk of Works will be appointed for the duration of the construction phase.	
LV02	A pre-condition survey will be undertaken to ensure appropriate reinstatement is undertaken.	
LV03	Sensitive areas, to be defined in the ES, will be protected during construction.	
LV04	Construction lighting will be directional and minimised where possible.	
LV05	Where practicable, maintain elements within the landscape such as vegetation and hedgerows. Where vegetation cannot be retained, replacement will be used as appropriate (including re-instating hedgerows, fences, and walls).	
LV06	The Main Works Contractor(s) will apply the relevant protective principles set out in British Standard (BS) 5837:2012: Trees in relation to design, demolition, and construction. This will be applied to trees within the Order Limits which will be preserved through the construction phase, and to trees outside of the Order Limits where such measures do not hinder or prevent the use of the relevant working width for construction. All works to high grade trees, including trees under Tree Preservation Orders and veteran trees, will be undertaken by a suitably qualified and experienced arborist, and supervised by an AcoW.	
LV07	Undergrounding is proposed in up to five locations, including through the Dedham Vale National Landscape (an AONB). The Dedham Vale National Landscape is a nationally important and designated landscape. With the proposed underground cable, the effects on views and setting will be reduced.	
LV08	Prior to the commencement of construction works for the Project, several existing overhead and underground third-party services would need to be diverted, removed, undergrounded, or protected. The Project would follow the route of existing 132 kV overhead lines north of Flowton and north of Mellis, where the existing 132 kV overhead lines would be undergrounded.	

Ref	Mitigation Measures / Environmental Commitments	
LV09	The Project allows for the use of full line tension gantries at CSE compounds (where design allows). The use of full tension gantries may remove the need for a bulkier terminal pylon adjacent to the CSE compound which would reduce visual clutter and therefore help to reduce landscape and visual effects.	
LV10	Embedded landscape planting around each of the CSE compounds and substations/substation extensions. The draft Order Limits include adequate room for planting and potentially mounding for additional screening. These are presented as 'Environmental Areas' on Figure 4.1: Proposed Project Design in Volume II.	
LV11	Additional mitigation measures in the form of woodland, tree, scrub and hedgerow planting as part of 'Environmental Areas' would be planted to filter and screen views of the two additional CSE compounds associated with the Waveney Valley Alternative. Planting will be undertaken at the earliest opportunity given the right planting season.	
Noise and Vibration		
NV01	Main Works Contractor(s) will be required to follow good construction practices (referred to as best practicable means (BPM)) as outlined in BS 5228-1 and BS 5228-2 to control noise and vibration respectively. BS 5228-1 and BS 5228-2 have Approved Code of Practice status (in England) under the powers conferred by Sections 71(1)(b), (2) and (3) of the Control of Pollution Act 1974, as enacted under The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015. Compliance with the good practice noise and vibration requirements stated therein became a statutory obligation under the Act.	
NV02	BPM measures will be identified within the CoCP and may include housing continuous noisy plant in acoustic enclosures, siting semi-static equipment as far as reasonably practicable away from occupied buildings and fitting equipment with suitable enclosures or screening.	
NV03	In certain instances where construction noise and/ or vibration may cause a significant adverse effect at nearby Noise Sensitive Receptors (NSR), applications for prior consent under Section 61 of the Control of Pollution Act 1974 may be submitted to the relevant local authority to ensure that BPM are applied to control noise and vibration. This will be considered within the mitigation outlined in the Outline CoCP to support the DCO application.	
NV04	Where there is potential for works to generate vibration at, or approaching, levels exceeding 12.5 mm PPV at buildings or structures (or lower levels if the building or structure if deemed particularly sensitive to vibration), pre and post work condition surveys will be conducted. Any damage (cosmetic or otherwise) deemed to be caused by the works will be rectified.	
NV05	A Noise and Vibration Management Plan to set out the framework for how noise and vibration will be managed during construction will be produced by the Main Works Contractor(s) prior to the commencement of construction.	
NV06	Avoid unnecessary revving of engines and switch off equipment when not required.	

Ref	Mitigation Measures / Environmental Commitments	
NV07	Keep internal haul roads well maintained and avoid steep gradients, where possible.	
NV08	Use rubber linings in, for example, chutes and dumpers to reduce impact noise.	
NV09	Minimise drop height of materials.	
NV10	Start-up plant and vehicles sequentially rather than all together.	
NV11	Continuous noisy plant should be housed in acoustic enclosures, where practicable.	
NV12	Exhaust silencing and plant muffling equipment should be fitted and maintained in good working order.	
NV13	Static plant known to generate significant levels of vibration should be fitted with vibration dampening features.	
NV14	Each item of plant used should be selected to comply with the noise limits quoted in the relevant European Commission Directive 2000/14/EC/United Kingdom Statutory Instrument (SI) 2001/1701 as transposed into UK legislation by the Noise Emission in the Environment by Equipment for use Outdoors Regulations 2001/1701.	
NV15	Consideration will be given to the recommendations set out in Annex B of BS 5228-1, noise sources, remedies, and their effectiveness.	
NV16	Equipment should be well maintained and where possible should be used in the mode of operation that minimises noise.	
NV17	Plant and equipment will be shut down when not in use.	
NV18	Semi-static equipment will be sited and orientated as far as is reasonably practicable away from occupied buildings and, where feasible, will be fitted with suitable enclosures or screened using noise barriers.	
NV19	Materials will be handled in a manner that minimises noise.	
NV20	All appropriate personnel will be instructed on BPM measures to reduce noise and vibration as part of their induction training and followed up by ‘toolbox’ talks.	
NV21	The proposed new substation will include any required noise mitigation measures by design. This may include, plant selection, siting, screening, and enclosures, as appropriate.	
NV22	Plant with moving parts at substations, such as cooling equipment and transformers, will be expected to be mounted on suitable anti-vibration mounts to protect the plant from potential vibration impacts and to attenuate vibration generated by the plant.	
NV23	For the construction of pylon foundations, non-percussive piling methods would be used where feasible.	

Ref	Mitigation Measures / Environmental Commitments	
NV24	The Waveney Valley Alternative would introduce the need for an additional Primary Access Route, along the A1066 from Thetford, which would be used to bring in cable drums. Construction noise associated with the Waveney Valley Alternative would be mitigated through BPM as per the overhead line design.	
Socio-economics, Recreation and Tourism		
S01	Provision of training to construction workers, particularly in relation to working hours and the management of emissions (dust, noise, vibration, etc).	
S02	PRoWs crossing the working areas will be managed in discussion with the relevant local authorities and potential temporary closures applied, where required. Access disruption would be reduced while construction activities occur where possible. Any required temporary diversions will be clearly marked at both ends with signage explaining the diversion, the duration of the diversion and a contact number for any concerns.	
Traffic and Transport		
T01	The Main Works Contractor(s) will act in compliance with the CTMP for the Project. An Outline CTMP will be submitted to support the DCO application. The Outline CTMP will define traffic management required for delivery vehicles and other traffic generated during the construction phase and include measures designed to avoid and reduce the effect wherever possible between construction site traffic and other road users.	
T02	The Main Work Contractor(s) and sub-contractor(s) vehicles arriving at site will comply with appropriate safety and environmental standards.	
T03	All construction HGVs will adhere to the designated construction routes to and from the site.	
T04	Emergency access protocols will be put in place and will be identified within the site Health and Safety Plan.	
T05	The Main Works Contractor(s) will ensure that debris deposits onto the public road arising from construction traffic are minimised as much as possible and are cleared away if they occur.	
T06	Appropriate road signs warning motorists of the site access/egress and of construction HGVs turning in and out of the site will be provided and installed.	
T07	Provision of appropriate road markings and signs will be in place to warn the public of increased traffic movements to and from the site during construction.	

Ref	Mitigation Measures / Environmental Commitments	
T08	Site inductions will cover traffic safety, highlighting the need to pay special attention to vulnerable road users.	
T09	Main Works Contractor(s) will prepare a Driver Information Pack prior to construction commencing covering variety of topics and providing information on the requirements of working on the Project, to form part of the CTMP.	
T10	Staff Travel Plan will be prepared by the Main Works Contractor(s) prior to construction commencing with the aim of proactively managing trips to and from the site, to minimise local effects by reducing the number of single occupancy vehicle trips and encouraging the uptake of sustainable modes of travel.	
T11	Depending on the type and size of the equipment, the following measures for abnormal loads may be required: • Marker boards • Escort vehicles • Police escort • Appropriate notice • Speed restriction • Additional lights	
T12	AIL routes and associated measures will be discussed and agreed with the Local Highway Authorities and National Highways and presented in the ES and Outline CTMP submitted with the DCO application.	
Monitoring and enhancement		
	Monitoring and enhancement requirements will be outlined in the Outline CoCP submitted with the DCO application.	

6. Implementation and Monitoring Requirements

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6. Implementation and Monitoring Requirements

6.1 Implementation of the CoCP

6.1.1 National Grid would put in place robust procedures to inform and supervise all those working on the Project, including its Main Works Contractor(s), to make sure the control measures set out in the CoCP are adopted when undertaking the construction of works authorised by the DCO. The main responsibility for implementing these control measures will fall to the Main Works Contractor(s), as detailed in Section 2.

6.1.2 The Main Works Contractor(s) will brief all operatives on the specific details within the CoCP prior to the commencement of works and provide adequate training (as defined in Section 3). The briefings will be delivered by a suitably trained member of the team such as the site supervisor, Construction Manager or Environmental Manager.

6.2 Site Checks and Reporting

6.2.1 The Main Works Contractor(s) will undertake pre-site condition surveys as part of the site setup. This will include making a record of the condition of existing features such as tracks and roads. Post-site condition surveys will be undertaken by the Main Works Contractor(s) after construction and the results of these will be discussed with the landowner prior to handover.

6.2.2 Regular site checks will be carried out across the Project to monitor compliance with the CoCP and other associated plans. The programme of site inspections will be managed by the Environmental Manager who will draw on appropriate suitably experienced specialists for specific tasks. Further details and an indicative programme of inspections will be incorporated within the CoCP.

6.2.3 Site checks and inspections will include checks against compliance with standard mitigation measures and other commitments made by the Project.

6.2.4 Further details on the following will be provided within the Outline CoCP, to be submitted with the DCO:

- Non-compliance procedures
- Complaints procedures
- Change process

Annex A: CoCP Environmental Constraints Plan

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Norwich
Great Yarmouth
Gorleston-on-Sea
Wisbech
Swaffham
Downham Market
Hingham
Wymondham
Watton
Loddon
Peterborough
March
Attleborough
Lowestoft
Bungay
Beccles
Ramsey
Chatteris
Brandon
Thetford
Harleston
Ely
Diss
Halesworth
Southwold
Mildenhall
Soham
Eye
Huntingdon
St Ives
Bury St Edmunds
Newmarket
Framlingham
Saxmundham
St Neots
Cambridge
Stowmarket
Needham Market
Wickham Market
Aldeburgh
Sandy
Potton
Woodbridge
Haverhill
Clare
Acton
Ipswich
Biggleswade
Hadleigh
Sudbury
Royston
Saffron Walden
Felixstowe
Harwich
Stotfold
Baldock
Letchworth
Manningtree
Thaxted
Halstead
Hitchin
Buntingford
Colchester
Stansted Mountfitchet
Stevenage
Braintree
Great Dunmow
Wivenhoe
Walton-on-the-Naze
Frinton-on-Sea
Bishop's Stortford
Brightlingsea
Clacton-on-Sea
Ware
Sawbridgeworth
Witham
West Mersea
Hatfield
Harlow
Hoddesdon
Chelmsford
Maldon
Chipping Ongar
Cheshunt
Potters Bar
Waltham Abbey
Radlett
Southminster
South Woodham Ferrers
Borehamwood
Loughton
Burnham-on-Crouch
Chigwell
Billericay
Wickford
Rayleigh
Rochford
Basildon
Southend-on-Sea
Canvey Island
London City Airport
London
Heathrow Airport
Grays
Swanscombe
Northfleet
Sheerness
Minster
Margate
A1(M)
M25

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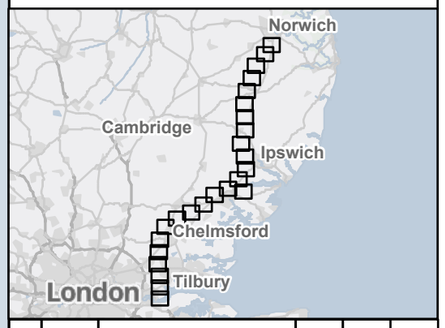

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT:
Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan Overview

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190
Revision: A

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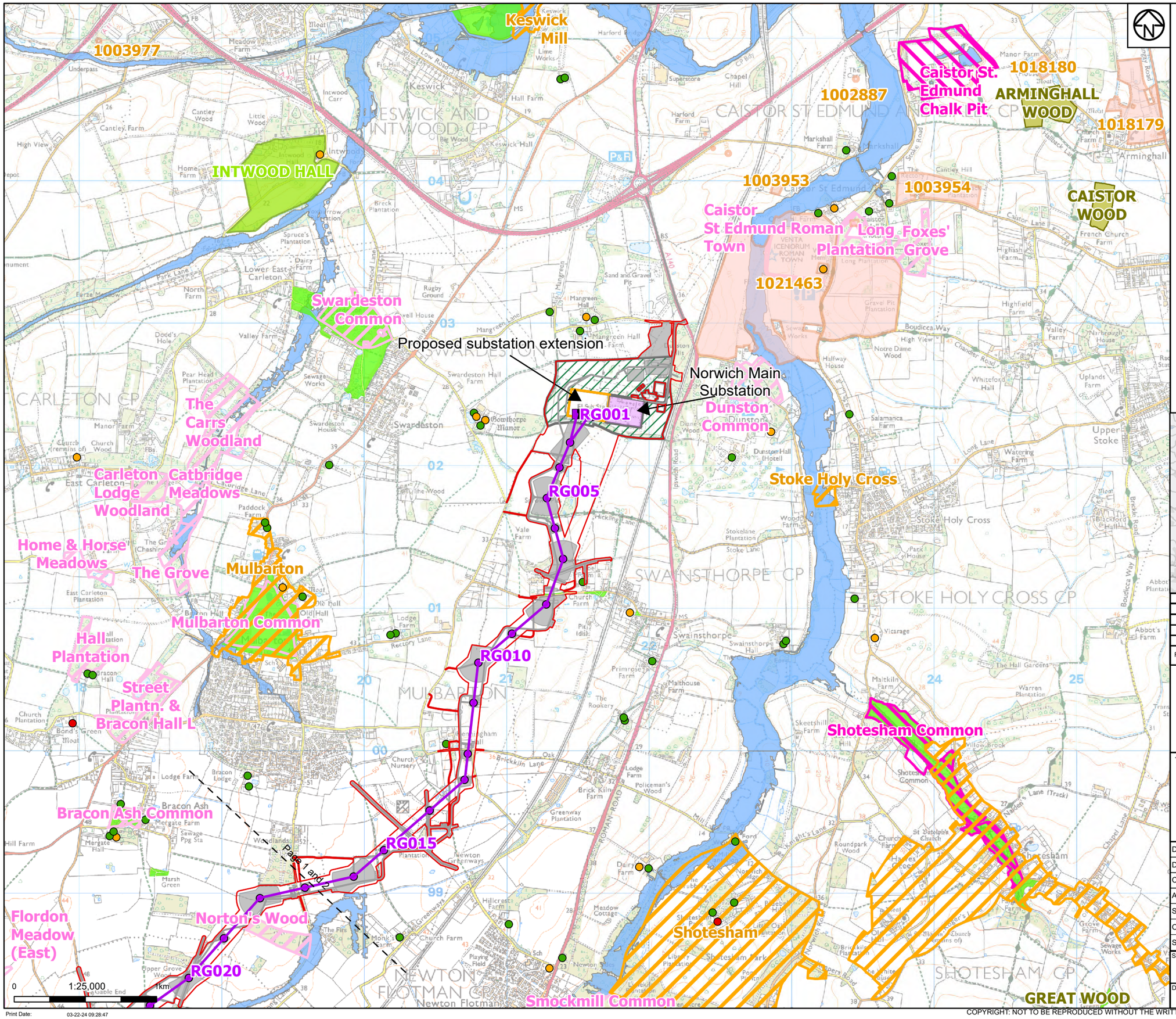

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Existing substation
- Proposed substation extension
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Scheduled Monument (With accompanying list entry number)
- Conservation Areas
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Registered Parks and Gardens
- Countryside and Rights of Way Open Access Land
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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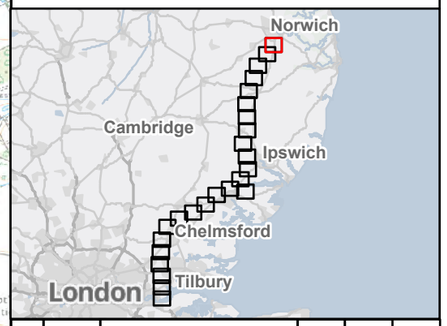

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 1 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

Print Date: 03-22-24 09:28:47

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HETHEL WOOD
BUSH CLOSE
Hall Plantation
Mulbarton Common
RG010
Hethel Pond and 'The Drift'
Street Plantn. & Bracon Hall L
BRACON ASH CP
Bracon Ash Common
RG015
Page 1 and 2
WRENINGHAM CP
Norton's Wood
Flordon Meadow (East)
RG020
Lower Wood, Ashwellthorpe
Wreningham Marsh
Wreningham Meadow
LOWER WOOD
Flordon Meadow (West)
The Grange, Wreningham
NEWTON FLOTMAN CP
Shotesham
Smockmill Common
1002885
FLORDON CP
RG025
Flordon Common
Norfolk Valley Fens
RAINTHORPE HALL
ASHWELLTHORPE AND FUNDENHALL CP
Bayes Meadow
RG030
Hapton Common
Grove Wood Tacolneston
1003984
Horseford Meadow
Pecks Plantation
POPES WOOD
TACOLNESTON CP
THARSTON AND HAPTON CP
RG035
Spring Meadow
Page 2 and 3
Forncett
SOUTH NORFO
MORNING FRITT
TASBURGH CP
0
1:25,000
1km
Print Date: 03-22-24 09:28:54

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Scheduled Monument (With accompanying list entry number)
- Conservation Areas
- Special Areas of Conservation
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Registered Parks and Gardens
- Countryside and Rights of Way Open Access Land
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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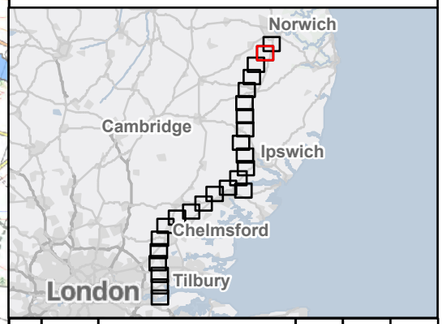

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan Page 2 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

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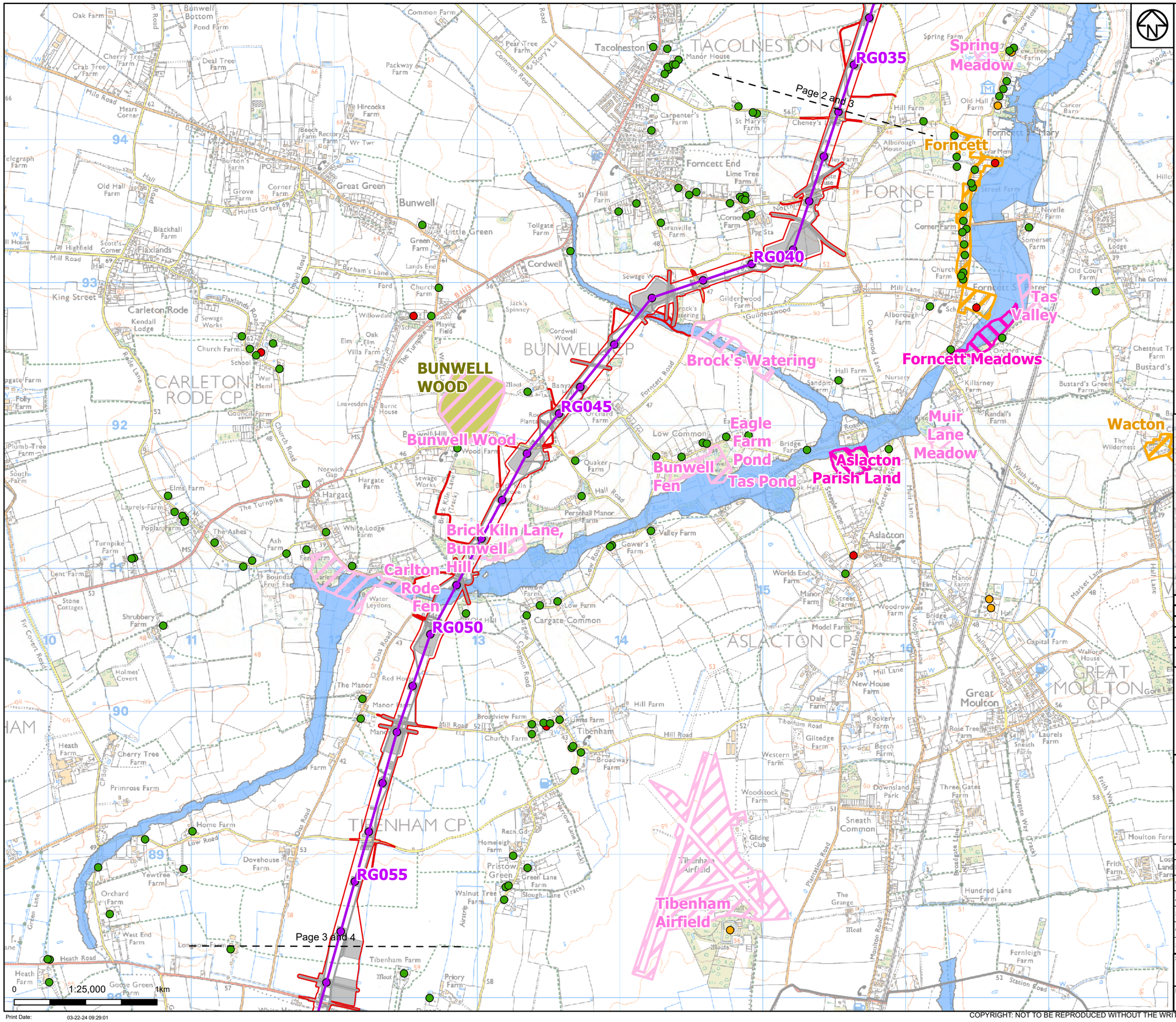

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Conservation Areas
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 3 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

Print Date: 03-22-24 09:29:01

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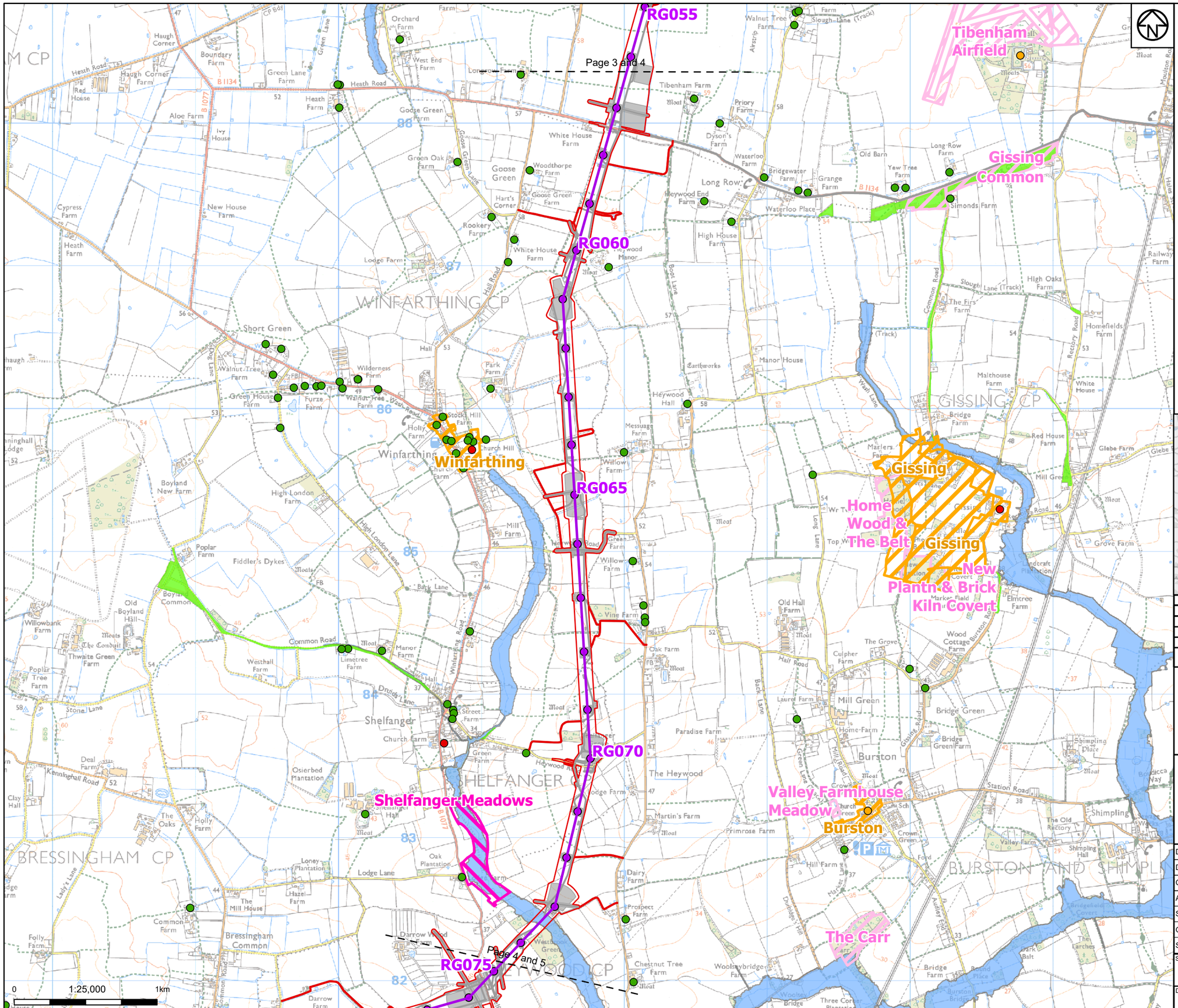

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Conservation Areas
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Countryside and Rights of Way Open Access Land
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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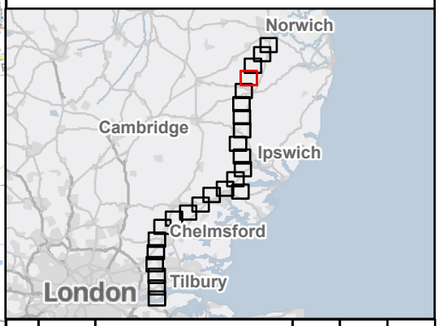

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan Page 4 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

Print Date: 03-22-24 09:29:08

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Waveney Valley Overhead Line

RG075

RG080

RG085

RG090

RG095

RG100

Page 4 and 5

Page 5 and 6

Redgrave and Lopham Fens

Bressingham Fen

Lang Fen (South)

Horse Fen

Horse Fen Carr

Waveney & Little Ouse Valley Fens

Hall Farm Meadow

Wortham Ling

Roydon Fen

River Waveney (Sections)

Brewers Green

Diss Cemetery

Diss

Section A

Section B

Palgrave

Wortham Long Green

The Marsh

Gypsy Camp Meadows, Thrandeston

Railway Meadows

Thrandeston Marsh

Thrandeston

GITTIN WOOD

Gittin Wood

Burgate Great Green

BURGATE WOOD

Burgate Wood

1017331

1016699

Jacobites Wood

Stubbing's Wood

STUBBINGS WOOD

0 1:25,000 1km

Print Date: 03-22-24 09:29:15

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

Grade I

Grade II

Grade II*

Scheduled Monument (With accompanying list entry number)

Conservation Areas

Special Areas of Conservation

Sites of Special Scientific Interest

County / Local Wildlife Sites

Countryside and Rights of Way Open Access Land

Ancient Woodland

Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan Page 5 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

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RG070

Shelfanger Meadows

Valley Farmhouse Meadow

Burston

RG075

The Carr

Waveney Valley Alternative

RG080

RG85

Brewer's Green

Diss Cemetery

Redgrave and Lopham Fens

Bressingham Fen

Lang Fen (South)

Horse Fen

Horse Fen Carr

Waveney & Little Ouse Valley Fens

Trenchless Crossing: Waveney Valley Alternative (north channel)

Roydon Fen

River Waveney (Sections)

Trenchless Crossing: Waveney Valley Alternative (south channel)

RG90

Wortham Ling

Diss

Section A

Section B

Palgrave

Wortham Long Green

The Marsh

RG095

Gypsy Camp Meadows, Thrandeston

Railway Meadows

Thrandeston Marsh

Thrandeston

Gittin Wood

GITTIN WOOD

0 1:25,000 1km

Print Date: 03-14-24 19:12:26

Draft order limits

Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed low duty gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Conservation Areas
- Special Areas of Conservation
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- CRoW - Conclusive Registered Common Land /Access Land
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan Page 5a of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

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Botesdale
Jacobites Wood
Stubbing's Wood
STUBBINGS WOOD
Burgate Wood
1017331
1016699
BURGATE WOOD
Burgate
Little Green
Page 5 and 6
RG105
1016700
RG110
Mellis Common
Mellis
Lady Henniker Wood
Howe Plantation
Major Farm, Braiseworth
Lady Henniker Wood / Bottom Plantation / Duchess Wood
DUCHESS WOOD
RG115
Coldham Grove
Dormans Wood
RG120
View Wood
Birdshedge Grove
1005999
1016698
RNR 212
RNR 211
Finningham
Wickham Skeith
1016697
Page 6 and 7
RG125
BURGATE CP
MELLIS CP
YAXLEY CP
ALL SUPERIOR CP
THORNHAM PARVA CP
GISLINGHAM CP
THORNHAM MAGNA CP
STOKE ASH CP
WESTHORPE CP
FINNINGHAM CP
Rickinghall
Botesdale
Thornham Parva
Thornham Magna
Stoke Ash
Gislingham
Finningham
Wickham Skeith
0 1:25,000 1km
Print Date: 03-22-24 09:29:21

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings
- Grade I
- Grade II
- Grade II*

- Scheduled Monument (With accompanying list entry number)
- Conservation Areas
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Countryside and Rights of Way Open Access Land
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 6 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

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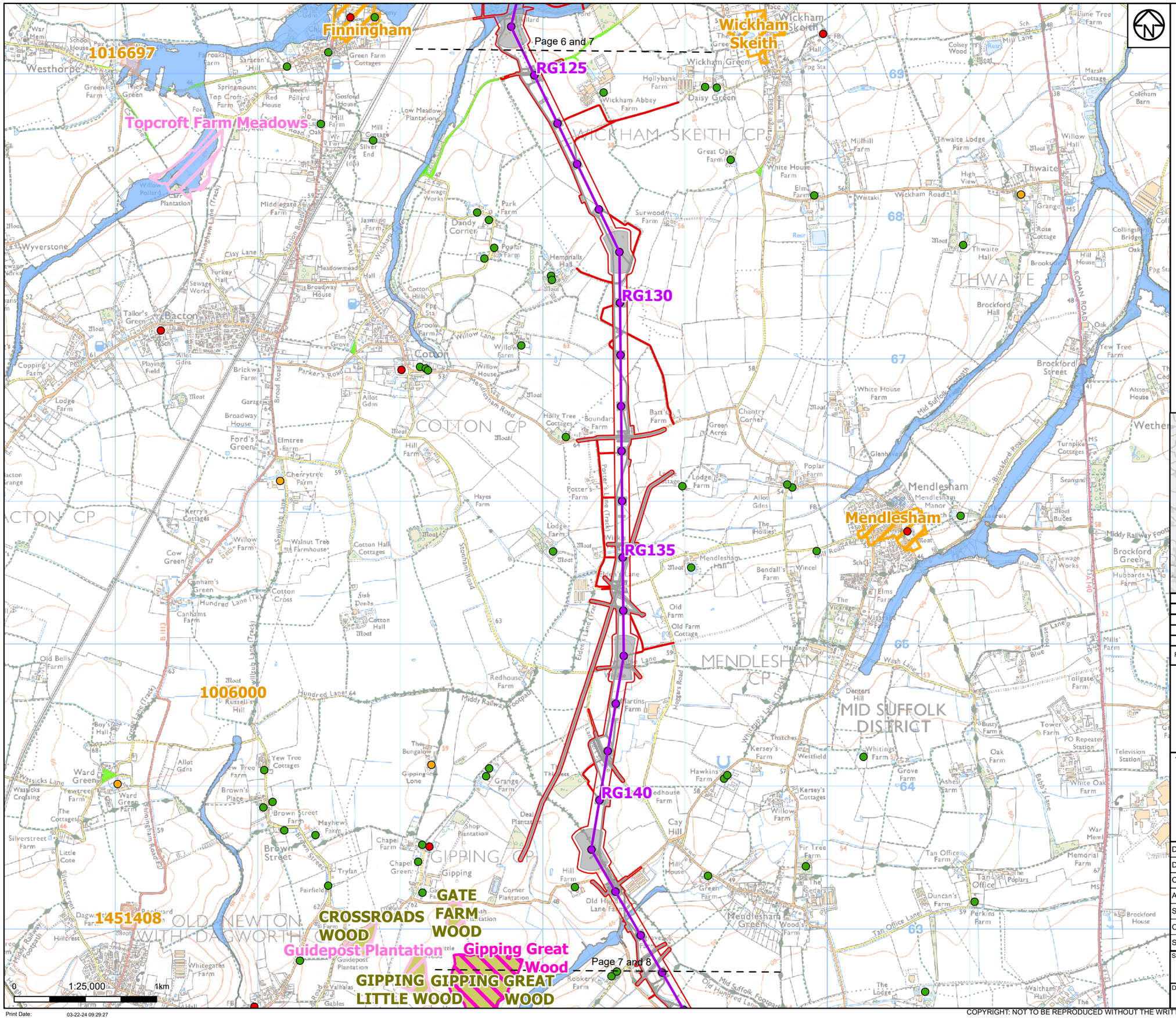

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Scheduled Monument (With accompanying list entry number)
- Conservation Areas
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Countryside and Rights of Way Open Access Land
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan Page 7 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

Print Date: 03-22-24 09:29:27

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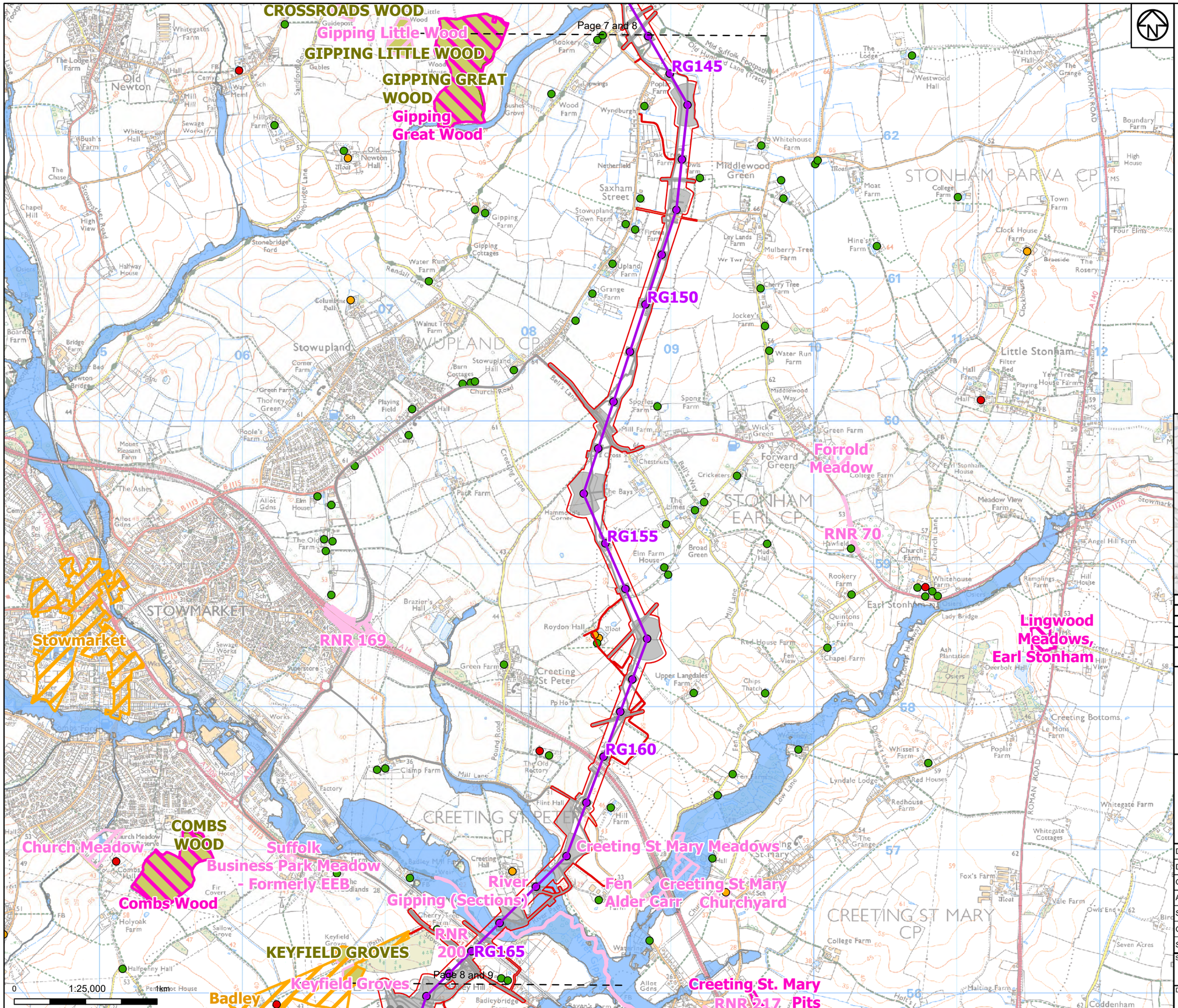

Print Date: 03-22-24 09:29:38

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Conservation Areas
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 8 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

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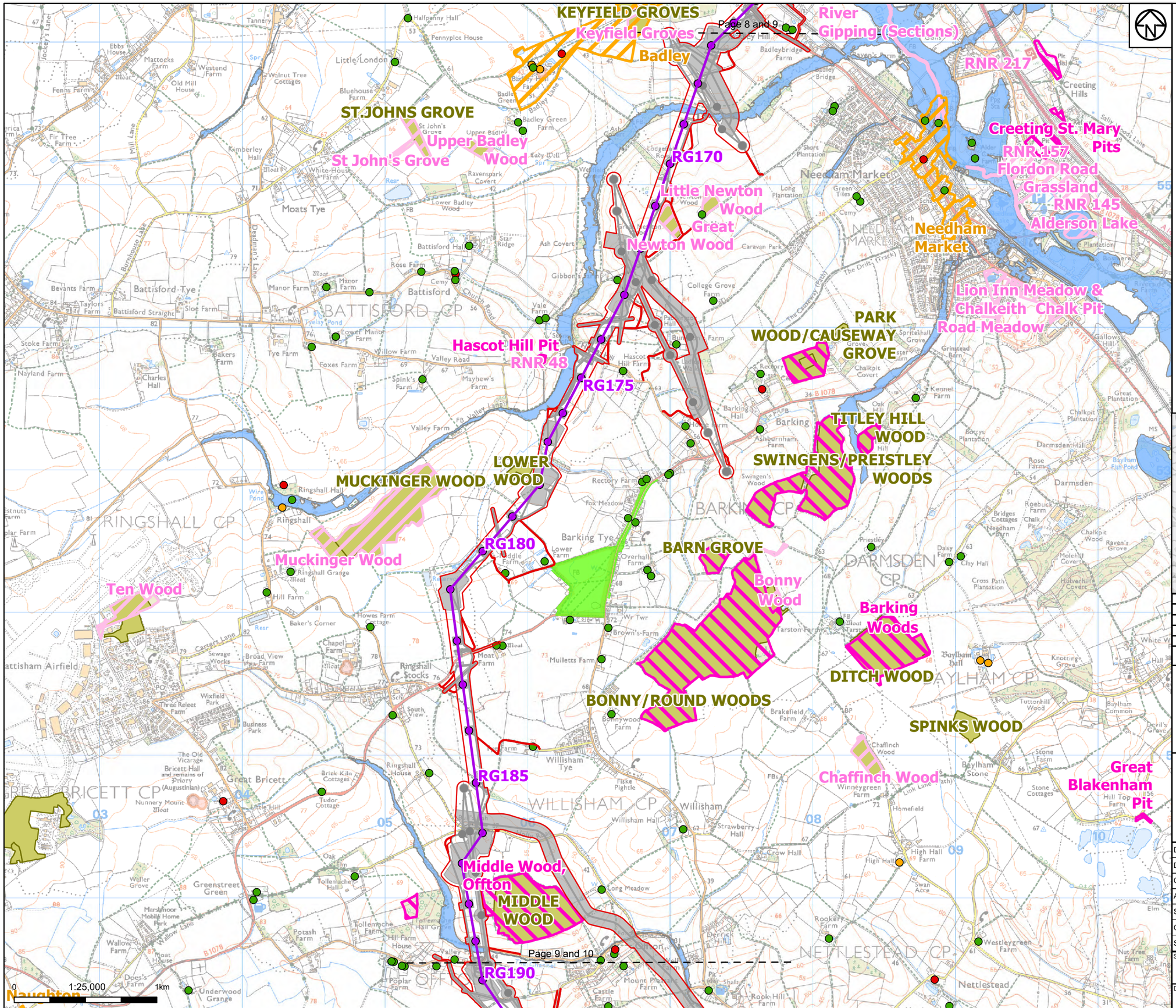

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Scheduled Monument (With accompanying list entry number)
- Conservation Areas
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Countryside and Rights of Way Open Access Land
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 9 of 25

Designed	A. Fell	Date	April 2024
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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-EGN-ZZ-DR-ZZ-190

Revision: A

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MIDDLE WOOD
Middle Wood, Offton
RG190
Page 9 and 10
Great Blakenham Pit
Little Blakenham Pit
Langham Close Wood
BORLEYS WOOD
Borley`s Wood
RG195
RG200
Bushey Ley Farm (Arable Fields)
Somersham Park
SOMERSHAM PARK
RG205
MILLERS WOOD
River Gipping (Sections)
Laurel Cottage Grassland
ELMSETT PARK WOOD
Elmsett Park Wood
RNR 92
FLOWTONHALL GROVE
Flowtonhall Grove
Fore and Bushey Groves
Miller's Wood
CORN HATCHES GROVE
Corn Hatches Grove
RG210
BULLEN WOOD
Bramford Substation
JC001
JC005
Round Wood and Elms
ROUND WOOD
Grove
Burstall Long Wood
BURSTALL LONG WOOD
Proposed substation extension
JC010
JC015
Sproughton Park
WOLVES WOOD
RAMSEY/HINTLESHAM WOODS
Hintlesham Woods
Page 10 and 11
0 1:25,000 1km
Print Date: 03-22-24 09:29:56

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed low duty gantry
- Proposed pylon position
- Existing substation
- Proposed substation extension
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Scheduled Monument (With accompanying list entry number)
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Countryside and Rights of Way Open Access Land
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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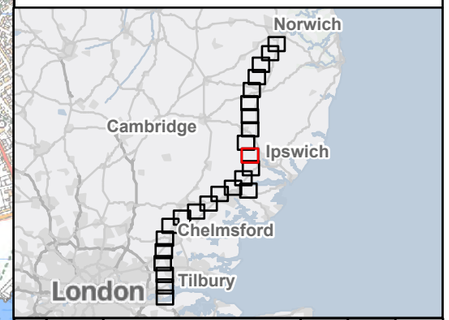

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 10 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

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WOLVES WOOD

Hintlesham Woods

RAMSEY/HINTLESHAM WOODS

TOMS/BROADOAK WOOD

Tom`s / Broadoak Wood

LONG WOOD

Long Wood

Brimlin Wood

BRIMLIN WOOD

Hadleigh Railway Walk

Raydon Great Wood

Squire`s Wood

RAYDON GREAT WOOD

Wenham Thicks

Springhill Meadows

Dedham Vale National Landscape (an AONB)

JC015

Sproughton Park

JC020

JC025

JC030

Brockley Wood

BROCKLEY WOOD

Old Hall Wood

Bentley Long Wood

OLD HALL WOOD

BENTLEY LONG WOOD

Ponder's Grove

Fingery Grove

Tare Grove

Pedlar's Grove

ENGRY WOOD

TARE/PEDLARS GROVES

Suffolk Coast & Heaths National Landscape (an AONB)

GREAT MARTINS HILL WOOD

BUXTON WOOD SOUTH

Page 10 and 11

Page 11 and 12

HINTLESHAM CP

CHATTISHAM CP

COPDOCK AND WASHBROOK CP

BELSTEAD CP

WENHAM PARVA CP

WENHAM MAGNA CP

HOLTON ST MARY CP

CAPEL ST MARY CP

BENTLEY CP

0 1:25,000 1km

Print Date: 03-22-24 09:30:04

- Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Scheduled Monument (With accompanying list entry number)
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- National Landscape (an Area of Outstanding Natural Beauty)
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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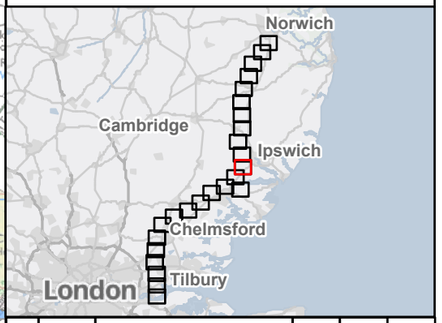

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 11 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-190

Revision: A

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Water Farm Meadow

HAZEL GROVE/LONG WOOD

Snake's Wood

ROWLEY GROVE

Rowley Grove

Higham Meadow

River Brett (Sections)

Thorington Street Pit & Reservoir

Thorington Street

Wasses Marshes

Higham

Trenchless Crossing: Higham Road

Trenchless Crossing: River Stour (north part)

Trenchless Crossing: River Stour (south part)

Dedham Vale National Landscape (an AONB)

Stratford St Mary

Trenchless Crossing: Woodland Crossing Near St Mary's Church Langham

Langham Water Works

Cophedge Wood

COPHEDGE FARM WOOD

Ash Wood

ASH WOOD

St Mary's Churchyard

Langham Hall

The Coombs

Langham SRV

Gun Hill Grassland

Gun Hill Place

Stratford St Mary

Dalethorpe Park

Bridges Farm

Dedham Churchyard

Dedham

Dedham Old River Marshes

Black Brook

Trenchless Crossing: A12 highway crossing

Page 11 and 12

Page 12 and 13

Springhill Meadows

East Bergholt

Suffolk Coast & Heaths National Landscape (an AONB)

THE HAUGH

Cattawade Marshes

Judas Gap Marsh

Lawford

Lawford Churchyard

SHELLEY CP

HOLTON ST MARY CP

HIGHAM CP

DEDHAM CP

CAPEL ST MARY

Raydon

Great Wenham

Holton St Mary

Lower Raydon

Shelley

Higham

Langham

Dedham

East Bergholt

0 1:25,000 km

Print Date: 03-22-24 09:30:14

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

Grade I

Grade II

Grade II*

Scheduled Monument (With accompanying list entry number)

Conservation Areas

Sites of Special Scientific Interest

County / Local Wildlife Sites

Countryside and Rights of Way Open Access Land

National Landscape (an Area of Outstanding Natural Beauty)

Ancient Woodland

Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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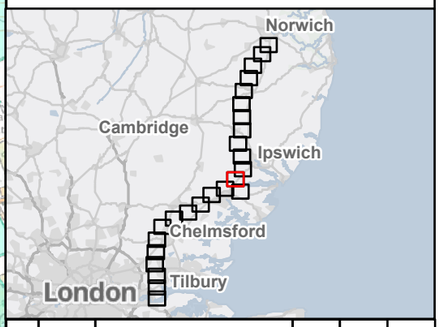

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 12 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

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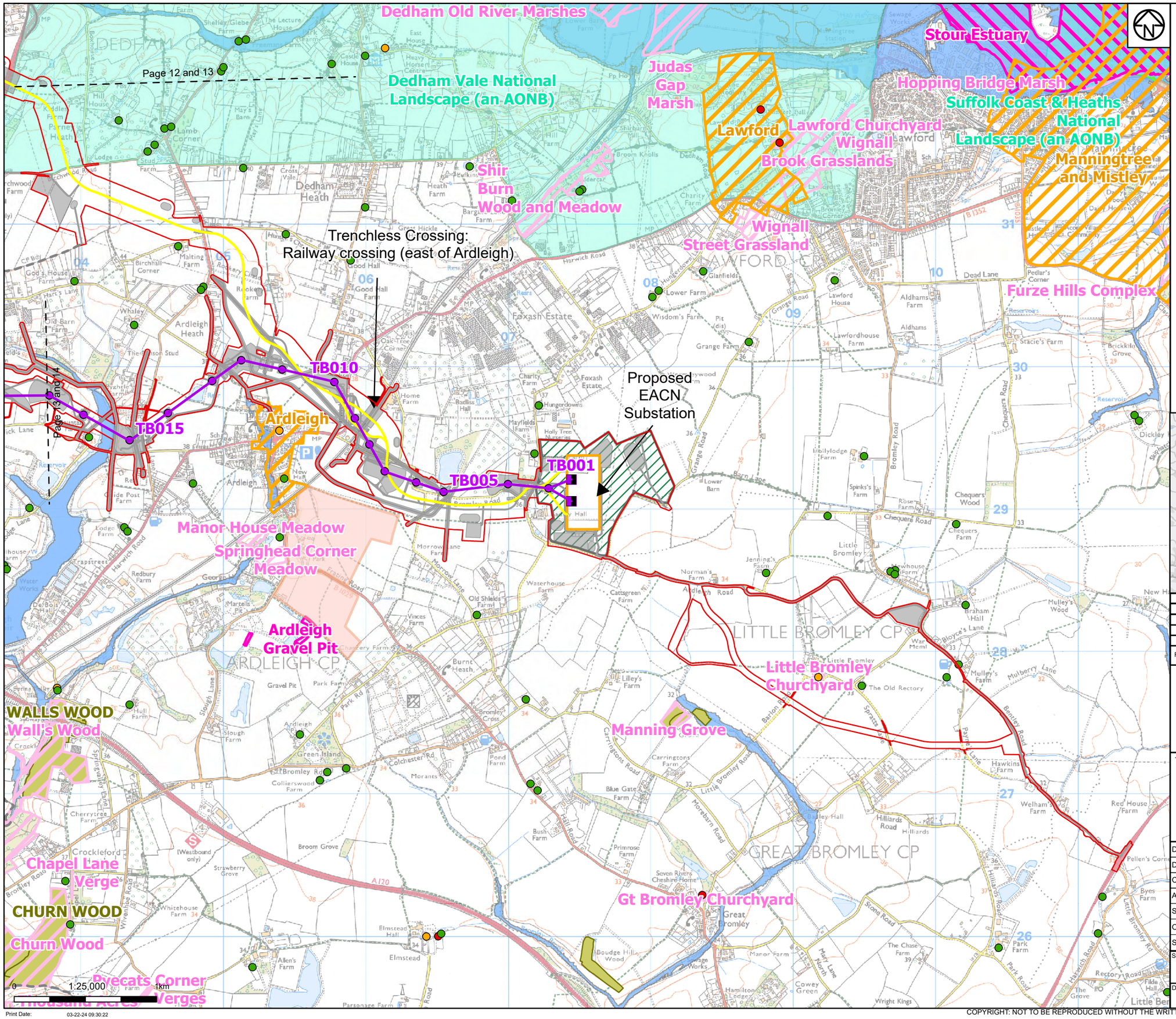

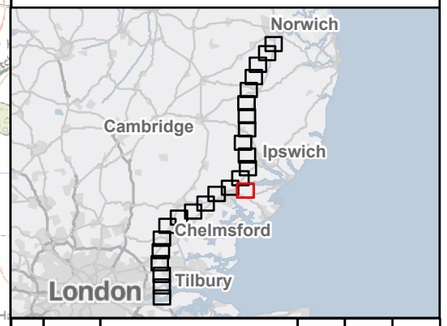

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed EACN substation
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Scheduled Monument (With accompanying list entry number)
- Conservation Areas
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Countryside and Rights of Way Open Access Land
- National Landscape (an Area of Outstanding Natural Beauty)
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan Page 13 of 25

Designed	A. Fell	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

Print Date: 03-22-24 09:30:22

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1003757
Nayland
1003758
Boxtedhall Wood Marsh
BOXTEDHALL GREAT WOOD
COPHEDGE FARM WOOD
Cophedge Wood
Langham Water Works
St Mary's Churchyard, Lang
Hall The
Coombs
Langham SRV
Gun Hill Grassland
Gun Hill Place
Dedham Vale National Landscape (an AONB)
Boxtedhall Great Wood
Little Wood
Boxted
ASH WOOD
Ash Wood
BOXTEDHALL LITTLE WOOD
CREAKS GROVE
Creak's Grove
Great Horkesley Churchyard
1019078
Black Brook
Page 12 and 13
Trenchless Crossing: A12 highway crossing
Little Horkesley
SLOUGH GROVE
Slough Grove
Harrow Wood
TB030
TB025
TB020
Birch Wood, Langham
BIRCH WOOD
Birch Wood
Page 14 and 15
Aldercar Wood
Langham Road Grassland
Kiln Wood
KILN WOOD
PITCHBURY WOOD
Pitchbury Wood
1019959
Section D
Section C
Ardleigh Reservoir Wood
Ardleigh Reservoir Grassland
BULLOCK WOOD
1002137
West Bergholt Church
HIGH WOODS
East Wood
Bullock Wood
WALLS WOOD
Wall's Wood
High Woods
Magdalen Wood
West House Wood
1019964
Spring Grove
Page 13 and 14
0 1:25,000 1km

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed pylon position
Proposed underground cable alignment
Proposed cable sealing end compound
Proposed environmental areas
Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings
Grade I
Grade II
Grade II*
Scheduled Monument (With accompanying list entry number)
Conservation Areas
Sites of Special Scientific Interest
County / Local Wildlife Sites
Countryside and Rights of Way Open Access Land
National Landscape (an Area of Outstanding Natural Beauty)
Ancient Woodland
Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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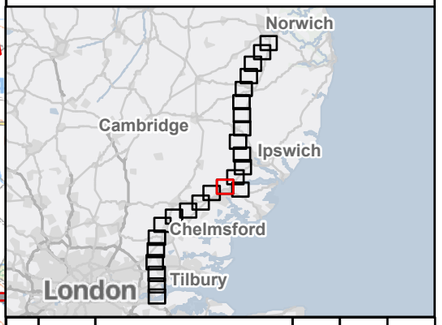

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 14 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190
Revision: A

Print Date: 03-22-24 09:30:30

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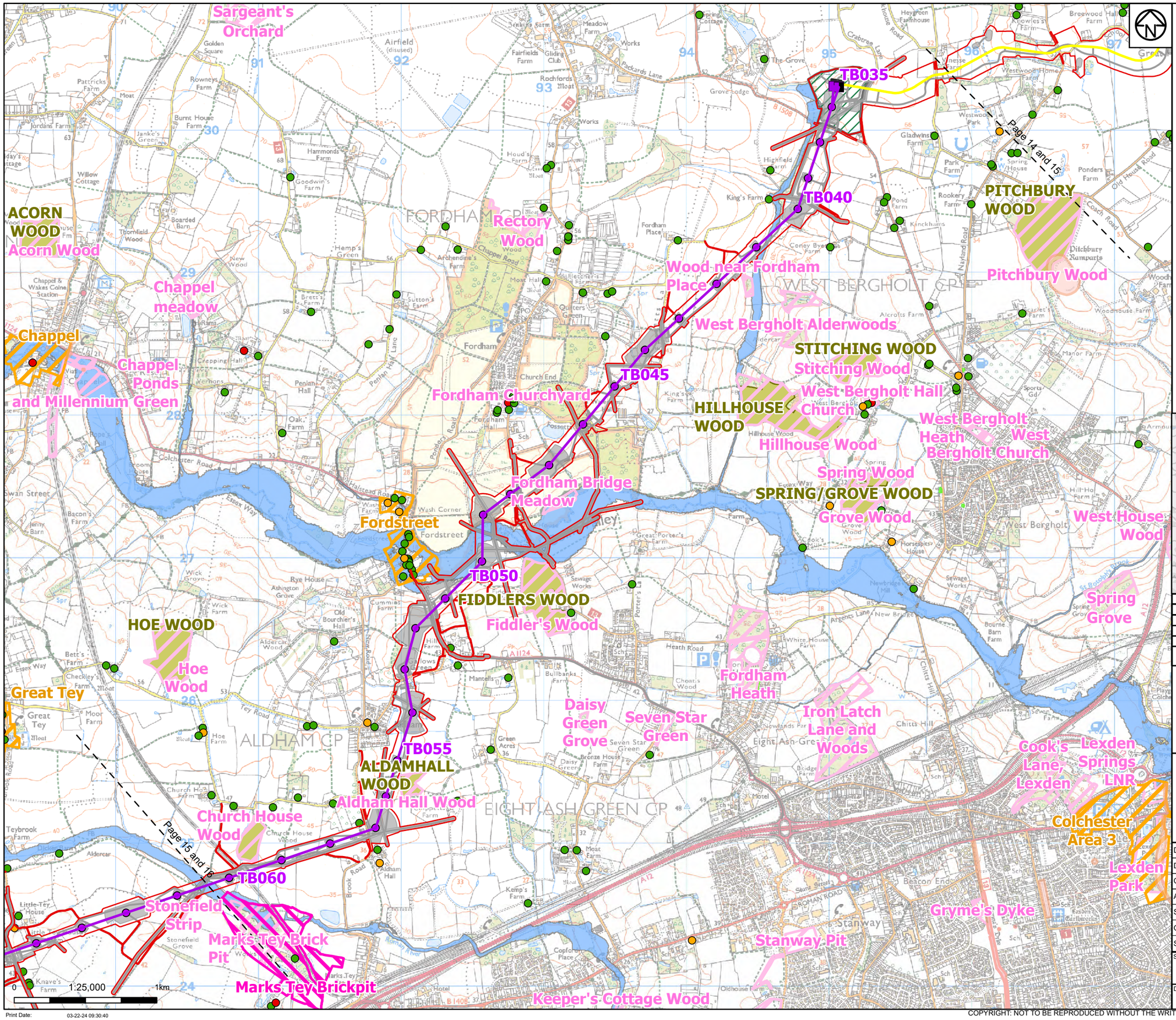

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Scheduled Monument (With accompanying list entry number)
- Conservation Areas
- Sites of Special Scientific Interest
- County / Local Wildlife Sites
- Countryside and Rights of Way Open Access Land
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan Page 15 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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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-EGN-ZZ-DR-ZZ-190

Revision: A

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THRIFT WOOD
Markshall Woodlands
Willow Wood
Florie's Hedgerows
Great Tey
Raynor's Wood
WITCH WOOD
Witch Wood, lane and hedges
Buckler's Farm Wood
Church House Wood
The Squire's Plantation
Stonefield Strip
TB060
TB065
Marks Tey Brick Pit
Tilkey Road, Coggeshall
Little Tey Churchyard
Marks Tey Brickpit
TB070
Coggeshall
Blackwater Plantation
TB075
Coggeshall Hall Farm
TB080
Feering
Feering Marsh
TB085
Kelvedon
Domsey Brook Pasture
Long/Round Grove
Fan Wood
FAN WOOD
Blind Lane Verge
Messing
Section D
Section E
Page 15 and 16
Page 16 and 17
GREAT TEY CP
MARKS TEY CP
FEERING CP
KELVEDON CP
HALL CP
ALDHAM CP
COPFO
0 1:25,000 1km
Print Date: 03-22-24 09:30:49

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings
Grade I
Grade II
Grade II*
Scheduled Monument (With accompanying list entry number)
Conservation Areas
Sites of Special Scientific Interest
County / Local Wildlife Sites
Countryside and Rights of Way Open Access Land
Ancient Woodland
Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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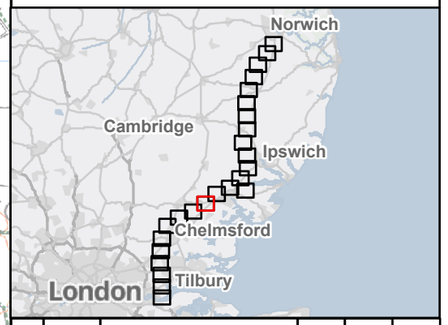

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 16 of 25

Designed	A. Fell	Date	April 2024
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Scale:	1:25,000	Datum:	AOD
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Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-190
Revision: A

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LANHAM WOOD
Lanham Wood
LINKS WOOD
Link's Wood
Cressing
STREAM WOOD
ADAM'S WOOD
Adam's Wood
SHEEPCOTE WOOD
Sheepcote Wood
Silver End
Blackwater Plantation
Coggeshall
Coggeshall Hall Farm
TB080
Upney Wood
Storey's Wood
TB085
TB090
TB095
White Notley
TB100
TB105
BARROWFIELD WOOD
Barrowfield Wood
Rivenhall Thicks
TARECROFT WOOD
Tarecroft Wood
Hoo Hall Meadow
TROYS WOOD
Troys Wood
IVY WOOD
Ivy Wood
Witham Marsh
Witham Town Centre
Ardley Wood Complex
Kelvedon
Kelvedon Hall Wood
KELVEDON HALL WOOD
Braxted Park
CRESSING CP
SILVER END CP
KELVEDON CP
FAULKBOURNE CP
RIVENHALL CP
WITHAM
Page 16 and 17
Page 17 and 18
0 1:25,000 1km
Print Date: 03-22-24 09:30:58

Draft order limits

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings
Grade I
Grade II
Grade II*
Scheduled Monument (With accompanying list entry number)
Conservation Areas
County / Local Wildlife Sites
Registered Parks and Gardens
Countryside and Rights of Way Open Access Land
Ancient Woodland
Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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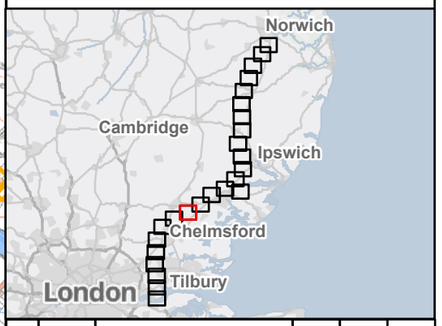

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title: Figure 1 - COCP - Environmental Constraints Plan Page 17 of 25

Designed	A. Fell	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190
Revision: A

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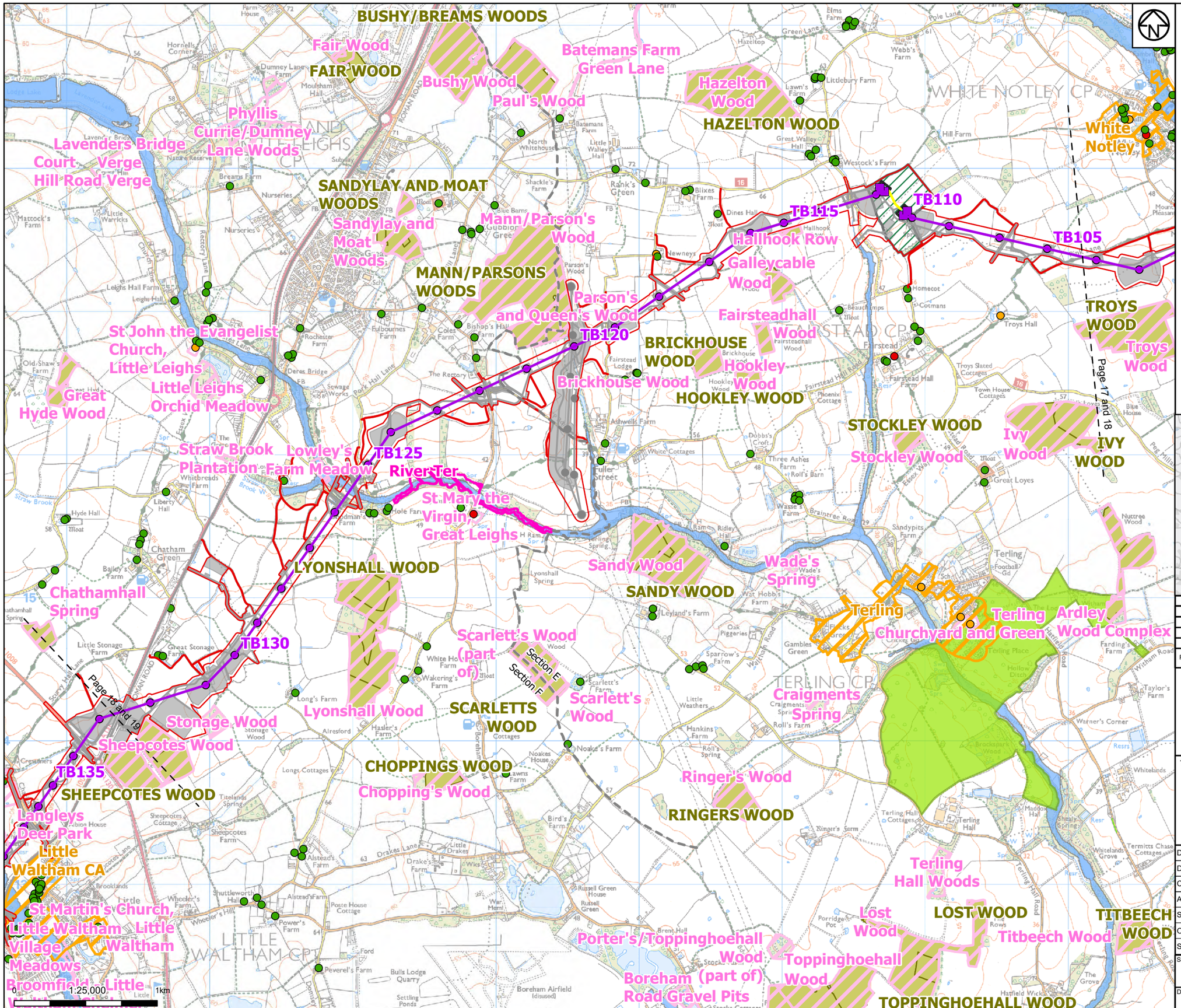

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed low duty gantry
Proposed pylon position
Proposed underground cable alignment
Proposed cable sealing end compound
Proposed environmental areas
Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings
Grade I
Grade II
Grade II*
Scheduled Monument (With accompanying list entry number)
Conservation Areas
Sites of Special Scientific Interest
County / Local Wildlife Sites
Registered Parks and Gardens
Countryside and Rights of Way Open Access Land
Ancient Woodland
Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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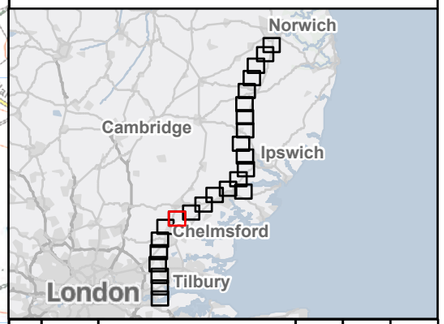

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 18 of 25

Designed	A. Fell	Date	April 2024
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Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
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Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-190

Revision: A

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Littley Green Road Verges
Chathamhall Spring
Lyons W
TB130
LYONSHALL WOOD
Pleshey Road
1002191
1011808
Pleshey Castle
1002159
Oxney Spring
PLESHEY CP
LANGLEYS
Penden Hill Verges
Page 18 and 19
Stonage Wood
Sheepcotes Wood
Langleys Deer Park
TB135
SHEEPCOTES WOOD
FITZJOHNS WOOD
Fitzjohn's Wood
Great Waltham CA
Little Waltham CA
TB140
St Martin's Church, Little Waltham
1002140
Waltham Village Meadows
Blatche's Wood
MASHBURY CP
LITTLE WALTHAM CP
SPARROWHAWK WOOD
Border Wood
Sparrowhawk Wood
Border Wood Lake
TB145
Puddings Wood
NIGHTINGALE WOOD
Nightingale Wood
1011809
CHIGNALL CP
BUSHY WOOD
Bushy Wood
TB150
Broomfield Conservation Area
Broomfield - Little Waltham Chelmer
St Mary's Church, Broomfield
BROOMFIELD CP
TB155
Daffy Wood
Newland's Spring
College Wood
Chelmer Valley Riverside
Page 19 and 20
TB160
0 1:25,000 1km

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Scheduled Monument (With accompanying list entry number)
- Conservation Areas
- County / Local Wildlife Sites
- Registered Parks and Gardens
- Countryside and Rights of Way Open Access Land
- Ancient Woodland
- Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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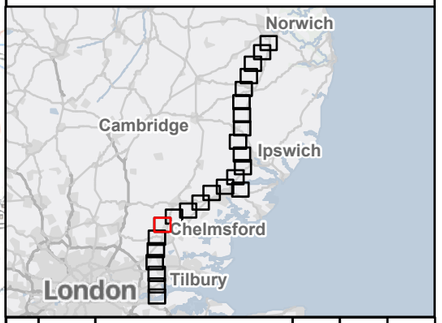

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan Page 19 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

Print Date: 03-22-24 09:31:19

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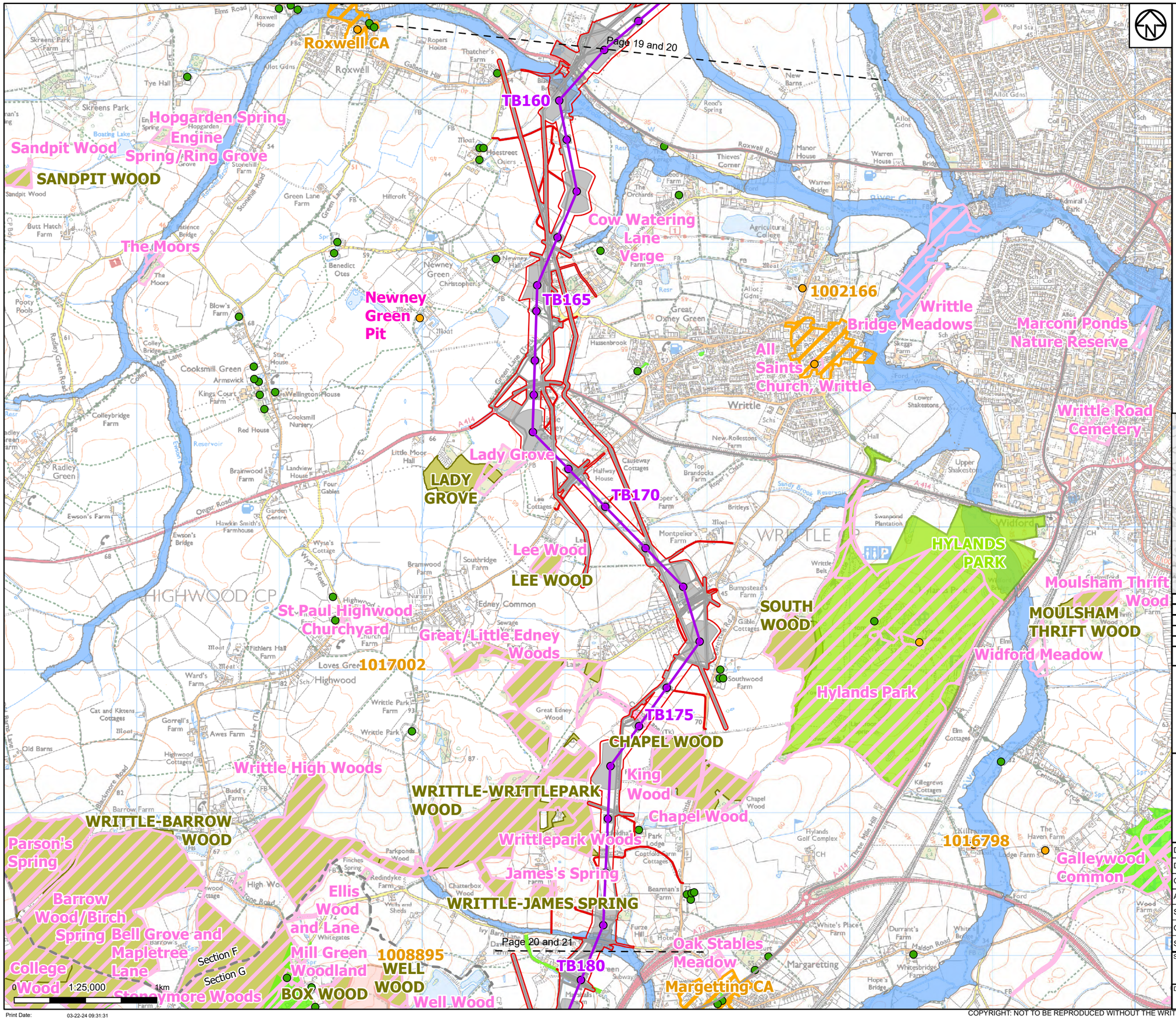

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
Page 20 of 25

Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-190

Revision: A

Print Date: 03-22-24 09:31:31

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Parson's Spring
Barrow Wood/Birch Spring
WRITTLE-BARROW WOOD
College Wood
WRITTLE-WRITTLEPARK WOOD
Writtle High Woods
Ellis Wood and Lane
Section F
Section G
Box Wood
BOX WOOD
WELL WOOD
Well Wood
1008895
Stoneymore Woods
Mill Green Woodland
FRYERNING WOOD
Bell Grove and Mapletree Lane
Fryerning Wood
Mill Green Heathland
The Grove
Woodbarns Spring
WOODBARNS SPRING
INGATESTONE FRYERNING CP
Fryerning
St Mary the Virgin Churchyard, Fryerning
Blackmore Wood
Ingatestone, High Street
Ingatestone, Station Lane
1005560
1002174
Ingatestone
WRITTLE-JAMES SPRING
Writtlepark Woods
Page 20 and 21
TB180
Oak Stables Meadow
Margetting
Galleywood Common
BUSHEY WOOD
Bushey Wood
Margetting CA
Osborne's Wood
OSBORNES WOOD
TB185
MARGARETTING CP
POUND WOOD
Pound Wood
ROOK WOOD
Rook Wood
Spring Wood
FOREST WOOD
Forest Wood
LITTLE WOOD
Little and Long Woods
LONG WOOD
Swan Wood
SWAN WOOD
Turkshill Wood
Hankin's Wood
STOCK CP
Imphy Hall Wood
Imphy
White's Wood/Martin's Grove
WHITES WOOD
TB190
Stock Hill Wood
Stock Brook Meadow
Lodge Wood
Kitchen Wood
KITCHEN WOOD
Long Wood
Fox Earth Wood
MOUNTNESSING CP
HARESPRING WOOD
TB195
Harespring Wood
Buckwyns Wood
Home Wood
HOME WOOD
Arnold's Wood Complex
ARNOLDS WOOD
St Giles Churchyard, Mountnessing
Queens Park Meadow
Queens Park Country
FORTY ACRE PLANTATION
Mountnessing Hall Woods
WID WOOD
Page 21 and 22
Hutton Country Park
Clapgate Wood
Cock Wood/Collins's Shaw
TB200
NORSEY WOOD
Norsey Wood
Forty Acre Plantation
1019485
Long Ridings
0 1:25,000 1km
Print Date: 03-22-24 09:31:39

Draft order limits
Project sections
Proposed project design details
Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works
Discipline specific constraints
Listed Buildings
Grade I
Grade II
Grade II*
Scheduled Monument (With accompanying list entry number)
Conservation Areas
Sites of Special Scientific Interest
County / Local Wildlife Sites
Countryside and Rights of Way Open Access Land
Ancient Woodland
Flood Zone 3
Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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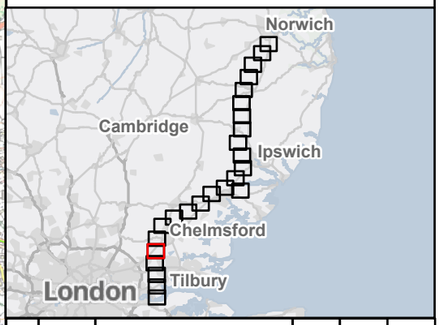

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PROJECT: Norwich to Tilbury

Title:

Figure 1 - COCP - Environmental Constraints Plan
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Designed	A. Fell	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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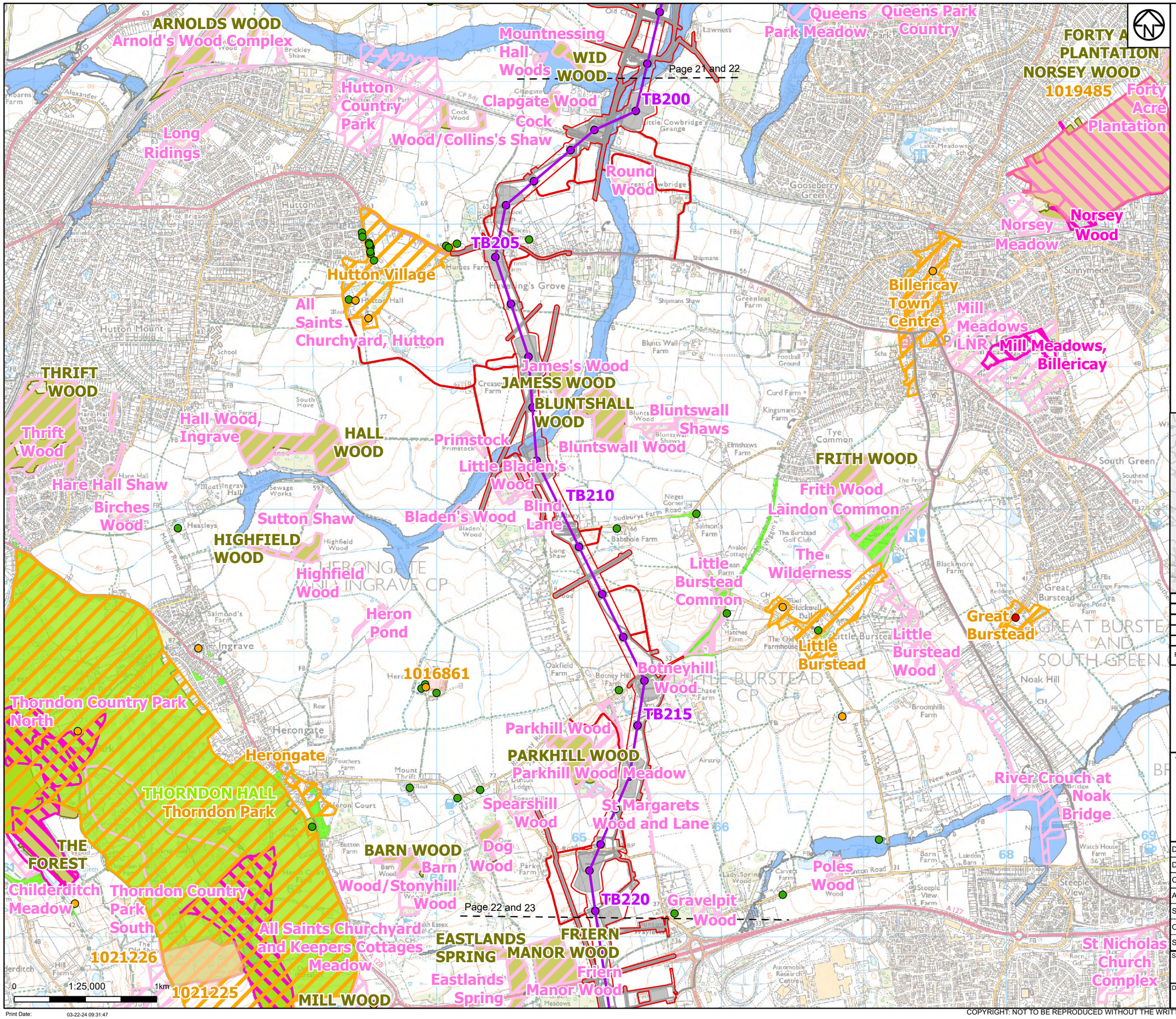

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PROJECT: Norwich to Tilbury

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Figure 1 - COCP - Environmental Constraints Plan
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THORNDON HALL
BARN WOOD
Dog Wood
Barn Wood/Stonyhill Wood
St Margarets Wood and Lane
Poles Wood
River Crouch at Noak Bridge
Noak Bridge
Thorndon Country Park South
1021226
Thorndon Park
Page 22 and 23
TB220
Gravelpit Wood
EASTLANDS SPRING
FRIERN MANOR WOOD
Friern Manor Wood
St Nicholas Church Complex
1021225
MILL WOOD
Eastlands Spring
Thick/Hollow
Bottom Shaws
All Saints Churchyard and Keepers Cottages Meadow
Barrett's Shaw
Straight Path Shaw
Southfields Washland
ROUND SHAW
Round Shaw
TB225
WEST HORNDON CP
Langdon Complex
Hoppit Shaw
Lower Shaw, West Horndon
Section G
Section H
Basildon Recreation
Marks Hill Wood
LONG WOOD
TB230
Dry Street Pastures
Long Wood
Langdon Ridge
Westley Heights
HALL WOOD
Coombe Wood Extension
COOMBE WOOD
Section G
1020998
TB235
Goldsmith's Meadow
Section H
Kennels Wood
GREAT SUTTON WOOD
NORTHLANDS WOOD
Lodge Hall Shaw, Langdon Hills
Horndon Meadow
Fell-me-down Shaw
TB240
Page 23 and 24
TB245
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1:25,000
1km
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Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings
Grade I
Grade II
Grade II*
Scheduled Monument (With accompanying list entry number)
Conservation Areas
Sites of Special Scientific Interest
County / Local Wildlife Sites
Registered Parks and Gardens
Countryside and Rights of Way Open Access Land
Ancient Woodland
Flood Zone 3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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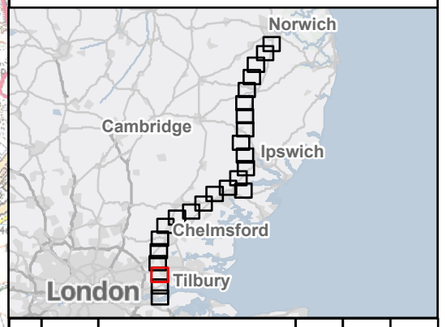

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PROJECT: Norwich to Tilbury

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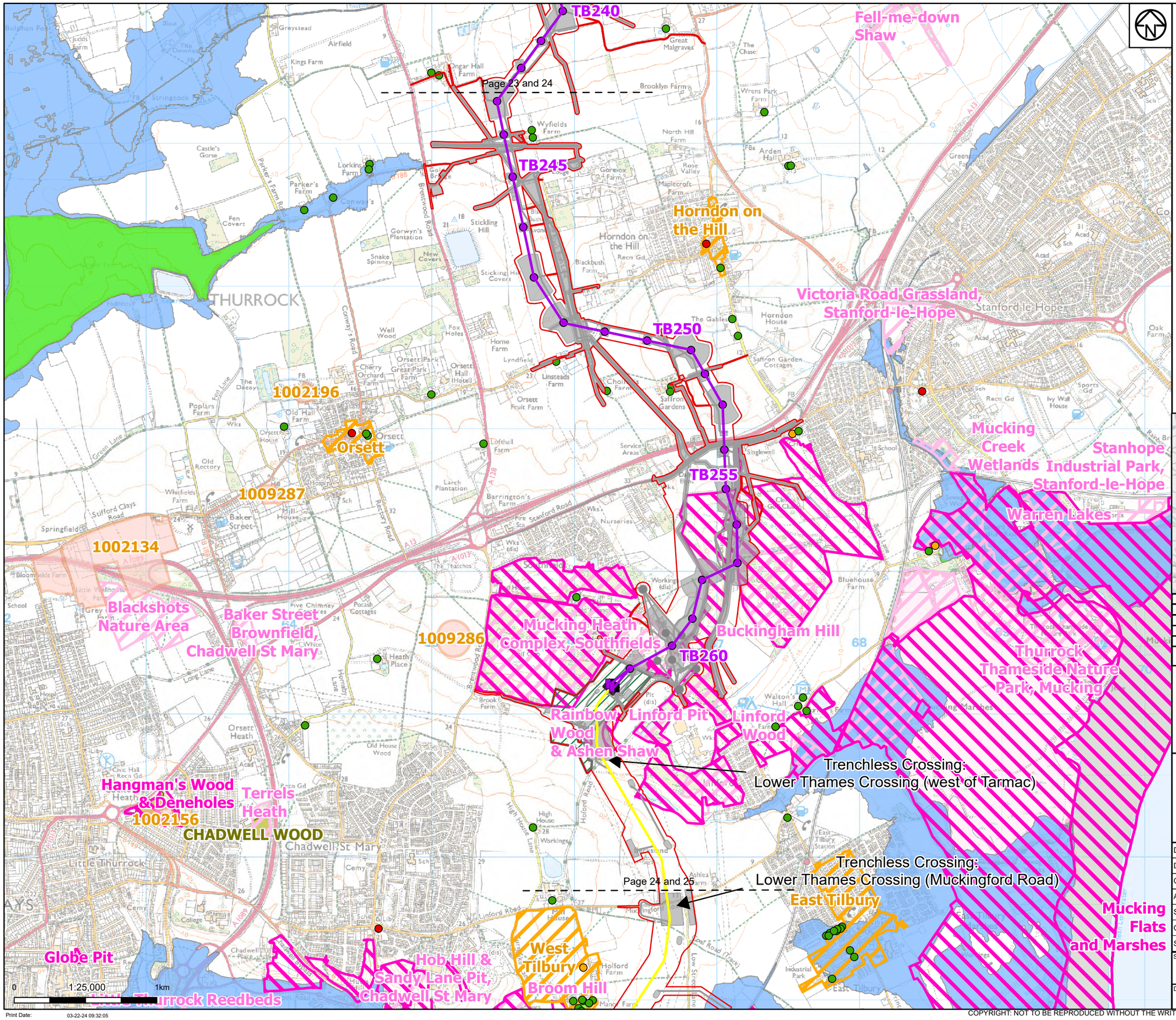

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

Listed Buildings

- Grade I
- Grade II
- Grade II*
- Scheduled Monument (With accompanying list entry number)
- Conservation Areas
- Sites of Special Scientific Interest
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- Countryside and Rights of Way Open Access Land
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Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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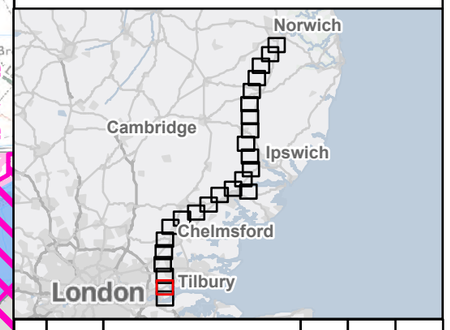

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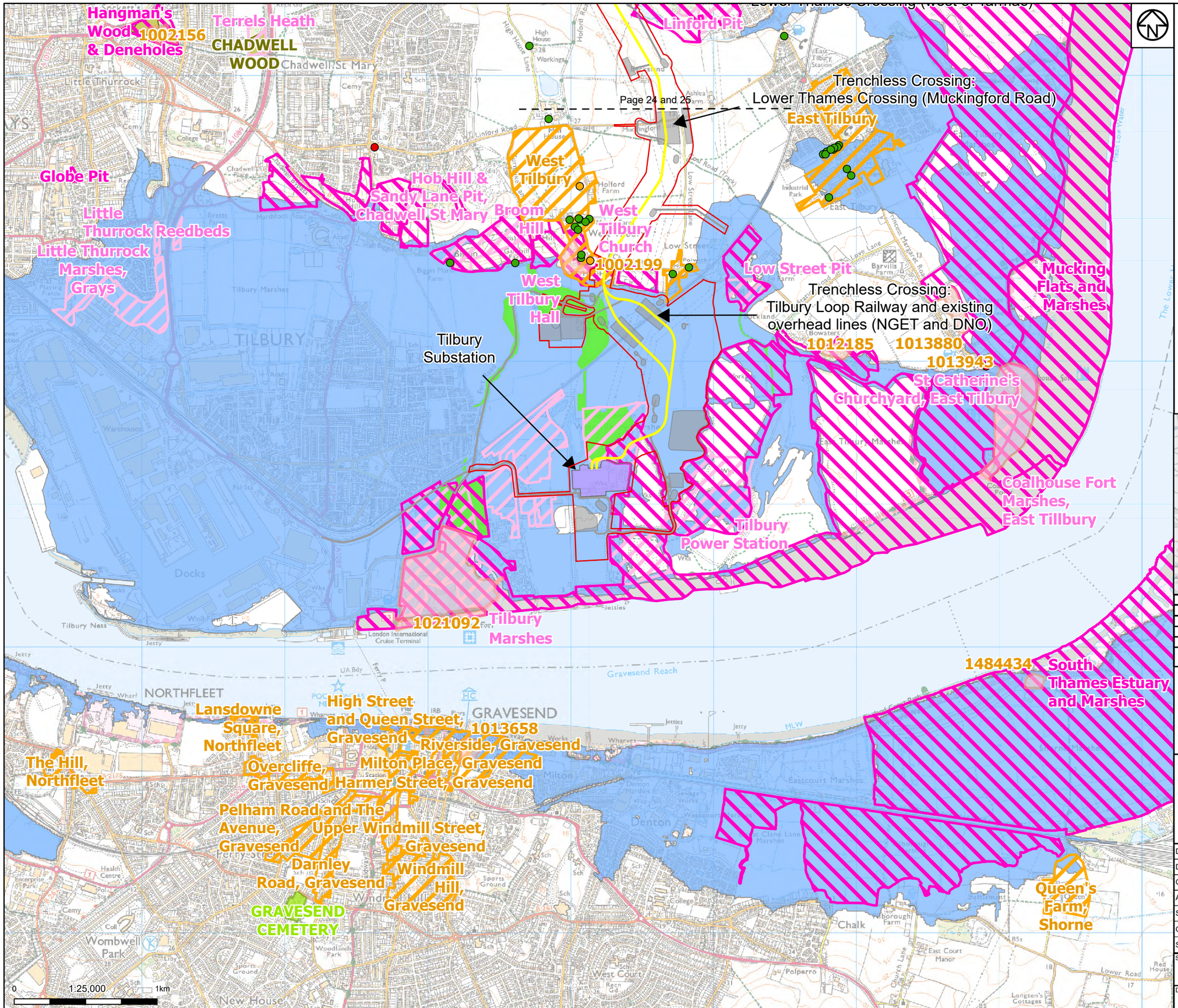

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Annex B: Public Rights of Way Management Strategy

The Great Grid Upgrade

Norwich to Tilbury

Norwich to Tilbury

Annex B – Draft Public Rights of Way Management Strategy

April 2024

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1. Introduction

1.1 Introduction

1.1.1 National Grid Electricity Transmission plc (here on referred to as National Grid) is producing an application for an order granting development consent to develop the transmission network between Norwich and Tilbury (referred to as The Project). The Project, in its current form with significant elements of overhead line, meets the threshold as a Nationally Significant Infrastructure Project (NSIP), as defined under Part 3 of the Planning Act 2008.

1.1.2 This Draft Public Rights of Way Management Strategy (PRoWMS) sets out the good practice measures that would be implemented in relation to the Public Rights of Way (PRoW) network, during construction. The strategy forms Annex B of Appendix 4.1: Draft Outline Code of Construction Practice (CoCP) in Volume III of the Preliminary Environmental Information Report (PEIR). PRoW are protected and maintained by Local Highway Authority (LHA), providing access to them for the general public. There are four types of PRoW:

- A footpath is a highway over which the public have right of way on foot;
- A bridleway is a highway over which the public have a right of way on foot and on horseback or leading a horse and on all types of bicycle;
- A byway open to all traffic is a highway over which the public have the right of way on foot, horseback, pedal cycle or motor vehicle, but over which the local highway authority has no obligation to provide a surface suitable for the passage of vehicles; and
- A restricted byway is a highway over which allows right of way on foot, horseback; leading a horse, riding a bicycle or using any other vehicle that is not mechanically propelled.

1.1.3 In the countryside, PRoW are marked with signs or coloured arrows, for example, yellow for footpaths, blue for bridleway.

1.1.4 The proposed construction works will impact a number of PRoW. Permanent localised diversion of PRoWs may be required to facilitate the location of permanent infrastructure such as Cable Sealing End (CSE) compounds or pylon locations. In the event this is required any localised permanent diversion will be undertaken in consultation with the LHA PRoW officer including any mitigation required.

1.1.5 Permanent diversion of PRoWs will be avoided where possible and it is not expected that any permanent PRoW closures will be required as part of the Project. Therefore this document only covers those temporary measures that will be employed by the Main Works Contractor(s) during construction, to maintain public and worker safety during works.

1.1.6 This strategy covers the temporary diversions and closures that could be employed by the Main Works Contractor(s) to manage the impact upon users of the PRoW and to maintain public safety during the construction period.

2. Study Area and Surveys of Existing PRoW

2.1 Study Area

2.1.1 The study area for the management strategy includes all PRoW that cross or may in any other way be affected by the Project during construction. PRoW could be affected by the following activities:

- Proposed temporary Haul Roads;
- Overhead line alignment (pylon locations and conductor line stringing);
- Underground cable corridor;
- Diversion of third-party assets;
- Proposed permanent access routes (including access to Cable Sealing End compounds and substations);
- Existing farm tracks also designated as PRoW that are proposed to be used as temporary haul roads or permanent access;
- PRoW that route through proposed construction compounds; and
- PRoW that cross into any other part of the draft Order Limits construction work areas.

2.1.2 PRoW mapping data has been formally obtained from the relevant LHAs (Norfolk, Suffolk, Essex and Thurrock). These records represent the definitive record of PRoW in the area, which could be impacted by the Project.

2.2 Surveys of Existing PRoW

Usage Surveys

2.2.1 Surveys will be undertaken to identify the baseline of use of the PRoW, in 2024, where required, following discussions with the PRoW officers within the relevant Local Highway Authorities. This information will be used to inform the appropriate management approach for each PRoW. Surveys will be undertaken during late spring/summer periods over two days, one weekday during school term to capture everyday users, and one weekend to capture leisure users.

2.2.2 A number of PRoW have initially been identified that may be subject to surveys, including those with extensive connectivity and/or with social significance such as Long-Distance Trails. These are presented within Table 16.4 of Chapter 16: Traffic and Transport in Volume I of the PEIR. These locations will be discussed with PRoW officers at the LHAs prior to surveying. Not all PRoW will be subject to surveys.

2.2.3 The survey duration will be of 12-hours, with counts recorded in 15-minute intervals, and will provide classified information of users (walkers, cyclists, equestrians and others).

Conditions of Survey

2.2.4 A full record of condition pre-construction will be carried out (photographic and descriptive) for PRoW within the draft Order Limits. This will include photographs detailing the condition of the PRoW, existing surfacing and any crossing points such as bridges or styles. This record will be available for comparison following reinstatement after the works have been completed to demonstrate that the standard of reinstatement at least meets the record in the pre-condition survey.

3. PRoW Management

3.1 General Strategy

3.1.1 National Grid is committed to the highest levels of safety during construction and to reducing disruption to the public. Where practical and feasible, continued access to and use of the PRoW will be facilitated in order to minimise the number of diversions and temporary closures required. Where this is not feasible, the PRoW will either be temporarily diverted, or if the route cannot be diverted, temporarily closed. Details of proposed diversions will be included in the application for the DCO application.

3.1.2 All temporary diversions of PRoW will be designed in keeping with the character and condition of the existing PRoW prior to works commencing, in consultation with the PRoW officers. PRoW will be reinstated as soon as practicable after completion of the construction works.

3.2 Management of Diversions and Closures

3.2.1 The Main Works Contractor(s) will discuss the proposed temporary diversions with the relevant LHA PRoW Officers and apply for temporary closures where relevant. The following guidelines will be adhered to and suitable diversion routes will be identified and approved prior to the commencement of the work. The length of these and the time they are required for will be minimised and they will, as far as is reasonably practicable, be maintained to a comparable standard of those they replace.

3.2.2 In accordance with good practice measure S02 in Appendix 4.1 Draft Outline CoCP, in Volume III of the PEIR, the Main Works Contractor(s) will discuss the proposed temporary closures and diversions with the relevant LHA PRoW Officers and apply for temporary closures and diversions where relevant. Examples of the forms of intervention that are likely to be implemented by the Main Works Contractor(s) are set out in Table 3.1.

Table 3.1 – Forms of PRoW Interventions

Where/When intervention required	Potential intervention measure
PRoW crosses a temporary haul road	Where a PRoW crosses a haul road, a system of signs warning users of the associated dangers will be provided on approach to the crossing. A variety of localised measures will be considered on a case-by-case basis where PRoW are crossed by the haul road. The haul road itself will be signed with warnings for construction vehicles identifying the PRoW crossing and the potential for pedestrians. Speeds on the haul road are limited to 20mph, and may be reduced in the vicinity of PRoW, with signs instructing drivers to slow down on approach to crossing points.

	Where there is no option for maintaining access (via crossing the haul road), the PRoW may need to be diverted. Any diverted section will be maintained to a comparable standard of that which it replaces. A system of signs will provide users with an early indication that the PRoW has been diverted. It may be necessary to adopt active management measures for PRoW users, by Main Works Contractors(s) staff patrolling key overhead line crossing points. In these instances, PRoW users may have to wait for a short period, whilst the PRoW is in use by the construction team. Users would be advised when works are completed, and it is safe to cross the PRoW with Main Works Contractor(s) staff at the crossing point. In rare cases a temporary closure of the PRoW may be required. However, this is not proposed to be the default. This would be managed via a system of signs on the PRoW.
Construction of Site Access Points	Any PRoW which interfaces with a Site Access Point will be managed by the contractor undertaking the works. Access will be maintained where feasible. Where construction activities for the bellmouth result in the PRoW becoming inaccessible a temporary localised diversion will be provided.
When a haul road and PRoW share the same alignment	A safety fence would be erected along the entire length between the haul road and the PRoW, with a suitable separation if possible. Warning signs will be provided for drivers, instructing them to slow down in that area. Additional measures may be required on a case-by-case basis.
During periods of vegetation management	A timed closure could be facilitated during the vegetation clearance. When vegetation clearance is in progress the best option is to temporarily close the PRoW for the safety of the public.
Overhead Line Conductor Stringing	If the PRoW runs below the proposed overhead line, the safest option is to temporarily close it and divert the route, whilst overhead works are completed. The closure would be advertised in advance and a system of signs will provide users with an early indication that the PRoW has been diverted. If the PRoW cannot be diverted, protective scaffold netting may be erected across the PRoW to protect the public. The conductor stringing can then be completed over the protective scaffold netting.

	It is envisaged that some short-term temporary closures (approximately 15-30 minutes at a time) would be required while work takes place.
During construction activities, e.g., excavating soil and laying buried cables	The PRoW will need to be closed periodically for excavations activities which could include installation of the underground cables, drainage and utilities diversion. These closures will be kept as short as possible with the use of 'road plates' and other temporary measures.

3.3 Signage and Information

3.3.1 All locations where a PRoW is expected to be impacted by the Project would have appropriate signage, advising of the dates and hours the PRoW will be affected. The Main Works Contractor(s) would develop, in discussion with PRoW Officers, a standard form of signage relating to the management of PRoWs impacted across the Project.

- Local residents and businesses will be provided with details of the diversion route and dates/ durations in line with paragraph 3 of Schedule 15 to the 1981 Wildlife and Countryside Act. As far as practicable, this information will be provided a minimum of two weeks in advance of the diversion being brought into use although, exceptions will apply in the case of emergency works;
- All diversions will be constructed to recreate the current levels of accessibility provision as the existing route and where reasonably practicable will maintain compliance with the Rights of Way Circular (1/09); and
- Any required temporary diversions will be clearly marked at both ends with signage explaining the diversion, the duration of the diversion and a contact number for any concerns. The location of signs will be discussed with the relevant LHA before construction. Where applicable, maps showing temporary diversions and alternative PRoW will be provided at sites affected by the works.

3.3.2 Signs would be erected informing PRoW users of the presence of construction activities. Information signs detailing the works would be in place and provide contact details for the Project community relations team. The location of signs will also be discussed before construction. It is recognised that signage provided in advance may be helpful to avoid users having to turn back in certain locations The Main Works Contractor(s) would discuss with the respective local authorities whether additional signage outside the Order Limits will be appropriate to give users advanced information.

3.3.3 In addition, it is anticipated that local residents will be informed of impacts on the PRoW through regular newsletters distributed within a particular section of the route.

3.3.4 Details of the proposed management will be detailed in a further iteration of the PRoWMS, at DCO Submission.

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Appendix 5.1: National Grid's Response to the Scoping Opinion

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Appendix 5.1 – National Grid's Response to the Scoping Opinion

1.1 Introduction

1.1.1 This appendix sets out National Grid's response to the Scoping Opinion received from the Planning Inspectorate (2022) on behalf of the Secretary of State, following the submission of the Environmental Impact Assessment (EIA) Scoping Report (National Grid, 2022)[1].

1.2 Planning Inspectorate Scoping Opinion

1.2.1 National Grid submitted the Scoping Report for the Project to the Planning Inspectorate on the 7 November 2022. The Planning Inspectorate provided a Scoping Opinion on behalf of the Secretary of State on 14 December 2022. This included a number of items that National Grid is to consider when producing the Environmental Statement (ES) and the application for development consent.

1.2.2 Tables A5.1.1: General Items Raised in the Scoping Opinion and A5.1.2: Topic specific responses in relation to aspects proposed to be scoped out summarise the key points raised within the Scoping Opinion and how National Grid has or intends to address these points within the PEIR or the ES.

1.2.3 The EIA Scoping Report was written based on a broad corridor with no reference to a Project alignment, location of construction compounds or haul road(s). This has now been superseded within the PEIR, which presents the 2024 Preferred Draft Alignment (and specific proposed associated permanent and temporary works) for the Project. Therefore, some of the comments received within the Scoping Opinion related to the lack of specific project information. This has been acknowledged within National Grid's responses within the tables below.

[1] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020027/EN020027-000009-EAGN%20-%20Scoping%20Opinion.pdf.

Table A5.1.1 - General Items Raised in the Scoping Opinion

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
n/a	Project description	The Scoping Report presents a 'Scoping Report Corridor' within which elements of the Proposed Development would be located and has provided a high-level description of what the Proposed Development would comprise. At this stage the only specifically defined locations for works are at the existing Norwich Main, Tilbury and Bramford substations. This has limited the Inspectorate's ability to provide meaningful comments on the project description at this time. For the avoidance of doubt, the ES should provide a clear description of the physical characteristics of all elements of the Proposed Development (including any necessary removals/ diversions/ modification of existing National Grid infrastructure), so that the likely significant effects from their construction and operation can be ascertained. The Applicant should make effort to fix the siting of each component and reduce uncertainty; where this is not possible, the Applicant should ensure that the ES assesses a worst-case scenario adopting a parameters based approach.	Chapter 4: Project Description in Volume[2] I in the PEIR, accompanied by Figure 4.1: Proposed Project Design in Volume II presents the proposed permanent and temporary elements of the Project at this stage. These will be updated to reflect the final design within the ES.
Paras 4.4.2, 4.4.3 and 13.8.3 and Table 4.2	Pylons	The Scoping Report refers to the potential use of alternative pylon designs (T pylons/ low height steel lattice pylons) as an embedded design measure. The pylon designs should be confirmed in the ES and committed to through the draft DCO (dDCO). The ES should provide dimensions of the pylons to be constructed. This should include maximum heights and	Chapter 4: Project Description in Volume I assumes, based on the current design, that standard lattice pylons will be used, and details typical dimensions are provided within the chapter. Alternative pylon designs may be considered and identified following further assessment and consultation is

[2] Where 'Volume' is referred to throughout this PEIR it is referring to the associated PEIR – i.e. Volume I, II or III.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		widths of the steel work itself, along with details of the foundations that would be required at each pylon location. The Inspectorate acknowledges that some flexibility may be required for micro-siting of pylons but would expect the proposed locations to be identified within the ES along with any limits of deviation (LoD) required (both laterally and vertically, i.e. in terms of the depths of foundations). All surveys and assessments should be of sufficient spatial scale to incorporate any LoD for all permanent infrastructure.	undertaken – there is also further information within the Pylon Options Development Report (within Appendix B of the Design Development Report (National Grid, 2024) which accompanies the statutory cconsultation. The Project Description within the ES will confirm the pylon design proposed within the application for Development Consent. The draft Order Limits within the PEIR allow for LoD, as detailed within Chapter 4: Project Description in Volume I, which will be updated as necessary for the ES.
Paras 4.4.4, 4.4.10 and 4.5.31	Proposed landscape planting	Broad locations for proposed landscape planting are identified in the Scoping Report, including around the Cable Sealing End Compounds (CSECs) and at the new Tendring substation. The ES should confirm the locations and details of proposed landscape mitigation planting (including where this forms part of reinstatement proposals), with reference to accompanying plans.	Preliminary areas identified for additional mitigation and Biodiversity Net Gain (BNG (called 'Environmental Areas') have been identified through a desk-based review and habitat condition survey site visits and are presented on Figure 4.1: Proposed Project Design in Volume II. Following statutory consultation, these Environmental Areas will be developed to include proposed landscaping proposals which will confirm the locations and details of landscape mitigation planting. An Outline Landscape and Ecology Management Plan will also be submitted as part of the DCO application.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Paras 4.4.5 to 4.4.6	Underground cables	The ES should identify the number of underground cables to be laid within each trench and confirm the number of trenches required within the corridor. The Scoping Report states that the cables would be laid within a permanent swathe of approximately 65 m wide, potentially wider in some locations. It is not clear why the assessment corridor of 200 m to up to 500 m is therefore required. The corridor presented within the ES should reflect the temporary and permanent land take sought within the dDCO.	Current design information and parameters are defined within Chapter 4: Project Description in Volume I. This will be updated, as necessary and detailed within the Project Description within the ES, to clearly outline the proposed elements of the Project design. The assessment corridor of typically 200 m is to allow for sufficient space for trenchless crossing techniques to be adopted. Permanent and temporary land take required for the construction of the Project are presented on the Consultation Plans submitted with statutory consultation.
Paras 4.5.3 and 4.5.4	Site compounds	The ES should confirm the locations and sizes of the Main Works Compounds and satellite compounds and where possible, show detailed layouts. Descriptions of compounds should explain how the sustainability of such compounds has been optimised and any proposed mitigation measures implemented to avoid or minimise impacts relating to their use.	Current design information and parameters are defined within Chapter 4: Project Description in Volume I and within Figure 4.1: Proposed Project Design in Volume II. The ES will confirm locations and sizes of the temporary construction compounds and present typical layouts. Mitigation measures in relation to site compounds and how sustainability has been optimised will be recorded within the Outline CoCP submitted as part of the DCO application.
Para 4.5.7	Temporary crossings	The locations of temporary crossings e.g., over watercourses, streams and field ditches and the specific	The assessment within this PEIR includes consideration of known crossings. Further information and assessment will be included

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		crossing methodology for each location should be identified within the ES.	within the ES once locations and crossing details are confirmed.
Paras 4.5.11 and 4.5.23	Percussive piling	The Scoping Report states that percussive piling may be required at some pylon locations and would be confirmed following ground investigation. The ES should assess the foundation design to be used, or where this is still to be determined, a worst case scenario should be adopted to identify any likely significant effects.	Piling (which may include percussive) may be required at some pylon locations, subject to the ground conditions. This would be confirmed through a programme of ground investigations which would in turn inform the foundation designs. Further details on the need for piling and specific locations would be set out within Chapter 4: Project Description within the ES.
Paras 4.5.23 and 8.8.1	Trenchless installation	The location of any trenchless crossings should be identified within the ES. Where trenchless installation is relied upon to mitigate potential significant effects (for example, crossing the River Stour), the Applicant should ensure this construction method is demonstrably secured.	Current design information and parameters are defined within Chapter 4: Project Description in Volume I. Further details regarding the trenchless crossing of the River Stour will be included within the ES, as current ground investigations are currently ongoing which would influence the design. Where construction methods are required to avoid significant effects, this will be secured in the dDCO.
Para 8.9.15	24 hour working	The Scoping Report indicates the potential for 24-hour working. The locations and types of such activities should be identified and any likely significant effects from these works assessed within the ES.	Current proposed working hours are detailed within Chapter 4: Project Description in Volume I. Further detail of proposed 24 hour working will be outlined and included within the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Para 12.8.2 and Initial Outline Code of Construction Practice (CoCP)	Depth of trenchless crossings	The Scoping Report and Initial Outline CoCP indicate that a minimum depth of 1m below the hard bed level of the river is currently proposed for trenchless crossings of main rivers. The ES should provide a justification for this depth, and the Applicant is directed to the Environment Agency's scoping consultation response which notes that the conditions of a Flood Risk Activity Permit may require a deeper target depth of the trenchless crossing. The ES should also provide information as to whether this 1m depth is to be assumed for all trenchless crossings (as other waterbodies are not referenced), and the data sources used to determine the riverbed depth.	Further information with regard to proposals for trenchless crossings will be included within Chapter 4: Project Description within the ES following the completion of ground investigations. Following completion of ground investigations (and prior to submission of the ES) engagement with the Environment Agency will also be undertaken.
n/a	Heights of structures	The ES should state whether the heights of structures are above Ordnance Datum (AOD), or above ground level. Terminology should be consistent throughout the ES and should correspond with any heights detailed within the dDCO.	The ES will state (where relevant) whether the heights of structures are above AOD. Terminology will be consistent throughout the ES and will correspond with any heights detailed within the dDCO.
n/a	Road levels	Proposed finished levels of any permanent access roads AOD should be identified within the ES (along with any necessary LoDs).	Details will be incorporated within Chapter 4: Project Description within the ES once the final design is determined.
n/a	Employment	The ES should set out the expected number and nature of employment opportunities during each phase of the Proposed Development. This should be described in the context of the workforce availability in the area at a time when numerous other major projects are anticipated to be constructed. The ES should detail how any mismatch between supply and demand will be addressed and consider the origins of its workforce in all relevant aspect assessments (notably socio economics and traffic and	Chapter 15: Socio-economics, Recreation and Tourism in Volume I reports the preliminary likely effects on the local economy and employment as a result of the construction of the Project based on the preliminary construction worker numbers. This will be updated within the ES to reflect the final design and construction programme.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		transport). All assumptions made in this regard should be set out in the ES.	
n/a	Vehicle movements	The ES should detail the number of anticipated vehicle movements during all phases of the Proposed Development (including diverted traffic) and explain the assumptions upon which these have been established	Trip generation numbers are reflected within the preliminary assessment within the PEIR – within Chapter 7: Air Quality, Chapter 14: Noise and Vibration and Chapter 16: Traffic and Transport in Volume I. Trip numbers will also be reflected with the ES and also within the Transport Assessment and Outline Construction Traffic Management Plan (CTMP) once the final design is determined.
Paras 5.7.14 to 5.7.15 and 18.2.2	Impacts from decommissioning	The Scoping Report anticipates that the transmission of electricity would continue for as long as there is a business case for doing so and states that decommissioning would be subject to separate consenting procedures. The Inspectorate agrees that decommissioning can be scoped out of the ES on that basis that a high-level summary of potential effects for each environmental topic would be included in an appendix to the Project Description chapter within the ES. The Inspectorate expects this to include a description of likely methods for decommissioning.	Current design information and parameters are defined within Chapter 4: Project Description and an outline of decommissioning activities is also presented in Chapter 4: Project Description in Volume I, a high level summary of environmental effects will be presented within the ES.
Image 1.1 and Section 1.3	Geographical context	The ES should clearly identify the locations of existing, as well as proposed, pylons along the proposed route, in order to aid understanding of the relationship between existing and proposed infrastructure.	Figure 4.1: Proposed Project Design in Volume II identifies the locations of existing, as well as proposed pylons within the draft Order Limits. This will be updated to reflect the design presented in the DCO application within the ES.
Section 3	Alternatives	The description of reasonable alternatives in the ES should include a comparison of environmental effects. It should	Details of the main alternatives considered to date are included in Chapter 3: Main

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		include the specific locations considered for the change from overhead line (OHL) to underground cables, particularly in terms of impacts on the setting of the Dedham Vale Area of Outstanding Natural Beauty (AONB)[3] and on archaeological remains. Explanations should be provided for the rejection of offshore solutions, the extent of the OHL and underground sections and the locations of the substations and CSECs.	Alternatives Considered in Volume I. This will be updated based on the design presented in the DCO application within the ES and will also include a comparison of environmental effects between options.
Para 5.1.2	Significance of effect	The ES should explain why some assessments, such as the cumulative effects assessment, will use a different approach to conclude on the significance of effects from the remainder of the ES. The assessment methodology should be clearly described.	All topic chapters (Chapters 6 – 17) in Volume I in the PEIR and the ES outline and will outline the assessment methodologies followed, along with reference to relevant guidance tools used to inform the assessment.
Para 5.2.5	Duration of effects	Paragraph 5.2.5 of the Scoping Report states that the assessment methodology will assume short term effects would be those during construction plus one-year reinstatement, unless otherwise stated in aspect specific methodology. The Inspectorate considers that care should be taken when considering the duration of effects to avoid the potential downplaying of the significance of effects. For example, construction noise impacts on receptors for a five year duration is unlikely to be perceived as short term by those affected. In this regard, the Inspectorate welcomes the intention for the ecological assessment to ascribe short term impacts as being those up to 1 year in duration (paragraph 8.10.19 of the Scoping Report).	Noted.

[3] Now known as National Landscapes

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Para 5.2.6 and Table 8.5	Duration of effects	The Scoping Report proposes to assess effects during the phase within which the impact arises. The Scoping Report acknowledges there would be some permanent habitat loss at the new substation, cable sealing end compounds and pylon bases. The Applicant should ensure that assessing such impacts solely during the construction phase does not underplay the potential duration and consequently, the significance of effect. For example, in terms of effects from vegetation loss, the ES should differentiate between that to be lost temporarily (i.e. to be reinstated) and that to be permanently lost	The PEIR and ES ensures / will ensure that the duration of the construction effects are adequately covered within the assessment of effects.
Table 5.1	Significance matrix	The Inspectorate notes that for a number of aspect chapters, the same terminology has been applied for the levels of impact magnitude as for the levels of significance in Table 14.9 (i.e., major, moderate, minor and negligible). The Applicant is advised to take caution with this approach to avoid confusion for readers.	Noted – Care will be taken when reporting on the levels of impact and the levels of significance within the ES to ensure it is clear what the terminology refers to.
Appendix D	Transboundary impacts	Appendix D of the Scoping Report concludes that the Proposed Development would not have a significant effect either alone or cumulatively on the environment in a European Economic Area State. Following the adoption of this Scoping Opinion, the Inspectorate will undertake a transboundary screening, on behalf of the Secretary of State, under Regulation 32 of the 2017 EIA Regulations. The Secretary of State's duty under Regulation 32 continues throughout the application process.	Noted.
Major Accidents and Disasters			

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Paras 5.7.1 to 5.7.4	National Grid Standards and a "comprehensive risk management framework"	There are references within this section of the Scoping Report to adherence to relevant National Grid Standards and a "comprehensive risk management framework" to minimise risk of accidents. The description of the Proposed Development in the ES should describe any standards/ measures which are relied upon to exclude likely significant effects and explain how they would be secured and implemented as part of the DCO.	Relevant standards / measures will be referenced within Chapter 4: Project Description of the ES.
Ecology and Biodiversity			
Table 8.5	Zone of Influence (ZoI)	Table 8.5 provides a defined ZoI for habitat loss and air quality changes only. ZoIs should be defined and explained within the ES for all potential impact pathways (e.g., disturbance) and supported by figures where possible.	Relevant ZoIs are included within topic chapters in Volume I of the PEIR. This information will also be incorporated within the ES following the collection of all baseline data.
Paras 8.9.10 to 8.9.11 and Table 8.9	Habitat loss and fragmentation - construction	The Inspectorate notes the Applicant's intention to reinstate habitats as far as possible, however the ES should confirm if there are any habitats along the underground cable route that cannot be reinstated due to operational requirements. The Inspectorate further notes that paragraph 8.9.11 scopes in impacts from habitat fragmentation at the underground cable sections for 'relevant biodiversity receptors'. Table 8.9 states that negative impacts to foraging/ commuting bats from habitat removal are not expected to be significant, however also indicates that all impacts on bats are scoped in. For the avoidance of doubt, the Inspectorate considers this matter should be scoped in for bats.	Noted - proposed areas of vegetation loss will be clearly marked within the ES. Habitat loss and fragmentation during construction will be scoped in for bats.
Para 8.9.13	Habitat fragmentation or	The Scoping Report has not stated whether habitat fragmentation or severance during operation would be	Noted - habitat fragmentation/severance during operation (and maintenance) will be

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
	severance - operation	assessed. The Inspectorate considers that any likely significant effects from the OHL sections should be assessed.	assessed within the ES and a preliminary assessment is presented in the PEIR.
Table 8.6 and para 8.10.9	Survey areas and timings	The ES should confirm what the 'immediately adjacent habitat' comprises for the proposed preliminary assessment field survey and habitat survey. The ES should also explain how the 'targeted locations' for habitats and species surveys have been determined. Efforts should be made to agree these locations with relevant consultation bodies.	Noted - specific survey areas are detailed within Chapter 8: Ecology and Biodiversity in Volume I, and the relevant species report (Appendices 8.1 – 8.11 in Volume III). Consultation with relevant bodies to agree methodologies is included within Section 8.4 of Chapter 8: Ecology and Biodiversity in Volume I. Further consultation is ongoing and will continue to be undertaken to agree survey scopes and methodologies. Full details will be presented in the ES.
Figure 8.3	Legend	The Legend to Figure 8.3 includes "No main habitat but additional habitats present". The ES should explain what is meant by this statement.	"No main habitat but additional habitats present" is a specific category within the Natural England spatial dataset, that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance. Habitat survey results completed to date are included within Appendix 8.1: Habitat Report in Volume III. Further information from subsequent surveys will be provided within the ES.
n/a	Horizontal Directional Drilling (HDD) breakout	Any likely significant effects from HDD breakout on river habitat and downstream designated sites should be assessed.	Noted. At this stage the Project is still considering trenchless crossing techniques (including HDD).

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
			Where relevant, a review of trenchless crossing locations and potential breakout impacts on riverine habitat will be reviewed and included within the ES.
n/a	Priority species	Table 8.7 notes that species or habitats listed in accordance with the requirements of Section 41 of the NERC Act 2006 would be ascribed 'medium' or 'low' value; it is not clear why they have been assigned two separate values. No priority species have been identified within the Scoping Report, nor is there a commitment to identify them. These should be identified within the ES and any likely significant effect on them assessed.	Appendix 8.10: Species of Principal Importance of Volume III has been produced to support the PEIR. An assessment of effects will be included within the ES assigning individual values to priority species and habitats following the completion of the baseline.
n/a	Nature Recovery Network project	The ES should assess any impacts from the Proposed Development on the Nature Recovery Network project which aims to create a habitat corridor along the Waveney and Little Ouse to the west of Diss (as identified by NE in its consultation response).	Noted. This has been considered as part of the PEIR – in particular the Waveney and Little Ouse Landscape Recovery Project. This will continue to be considered as part of the Project.
n/a	Confidential Annexes	Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex. All other assessment information should be included in an ES chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request.	Noted. Confidential data will remain confidential.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Geology and Hydrogeology (now Contaminated Land, Geology and Hydrogeology)			
Para 9.2.5	Guidance to be used	The Inspectorate considers that the ES and any accompanying ground investigation information should additionally be informed by BS5930: Code of practice for ground investigations.	Noted – the ES and all ground investigation works conducted on the Project will be in accordance with BS5930.
Table 9.1 and Para 9.9.11	Site specific dewatering assessments - construction	In respect of dewatering, paragraph 9.9.11 of the Scoping Report proposes that significant effects are unlikely to occur where certain criteria are met. The Environment Agency scoping consultation response indicates that these are not recognised criteria. The Applicant should seek to agree criteria with the Environment Agency in order to determine where further assessment is required.	Discussions regarding the proposed methodology have been held with the Environment Agency who noted that this is a reasonable approach during pre-scoping discussions, however further discussions will be held with the Environment Agency to agree suitable criteria. This methodology will be presented in the ES.
Figure 9.4 (with reference to paras 9.6.18 to 9.6.21)	Mineral resources	The information presented on Figure 9.4 is inconsistent with that detailed in paragraphs 9.6.18 to 9.6.21, as follows: 1. Paragraph 9.6.18 states that the Scoping Report Corridor passes through multiple Mineral Safeguarded Areas for sand and gravel, which are not shown on Figure 9.4; and 2. Paragraph 9.6.19 states that there is no safeguarded mineral infrastructure or allocated sites, however page 1 of Figure 9.4 shows an entry for an adopted site at the northern extent of the Scoping Report Corridor. Figure 9.4 shows Mineral Consultation Areas and waste sites in Essex, however there is no equivalent data represented for Norfolk and Suffolk.	Baseline information has been obtained from relevant Local Planning Authorities and presented on Figure 9.3: Mineral Safeguarded Areas, Mineral Consultation Areas and Minerals Infrastructure in Volume II. This has informed the Minerals Resource Assessment detailed within Appendix 9.2 Preliminary Minerals Resource Assessment in Volume III. This will be updated to support the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Paras 9.6.26 to 9.6.28	Source Protection Zones (SPZ1)	The Scoping Report Corridor crosses several areas designated as a SPZ1. Where it is not possible to avoid such areas, the ES should detail any protective and emergency measures that would be required to safeguard drinking water supplies and agree these with the relevant local water company, where possible.	Chapter 9: Contaminated Land, Geology and Hydrogeology in Volume I identifies that the draft Order Limits cross through a groundwater SPZ1, which is a very high sensitivity receptor, and that the study area also crosses a number of different SPZ1. A groundwater risk assessment will be presented as part of the ES which will inform any additional assessment and mitigation measures required to ensure that significant effects to sensitive groundwater receptors are unlikely. This will include identifying areas where further targeted Hydrogeological Risk Assessment will be required (post DCO) to assess the specific risks to groundwater and groundwater receptors at those locations and identify any additional mitigation or remediation that may be required (in accordance with commitment GH11 in Appendix 4.1: Draft Outline CoCP in Volume III). The nature and scope of any mitigation or remediation will be agreed with the Environment Agency or other stakeholders, as appropriate.
Para 9.10.5	Assessment methodology	The Inspectorate notes that a Tier 0 assessment will be undertaken as a first stage screening and that "where a very low or low risk rating is assessed, these areas will not be taken forward for further assessment in the ES on the basis they have a low likelihood of significant effects". The Inspectorate considers that the standard Land Contamination Risk Management approach should be	Discussion regarding the proposed methodology including a tiered risk-based approach for contaminated land assessment have been held with the Environment Agency who noted that this is a reasonable approach. This methodology is utilised

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		adopted unless otherwise agreed with relevant consultation bodies, such as the Environment Agency.	within the PEIR and will be carried forward into the ES.
n/a	Water Framework Directive (WFD) Assessment	Paragraph 12.10.5 of the Scoping Report indicates that a WFD Assessment will be provided. For clarity, the WFD assessment (and therefore the ES) should include relevant receptors for both hydrology and hydrogeology, including groundwater bodies (as listed on the Environment Agency Catchment Data Explorer). The WFD status of groundwater bodies is also relevant to the assessment of Groundwater Dependent Terrestrial Ecosystems within the Ecology chapter.	A WFD assessment is currently being prepared in consultation with the Environment Agency. The WFD assessment will include groundwater bodies and potential impacts and effects on the qualitative and quantitative status of these.
Health and Wellbeing			
n/a	Impacts on transport links to healthcare facilities - construction	The ES should assess impacts on transport routes to and between healthcare facilities, where significant effects are likely. This should consider access by the public users of such facilities, as well as by the healthcare providers themselves. Appropriate cross reference should be made to the Traffic and Transport chapter of the ES.	Chapter 10: Health and Wellbeing in Volume I summarises the findings from Chapter 16: Traffic and Transport in Volume I. The ES chapter will provide a further update of the findings of Chapter 16: Traffic and Transport which will identify impacts on transport routes, both in terms of staff/workers/providers and users of healthcare facilities.
Historic Environment			
Para 11.1.2	Interrelationships	Paragraph 11.1.2 identifies interrelationships with other Scoping Report Chapters including Chapter 9 (Geology and Hydrogeology) and Chapter 12 (Hydrology and Land Drainage). However, neither Chapter 9 or 12 (paragraphs 9.1.2 and 12.1.2 respectively) identify interrelationships with Chapter 11 (Historic Environment). Clear cross-referencing	Noted - the PEIR and ES identify and will identify consistent interrelationships between environmental topic chapters.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		and explanation should be provided between interrelated chapters in the ES. In addition to the chapters listed in paragraph 11.1.2, the Inspectorate considers that there would also be a relationship with the Traffic and Transport Chapter, for example in terms of impacts on protected lanes.	
Sections 11.6 and 11.10	Non-designated heritage assets	The Applicant's attention is drawn to consultation responses from the local planning authorities (Appendix 2) including Chelmsford City Council and Essex County Council which highlight additional sources for obtaining data on non-designated heritage assets. The Applicant should make effort to discuss and agree relevant non-designated heritage assets for assessment and the detailed assessment methodology with relevant local planning authorities.	Consultation with relevant consultation bodies to date is included within Section 11.4 (see Chapter 11: Historic Environment in Volume I). Further consultation is ongoing/shall occur to determine survey scopes and methodologies and full details shall be incorporated within the ES.
Sections 11.9 and 11.10	Construction impacts	The temporary haul road/s should be included within the Geophysical Survey proposed in paragraph 11.10.22 of the Scoping Report. Impacts on designated and non-designated heritage assets from the temporary haul road/s should be assessed where significant effects are likely.	Impacts arising from the temporary haul roads will be assessed in the ES which will be informed by Geophysical Surveys. All completed archaeological survey work will be presented in the ES.
Para 11.9.6	Physical impacts on archaeological remains	Impacts on archaeological remains from the movement of contaminants or pollutants should be assessed where significant effects are likely.	Impacts on archaeological remains from the movement of contaminants or pollutants will be assessed where significant effects are likely in the ES.
Para 11.9.6	Physical impacts on archaeological remains	Impacts on archaeological remains from permanent changes to groundwater flows and levels as a result of the underground cabling should be assessed where significant effects are likely.	The assessment within Chapter 12: Hydrology and Land Drainage will be used to inform the assessment of effects on archaeological remains, including if there is any potential for impacts arising from

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
			permanent changes to groundwater flows and levels. Where relevant this is presented in the PEIR and will be further updated within the ES.
Section 11.10	Assessment methodology – historic landscapes	The ES should describe the methodology for assessment of impacts on historic landscapes (with reference to relevant guidance) as this has not been specifically and separately addressed in Section 11.10 of the Scoping Report.	The proposed methodology has been agreed with stakeholders, as detailed within Section 11.4 (see Chapter 11: Historic Environment in Volume I).
Paras 11.10.7 and 11.10.29	Intrusive archaeological surveys	The Scoping Report states that intrusive fieldwork would be undertaken "at the earliest available time". Where necessary intrusive investigations and trial trenching should be completed prior to submission of the DCO application. The Applicant should make effort to discuss and agree the timing, scope and methodology for intrusive investigations and trial trenching with relevant consultation bodies.	Consultation with relevant consultation bodies to date is included within Section 11.4 (see Chapter 11: Historic Environment in Volume I). During a Thematic Meeting on 13/09/23, the timing of fieldwork was discussed. Consultation with heritage advisors to the local planning authorities on this subject is ongoing. Archaeological fieldwork, in the form of geophysical survey and trial trenching, will commence in late 2023/early 2024 to inform the ES. However, it is likely works will continue post submission due to the scale of the Project. This has been discussed with the archaeological advisors to the LPAs and will continue as the Project develops.
Hydrology and Drainage			
Para 12.9.3	Water quality - construction	An assessment of the potential for effects on ground water quality from disturbance and mobilisation of existing contamination has been scoped in (paragraph 9.9.6 of the Scoping Report). The Inspectorate considers the same	Appendix 4.1: Draft Outline CoCP in Volume III contains details of commitments to avoid significant effects on the water quality of surface waters during construction. This will

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		potential impact on surface water should be assessed within the ES, where significant effects are likely.	be updated to support the ES. Where significant effects are likely from mobilisation of contamination on surface water this will be assessed in the ES.
Para 12.9.9	Flood risk – construction phase	The Scoping Report proposes to assess construction phase flood risk from rivers and the sea only. The ES should confirm the risk from all sources of flooding (fluvial/ tidal, pluvial, groundwater, sewer and reservoir flooding) and assess any source where significant effects are likely.	Appendix 12.2: FRA Screening Report in Volume III reviews all sources of flood risk within the study area. The screening report provides justification for which sources pose a low risk and which sources require more detailed assessment. The Project would include a general commitment to reinstate drainage systems at the end of construction to minimise residual effects.
n/a	Agricultural drainage - construction	The ES should include an assessment of any likely significant effects on retained existing agricultural drainage or the removal of this as a result of the construction of the Proposed Development.	Consultation with affected landowners will be carried out to investigate the current extent of land drainage. A scheme of pre-construction land drainage will be designed with the intent of maintaining the efficiency of the existing land drainage system and to assist in maintaining the integrity of the working area during construction.
n/a	Tilbury Flood Storage Area	The ES should include an assessment of any likely significant effects on Tilbury Flood Storage Area, should the final route fall into the area, with reference to the Environment Agency's Thames Estuary 2100 Plan.	Appendix 12.2: FRA Screening Report in Volume III reviews all sources of flood risk within the study area. The screening report provides justification for which sources pose a low risk and which sources require more detailed assessment. This report has been issued to the Environment Agency ahead of statutory consultation and feedback will be

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
			incorporated in the final FRA. The FRA, which will be prepared alongside the ES will include an assessment of effects on the Tilbury Flood Storage Area (FSA), should any aspect of construction or operational infrastructure be located in the area. The FRA, if required, will contain details of how the Project will ensure that there is no detriment to the integrity or functioning of the FSA.
n/a	Agricultural boreholes	Any likely significant effects on boreholes used for agricultural irrigation systems should be assessed.	Noted - this will be assessed as part of the Agriculture and Soils and Contaminated Land / Geology / Hydrogeology assessments within the ES where information is available from discussion between landowners and National Grid, and from data requests issued to Local Planning Authorities and the Environment Agency.
Landscape and Visual			
Para 13.8.6	Mitigation	The ES should demonstrate that the choice of mitigation measures for the purposes of reducing landscape and visual impacts is appropriate to the prevailing landscape character. For example, tree belt screening planting may not be appropriate in open landscapes.	Section 13.7: Embedded, Standard and Additional Mitigation Measures within Chapter 13: Landscape and Visual in Volume I outlines the approach to mitigation currently incorporated within the design. Further detail will be included within the ES in response to the iterative design and assessment process.
Appendix I	LVIA methodology	Sequential effects are mentioned in a broad context in Appendix I of the Scoping Report (LVIA Methodology), but	Assessment of sequential effects will be addressed in the ES. This will focus on

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		there is no specific reference to any assessment methodology for this matter. Given the scale and repetitive nature of the Proposed Development, combined with varying visibility of pylons, this is likely to be an important matter for users of Public Rights of Way (PRoW) networks and should be addressed in the ES.	sequential effects on recreational users and will be related to users of promoted long distance trails such as the Angles Way, Middy Railway Footpath, Mid Suffolk Way, Gipping Valley River Path, Stour Valley Path, St Edmund Way, Essex Way, Saffron Trail, Centenary Circle, St Peter's Way and also National Cycle routes and the Painters Trail (a promoted cycle route connected to Dedham Vale National Landscape (an AONB)). Preliminary assessment is included within Chapter 13: Landscape and Visual in Volume I.
Appendix J	Arboricultural Impact Assessment AIA) (to be appended to the ES LVIA Chapter)	The Inspectorate acknowledges that some flexibility may be required for micro-siting of pylons but would expect the ES to provide clarity on the maximum extent of tree loss and demonstration that the design of the Proposed Development has sought to avoid or minimise loss of high grade trees.	Chapter 4: Project Description in Volume I outlines the proposed general vegetation clearance requirements for the Project. An AIA will be produced to support the ES.
Appendix J	Arboricultural Impact Assessment	The ES should identify any limitations to the assessment approach and explain how these have been addressed. For example, the use of LIDAR data for initial gathering of information may not detect the presence of low hedges or tree or hedge features that have recently been managed through coppicing or hedge laying at the time that the LIDAR data was captured.	The AIA, produced to support the ES, will identify any limitations identified. Surveys of trees and hedgerows to be impacted by the Project are ongoing. The complete surveys will inform the baseline of the ES.
Appendix J	Arboricultural Impact Assessment	**Norfolk County Council** It is accepted that a pragmatic approach needs to be taken to data collection and the authority agree to limiting the	Noted - With regards to C grade arboricultural features. Recording of individual stem measurements is not being

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		collection of all tree data (as per BS 5837) to only Cat A and B trees. Adapting the Root Protection Area (RPA) to suit likely root morphology is acceptable (e.g. adjacent to roads, ploughed fields, streams etc). Category C trees may have a rooting area greater than 5m diameter. It is not considered overly onerous for an assessment to be made during the walkover survey when the tree / woodland categorisation is made, to determine an appropriate RPA for Cat C trees. If this is not carried out consent may be granted to development that harms trees suitable for retention. This would be particularly problematic for trees that are not in the developer's ownership.	undertaken for C grade features, however an arbitrary buffer zones of 3m will be applied to outer extent of canopy spread. This will be detailed within the AIA submitted as an appendix to the ES.
Appendix J	Arboricultural Impact Assessment	**Chelmsford City Council.** The impact upon arboriculture will need to be considered as part of the ES and an Arboricultural Impact Assessment and Arboricultural Method Statement should be scoped into the ES to enable further consideration of the construction implications on trees.	An AIA will be presented and an appendix in the ES. The AIA will report on impacts on trees. The AIA will include principles for tree protection.
Socio-economics			
Section 15.3	Study area	The study area should not be limited to solely the local authority spatial areas through which the Order Limits would pass; it should take into account the workforce profile and supply chain area (see ID 2.1.13 of this Opinion for the Inspectorate's comments in this regard) and be informed by the ZoI of other aspect assessments (e.g., landscape and visual, traffic and transport). The Applicant should seek to agree the study area with the relevant local authorities.	The study area presented in the PEIR and ES have been agreed through Thematic Group meetings with relevant stakeholders, as detailed in Section 15.5 within Chapter 15: Socio-economics, Recreation and Tourism in Volume I. This identified 'local' and 'wider' study areas.
Section 15.8	Economy and employment	Consideration should be given to the availability and origin of the workforce in the context of the numerous projects	The study area for construction workforce effects comprises the wider study area

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		proposed in the region. Any assumptions around workforce origins within the socioeconomic assessment should be used to inform the study area and also be reflected in the assessment of transport impacts.	(spatial extent of the local authority areas through which the draft Order Limits pass, Norwich City Council, West Suffolk Council and Ipswich Borough Council), as agreed with stakeholders.
Para 15.8.6	Planning and development	Areas with planning permission and site allocations should be mapped on figures within the ES to aid understanding of the effects of the Proposed Development on planning and development. Any likely significant effects on the delivery of housing should be assessed within the ES.	Figure 17.2: Cumulative Effects Short List of Proposed Developments in Volume II presents planning applications and site allocations relevant to the cumulative assessment. An assessment of effects on development land is also provided in Chapter 15: Socio-economics, Recreation and Tourism.
Paras 15.9.4 to 15.9.5	Assessing significance	The Inspectorate is content that a qualitative approach can be applied. However, the Inspectorate expects some qualification of terms (e.g., 'small in scale' and 'large number of people'). The assessment methodology should be clearly described within the ES.	Qualification of terms (e.g., minor, moderate, major) will be provided, along with methodologies for assessment within the ES.
Table 15.9	Potential disruption to future and existing businesses – construction	Table 15.9 states that "Businesses reasonably likely to be affected by a Project of this type would be scoped into the ES". The ES should detail the criteria used to identify businesses likely to be affected and the Applicant should seek to agree these with relevant local authorities.	Chapter 15: Socio-economics, Tourism and Recreation in Volume I assesses the preliminary likely effects on business during construction. Further assessment will be included within the ES.
Table 15.9	Tourism and recreation – operation (inc. maintenance)	The Inspectorate is content that a proportionate approach be undertaken whereby the assessment focuses on areas where there is potential for significant effects, rather than assessing all PRoW and tourism and recreation assets within the Study Area. However, at present there is	Engagement is ongoing with the PRoW officers at the Local Planning Authorities. However, the ES will outline the proposed criteria and assessment methodology used

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		insufficient information provided as to where this focus would be. The ES should explain the criteria used to determine where to focus the assessment. The selection of PRoW for further assessment should be agreed with relevant local authorities where possible.	to assess effects on PRoW as a result of the Project.
n/a	Airfields	Any likely significant effects on users of airfields should be assessed within the ES.	National Grid has consulted with the Civil Aviation Authority, Ministry of Defence and the airfield operators to assess potential effects on operations, and to understand and mitigate appropriately.
Traffic and Transport			
Para 5.7.9	Impacts from management of waste	Paragraph 5.7.9 of the Scoping Report states that transport effects from the management of waste would be considered within ES Chapter 16: Traffic and Transport, although this is not mentioned in Scoping Report Chapter 16. For the avoidance of doubt, this matter should be addressed within ES Chapter 16: Traffic and Transport.	Trip generation resulting from the management of waste is embedded in the calculations used to determine sensitive areas in Chapter 16: Traffic and Transport in Volume I. Further updates will be provided in the ES.
Para 16.3.1	Thresholds used to determine construction phase Study Area	The Scoping Report adopts construction stage traffic assessment thresholds consistent with the Guidelines for Environmental Assessment of Road Traffic 1993. The Applicant should seek to agree the relevant 'sensitive areas' that inform the 10% increase criteria with the relevant local highways authorities.	Noted. 'Sensitive areas' along the vehicle construction route that inform the 10% increase criteria have been agreed with the relevant local highways authorities and details are provided in Chapter 16: Traffic and Transport in Volume I. The ES will provide updated details.
Para 16.7.2	Additional traffic flow data	The Applicant should seek to agree the locations where additional traffic flow data is required using Automatic Traffic Counts and Manual Classified Counts with relevant local highways authorities.	Noted. Additional traffic count data has been identified and details are included within Chapter 16: Traffic and Transport in Volume I. Where changes are made to the alignment

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
			/ Preliminary Construction Routes following statutory consultation additional ATCs may be needed. Details will be provided in the ES.
Para 16.7.13	Abnormal Indivisible Loads (AIL) - construction	Where AILs are required during the construction of the Proposed Development, their associated effects should be assessed in the ES. The assessment should consider impacts on bridges, culverts and Strategic Road Network (SRN) junctions, as well as potential cumulative effects on the road network with other committed developments.	The need for AILs will be outlined within the Outline CTMP (submitted with the DCO application). The Outline CTMP will identify preferred routes avoiding constraints (unless suitable mitigation can be provided). The assessment of these routes will be included within the ES together with cumulative effects. A Draft Outline CTMP is available as a statutory consultation document.
Para 16.10.5	Construction traffic assessment of potential effects - engineering estimates	Rationale should be provided for any estimates made within the assessment of potential effects in respect of the quantity of plant, equipment, materials to be brought on to site and excavated material be removed from site.	Rationale used to generate estimated flows/vehicle types required during Project phases will be provided within the ES.
n/a	Access to Norwich Main substation	Norfolk County Council has highlighted that the Sheringham Shoal Extension Project and Dudgeon Extension Project seeks to utilise the same access arrangements to Norwich Main substation. The ES should explain how these projects will overlap and identify any necessary measures to mitigate potential effects. Any likely significant cumulative effects should be assessed.	Other development is identified within Chapter 17: Cumulative Effects in Volume I. This will be updated within the ES and mitigation provided where required.
Cumulative Impacts			

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Paras 17.3.3 and 17.3.5 and Table 17.1	ZoI	The Scoping Report states that "The study area within which to search for other developments that have the potential to have cumulative effects with the Project is based on the ZOI for environmental effects." ZoIs have not been presented for each environmental aspect. In particular, transport and traffic is not identified in Table 17.1, however the Inspectorate considers construction traffic to be a potential source of cumulative effects. For the avoidance of doubt, the Inspectorate considers cumulative effects should be assessed for all aspects and that ZoIs should be clearly identified. A 5 km ZoI should be applied to consideration of cumulative LVIA effects to AONBs, unless cables are to be undergrounded, particular consideration should be given to cumulative effects with Bramford to Twinstead OHL.	Cumulative effects assessment within the PEIR have been considered in line with the ZoIs and study areas included within specific environmental topic chapters (including traffic and transport). This will also be incorporated into the ES.
n/a	Projects for inclusion	The Inspectorate appreciates that the projects for inclusion within the assessment are yet to be determined. Numerous consultation bodies have highlighted that the Proposed Development is one of a number of major projects proposed or recently consented in the region. Projects noted by consultation bodies include, but are not limited to: 1. A12 Chelmsford to A120 Widening Scheme; 2. Anglian Water Strategic Pipeline from Bexwell to Bury St.Edmunds; 3. Bramford to Twinstead OHL project; 4. Chelmsford Garden Community; 5. Dunton Hills Garden Village; 6. East Anglia One North Offshore Wind Farm; 7. East Anglia Two Offshore Wind Farm; 8. East Anglia Three Offshore Wind Farm; 9. EuroLink Project;	Chapter 17: Cumulative Effects in Volume I includes both the long and short list of cumulative developments considered in the PEIR and ES (including those provided by the Planning Inspectorate). However, the list will be updated prior to the cumulative effects assessment being undertaken within the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		10. Five Estuaries Offshore Wind Farm; 11. Longfield Solar Farm; 12. Lower Thames Crossing; 13. National Grid Bramford to Twinstead; 14. National Grid Tilbury – Gravesend tunnel upgrade; 15. Nautilus project; 16. North Falls Offshore Wind Farm; 17. North Thames Estuary & Marshes potential designation of an enlarged SSSI in the Tilbury area; 18. SeaLink project; 19. Sizewell C; 20. Sunnica solar farm; 21. Thames Freeport; 22. Thurrock Flexible Generation Plant; and 23. Tilbury 2 project. The Inspectorate expects the ES to consider these projects. In particular the effect of multiple developments impacting on PRoW and the quality of user experience through multiple permanent closures and or diversions should be addressed.	

Table A5.1.2: Topic specific responses in relation to aspects proposed to be scoped out

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Major Accidents and Disasters			
Paras 5.7.4 and 18.2.2	Major Accidents and Disasters	The Scoping Report states that individual aspect chapters would assess the likely risks (where relevant), including: 1. flood risk, within ES Chapter 12: Hydrology and Land Drainage and the Flood Risk Assessment (FRA); and 2. Unexploded Ordnance (UXO), historic ground contamination, landfill gases and asbestos, within ES Chapter 9: Geology and Hydrogeology and ES Chapter 12: Hydrology and Land Drainage. The Inspectorate considers that the potential for the Proposed Development to be vulnerable to or cause major accidents at crossings of watercourses and transport infrastructure, and at buried gas pipelines, should also be assessed in the relevant aspect chapters. On the basis of the above, the Inspectorate is content that a standalone ES chapter covering major accidents and disasters is not required. The EIA Approach and Method ES chapter should provide clear cross-referencing to where the likely risks are considered.	Noted, this will be within relevant ES chapters.
Material Assets and Waste			
Paras 5.7.9 and 18.2.2	Material assets (and waste)	The Scoping Report states that information regarding materials and waste would be included within the ES project description chapter and that individual aspect chapters would assess impacts from waste (where relevant), including: 1. transport effects from the management of waste arisings, within ES Chapter 16: Traffic and Transport.	Clear cross referencing is provided within Chapter 4: Project Description in Volume I and will be updated within the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		A draft Site Waste Management Plan (SWMP) is also proposed to be included within the DCO application. On this basis, the Inspectorate is content that a standalone ES chapter covering material assets (and waste) is not required. The EIA Approach and Methodology ES chapter should provide clear cross referencing to where the relevant impacts are considered.	
Climate			
Paras 5.7.11 to 5.7.13 and 18.2.2	Climate	The Scoping Report explains that OHLs are designed to withstand extreme weather conditions. It is proposed that vulnerability of the Proposed Development to climate change in terms of flood risk is considered in ES Chapter 12 (Hydrology and Land Drainage) and in the FRA. On this basis, the Inspectorate is content that no further assessment of the Proposed Development's vulnerability to climate change is required in the ES. The Scoping Report states that details of the likely construction materials and a "simple estimate" of the Green House Gas (GHG) emissions associated with construction of the Proposed Development would be included within the ES Project Description chapter, but there is no indication of how/ if the significance of effects would be determined. The ES should provide an assessment of GHG emissions during construction (and operation, where relevant) where significant effects are likely to occur. This should include embodied carbon emissions from materials required.	The ES will present an estimate of the GHG emissions associated with the construction of the Project together with a comparison against UK carbon budgets to determine significance.
Agriculture and Soils			

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Para 6.9.5	Maintenance or repair works required which would result in disturbance to soils – operation (inc. maintenance)	Given the nature of the operational phase of the Proposed Development and that maintenance of the project would be undertaken in accordance with best practice methods for soil handling, the Inspectorate agrees that significant effects are unlikely and that this matter can be scoped out. The ES should however identify the best practice methods relied upon to reach this conclusion.	Noted.
Para 6.9.6 and Table 6.5	Impact on soil ecosystem functions – operation (inc. maintenance)	The Scoping Report states that the majority of the land required for construction would be returned to its pre-construction land use (as agreed with the landowner) and that impacts on soil ecosystem functions are likely to be limited. The Inspectorate agrees that impacts on soil ecosystem functions during operation are unlikely to be significant and that this matter can be scoped out.	Noted.
Para 6.9.9 and Table 6.5	Impacts to agricultural operations - operation (inc. maintenance)	The Inspectorate agrees this matter can be scoped out on the basis that the ES confirms the amount of agricultural land to be permanently lost and explains why this is considered 'limited' and not likely to lead to significant effects. Reinstatement of land, and the proposed soil management and handling measures, should be clearly described in the ES and secured through the dDCO.	Noted. The amount of agricultural land to be permanently lost will be included within the ES. Initial calculations are provided within Chapter 6: Agriculture and Soils in Volume I.
Para 6.9.10 and Table 6.5	Economic effects on landowners and farmers - operation	The Applicant proposes to scope out the economic effects of the Proposed Development on individual landowners and farmers on the basis of compensation agreements that would be made outside of the EIA process. The Inspectorate agrees that significant effects are unlikely and is therefore content that this matter can be scoped out of further assessment.	Noted.
Para 6.9.11	Impacts from Electric and	The Inspectorate notes that paragraph 2.10.8 of National Policy Statement (NPS) EN-5 states that, in relation to	Noted.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
	Magnetic Fields (EMF) on land use - operation	EMFs, "there is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequence". The Scoping Report states that the Proposed Development would be designed in accordance with Government guidance and precautionary policies (and a compliance report will be submitted with the application for development consent). The Inspectorate agrees that this matter can be scoped out on this basis.	
Air Quality			
Para 6.9.5	Maintenance or repair works required which would result in disturbance to soils – operation (inc. maintenance)	Given the nature of the operational phase of the Proposed Development and that maintenance of the project would be undertaken in accordance with best practice methods for soil handling, the Inspectorate agrees that significant effects are unlikely and that this matter can be scoped out. The ES should however identify the best practice methods relied upon to reach this conclusion.	Noted.
Para 7.9.6 and Table 7.3	Construction generators	Limited information has been provided in the Scoping Report regarding the likely use of generators and other non-road mobile machinery. Specifically, no information has been provided as to the type, number, location or operational hours of such machinery and likely emissions other than brief references within the Initial Outline CoCP to plant being switched off when not in use and being located away from sensitive receptors "where practicable". On this basis the Inspectorate is unable to exclude a likely significant effect and does not agree that this matter can be scoped out of the ES.	A qualitative assessment is provided in Chapter 7: Air Quality in Volume I. This will be updated in the ES.
Para 7.9.9 and Table 7.3	Vehicle emissions -	If the predicted numbers of construction traffic movements generated by the Proposed Development	Construction traffic numbers are sufficient to generate the need for

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
	construction (if relevant Institute of Air Quality Management (IAQM) indicative criteria are not exceeded)	alone or cumulatively would demonstrably not exceed the relevant indicative criteria for air quality assessment set out in the IAQM guidance, as relevant to each of the affected roads used for construction traffic (once the route has been confirmed), the Inspectorate agrees that this matter can be scoped out of the ES. Where predicted construction traffic flows meet the criteria, the Scoping Report confirms that this matter will be scoped into the ES.	a detailed assessment. Assessment is provided in Chapter 7: Air Quality in Volume I and will be updated in the ES.
Para 7.9.10 and Table 7.3	Diverted traffic – construction	The Inspectorate agrees that vehicle emissions associated with diverted traffic can be scoped out of the ES, provided it can be demonstrated that the predicted volumes of diverted traffic would not exceed the relevant indicative criteria for air quality assessment set out in the IAQM guidance	Traffic volumes provided by the Project transport team demonstrates the volumes of traffic associated with the Project exceed the criteria for air quality assessment set out in the IAQM guidance. Therefore, a detailed air quality assessment will be carried out and preliminary results provided in the PEIR. This would be updated following receipt of the design presented in the DCO application to inform the ES if necessary.
Para 7.9.11 and Table 7.3	Vehicle emissions - operation (inc. maintenance)	Having regard to the nature and characteristics of the Proposed Development, the Inspectorate agrees that vehicle emissions to air during operation (including maintenance) are not likely to result in significant effects. Subject to the ES Project Description Chapter providing an explanation of the number, type and frequency of operational vehicle movements, this matter can be scoped out of the ES.	Noted.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Ecology and Biodiversity			
Para 8.1.7 and Table 8.9	Great crested newt (GCN)	The Applicant intends to offset the effects of the Proposed Development on GCN by obtaining a licence through the Natural England (NE) District Level Licence (DLL) scheme. It has provided a letter of comfort setting out NE's agreement with this approach in principle (Appendix K) and does not consider GCN further in the Scoping Report. The Inspectorate agrees that detailed consideration of GCN can be scoped out of the ES. The Inspectorate understands that the DLL approach includes strategic area assessment and the identification of risk zones and strategic opportunity area maps. The ES should include information to demonstrate whether the Proposed Development is located within a risk zone for GCN. NE will undertake an impact assessment and inform the Applicant whether their scheme is within one of the amber risk zones and therefore whether the Proposed Development is likely to have a significant effect on GCN. The outcome of this assessment will be documented on an Impact Assessment and Conservation Payment Certificate (IACPC). The IACPC can be used to provide additional detail to inform the findings in the ES, including information on the Proposed Development's impact on GCN and the appropriate compensation required.	The proposed approach to GCN has been agreed with Natural England. Further consultation with Natural England District Licensing Team will be undertaken as the design develops, details of which will be referenced within the ES. Details of the IACPC will be incorporated within the ES.
Para 8.9.6	Collision of nocturnal species with machinery - construction	The Scoping Report states that injury or mortality due to collision with machinery is not expected to affect nocturnal species since construction is assumed not (in the main) to be undertaken at night. However, the Inspectorate notes that there might be potential for some activity to occur throughout the night, e.g. trenchless crossings.	Potential collision impact on nocturnal species will be detailed within the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		The Inspectorate considers that there is insufficient information about the location, nature and duration of night-time working to conclude that significant effects will not occur. Therefore, potential effects of collision of nocturnal species with construction machinery should be scoped into the assessment.	
Para 8.9.13	Habitat loss – operation (inc. maintenance)	The Inspectorate agrees that effects from habitat loss during operation are unlikely to be significant and that this matter can be scoped out of the ES. As noted in Section 2.2 of this Opinion, the ES should however assess the significance of any permanent habitat loss from the construction phase that would continue into the operational phase.	Noted.
Para 8.9.15	Disturbance of protected/ notable fauna from lighting - construction	In the absence of a defined location for the proposed new substation and CSECs compounds, and until there is certainty on the extent and presence of certain species, the Inspectorate does not agree that this matter can be scoped out.	Ongoing survey work is being undertaken in relation to nocturnal species. Further details will be provided within the ES.
Para 8.9.16 and Table 8.5	Disturbance of protected/ notable fauna from noise, vibration or visual stimuli – operation (inc. maintenance)	Table 8.5 states that there would be no changes to noise or vibration during operation. The Applicant has proposed to scope out noise impacts from operation of the substation in the Noise chapter (see Section 3.12 of this Opinion). The Inspectorate does not consider sufficient information has been given to scope out operational noise impacts. Operational noise and vibration effects on ecological receptors from the new substation, the substation extensions and the CSECs should be scoped into the assessment where significant effects are likely to occur. In respect of lighting, the Scoping Report identifies the potential for limited lighting "at the new substation for occasional	Operational disturbance impacts (noise, vibration and lighting) of the new substation, substation extensions and CSE compounds is considered within Chapter 8: Ecology and Biodiversity in Volume I. This will be reviewed and updated within the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		maintenance visits" and at CSECs. Given the limited scale of these works, the Inspectorate agrees that it is unlikely that significant effects would occur from operational lighting; however, there is insufficient information regarding the type, location and hours of lighting at this stage to confirm this conclusion. The Inspectorate also notes that Table 8.5 identifies the potential for operational lighting to impact nocturnal fauna and states that this would require further assessment. Therefore, where significant effects are likely to occur, these should be assessed in the ES. In the absence of a defined location for the proposed new substation and CSECs, and until there is certainty on the extent and presence of certain species, the Inspectorate does not agree operational disturbance impacts can be scoped out.	
Para 8.9.18	Air quality changes (resulting in habitat loss/ modification): Dust - construction	The Inspectorate notes that dust during construction would be subject to a Dust Risk Assessment and controlled through the CoCP and considers that dust effects are unlikely to be significant; therefore this matter can be scoped out of the ES.	Noted.
Para 8.9.20	Air quality changes (resulting in habitat loss/ modification): Vehicle emissions – operation (inc. maintenance)	Due to the low predicted number of vehicle movements in operation, the Inspectorate agrees that vehicle emissions during operation are unlikely to result in significant effects on biodiversity receptors; therefore this matter can be scoped out of the ES.	Noted.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Para 8.9.22	Hydrological changes in surface water - construction	The Scoping Report acknowledges the potential for direct impacts on watercourses where open cut trenches are necessary to cross them. It considers that impacts on surface water changes can be controlled with existing good practice measures to be set out in the Outline CoCP to avoid significant effects. The Inspectorate is unclear which measures within the Initial Outline CoCP the Applicant is relying upon, and also notes that impacts on hydromorphology during the construction phase have been scoped in to the Hydrology and Land Drainage chapter (paragraph 12.9.7 of the Scoping Report). As such, the Inspectorate does not agree sufficient information has been provided at this stage to demonstrate that significant effects are not likely and considers this matter should be scoped in.	Preliminary hydrological changes in surface water during construction is considered within Chapter 8: Ecology and Biodiversity in Volume I. This will be reviewed and updated within the ES.
Para 8.9.23	Hydrological changes in surface water – operation (inc. maintenance)	The Inspectorate agrees that given the nature of the development, significant effects on biodiversity receptors during operation are unlikely and therefore agrees this matter can be scoped out of the ES.	Noted.
Paras 8.9.26 to 8.9.27	Introduction and/ or spread of Invasive Non-Native Species (INNS) - construction and operation	Whilst the Inspectorate agrees that the effects of INNS are unlikely to be significant with the proposed control measures in place, this cannot be confirmed until an up-to-date baseline position is known. This matter should therefore be scoped into the ES where significant effects are considered likely to occur following confirmation of the baseline position.	Surveys conducted to date have recorded finds of INNS and are identified in Figure A.8.1.1 with Appendix 8.1 Habitats Report in Volume III. These will continue to be identified with ongoing surveys and recorded within the ES.
Para 8.10.15	Biodiversity receptors of less than 'Local' importance	The Inspectorate agrees that impacts on biodiversity receptors of less than 'Local' importance can be scoped out of the ES.	Noted.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Table 8.9	Norfolk Valley Fens Special Area of Conservation (SAC) – operation (inc. maintenance)	Table 8.9 (page 105) has duplicate entries for this site, with the first scoping in impacts and the second scoping them out. The Inspectorate assumes the first row entry is a typographical error and notes the commentary in the second row entry that suggests there are no perceivable operational impact pathways on the Norfolk Valley Fens SAC. Table 8.3 states that the site is located 0.18km south-east of the Scoping Report Corridor. Noting the qualifying features of the Norfolk Valley Fens SAC and the lack of perceivable impact pathways during operation, the Inspectorate is content this matter can be scoped out of the ES. This does not preclude any assessment required under the Conservation of Habitats and Species Regulations 2017.	Noted. Operation (and maintenance) impacts are scoped out. This will be detailed within the HRA Report.
Table 8.9	Redgrave and South Lopham Fens Ramsar site and Waveney and Little Ouse Valley Fens SAC – construction and operation (inc. maintenance)	The Scoping Report states that these designated sites are located 1.84km and 1.87km west of the Scoping Report Corridor, respectively. Noting the qualifying features of these sites and the lack of perceivable impact pathways, the Inspectorate is content these matters can be scoped out of the ES. This does not preclude any assessment required under the Conservation of Habitats and Species Regulations 2017.	Noted. Redgrave and South Lopham Fens Ramsar and Waveney and Little Ouse Valley Fens SAC are scoped out during both construction and operation (and maintenance). This will be detailed within the HRA Report.
Table 8.9 and Appendix E	National and local (statutory) sites designated for biodiversity – operation (inc. maintenance)	The Inspectorate notes that some of the national and local sites identified in Appendix E are located within the Scoping Report Corridor. However, it is content that there are no perceivable impact pathways to the majority of these sites during operation and therefore agrees this matter can be scoped out of the ES subject to the exceptions below. The Inspectorate notes that Mucking Flats and Marshes Site of Special Scientific Interest	Noted. Operational impacts on the majority of local and nationally designated are scoped out. Mucking Flats and Marshes SSSI and South Thames Estuary and Marshes SSSI will be reviewed following bird survey information to ensure overhead line collision risk

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		(SSSI) and South Thames Estuary and Marshes SSSI are located 0.34km east and 1.98km south of the Scoping Report Corridor, respectively. Both sites have ornithological interest features. At this stage, insufficient information has been provided to confirm that likely significant effects from collision mortality with OHLs can be excluded. The Inspectorate considers that operational phase impacts on the national sites which underly European sites scoped in for operation (i.e. Stour and Orwell Estuaries Ramsar and SPA, and Thames Estuary and Marshes Ramsar and SPA) should be scoped in, in line with the internationally designated sites.	is considered. Operational impacts on national sites which underly these European sites are scoped in, and details are within Chapter 8: Ecology and Biodiversity in Volume I. Updated assessment and further details will be provided in the ES.
Table 8.9	Operational impacts (inc. maintenance) on: 1. Ancient woodland; 2. Habitats of Principal Importance in England (HPIE); 3. 'Important' hedgerows'; 4. Vascular and nonvascular plants, fungi and INNS; 5. Protected species (fish, invertebrates, reptiles; breeding birds;	The Scoping Report states that there are no perceivable pathways to impact these biodiversity receptors during operation. Subject to previous comments about consideration of operational stage effects arising from activities during construction, the Inspectorate is content that impacts during operation are unlikely to result in significant effects; therefore these matters can be scoped out of the ES.	Noted.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
	badgers; hazel dormouse; otter; water vole; white-clawed crayfish; and amphibians (excluding GCN).		
Table 8.9	Groundwater Dependent Terrestrial Ecosystems (GWDTEs) – operation (inc. maintenance)	Table 8.9 states that there are no perceivable pathways to impact GWTDEs during operation. This conflicts with paragraph 8.9.24 of the Scoping Report which identifies the potential for direct or indirect effects on GWTDEs, including wetlands, fens and wet woodland. The Inspectorate does not agree this matter can be scoped out of the ES.	Potential operation (and maintenance) impacts on GWTDEs will be provided in the ES as surveys are ongoing.
Table 8.9	Other notable mammals (brown hare (Lepus europaeus), hedgehog (Erinaceus europaeus), and harvest mouse (Micromys minutus)) – construction and operation (inc. maintenance)	The Scoping Report acknowledges the likely presence of these species within the Scoping Report Corridor and that negative impacts could occur. However, it anticipates impacts during construction and operation to be largely temporary and that habitats would be reinstated to equal or better condition, therefore impacts would not be significant. On the basis that potential negative impacts have been identified, the Inspectorate does not agree that this matter can be scoped out. Reinstatement of habitats is not sufficient justification to scope out the matter as this does not enable the decision maker to understand the potential impact on these species prior to reinstatement. Any likely significant effects on these species should be assessed within the ES (or example habitat loss, fragmentation and disturbance).	Construction and operational impacts on other notable mammals (brown hare, hedgehog, and harvest mouse) are scoped in together with Species of Principal Importance (NERC Act, 2006). Baseline information is presented in Appendix 8.10: Species of Principal Importance Report in Volume III. Updated assessment and further details will be provided in the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Appendix F	Invertebrate surveys	The Inspectorate is content that large populations, or presence of protected invertebrates and/ or notable invertebrate assemblages would be restricted to distinct areas/ habitats that would be identified during the preliminary assessment. As such, it agrees that invertebrate surveys are unlikely to be required, but is reassured that targeted surveys would be undertaken subject to agreement with consultees (if the potential for a significant negative effect on invertebrates is identified in particular locations).	A targeted approach to invertebrate surveys will be undertaken in 2024, with findings reported within the ES. Further consultation is currently being undertaken with Natural England regarding survey locations.
Contaminated Land, Geology and Hydrogeology			
Para 9.9.2 and Table 9.7	Geohazards and ground instability – construction and operation (inc. maintenance)	On the basis that geohazards and ground instability would be considered during the engineering design of the Proposed Development, the Inspectorate is in agreement that this matter can be scoped out of the ES.	Noted.
Para 9.9.3 and Table 9.7	Geological SSSIs – construction and operation (inc. maintenance)	NE has confirmed that Newney Green Pit SSSI is a site of geological interest located within the route corridor. On this basis, the Inspectorate does not agree that this matter can be scoped out. Any likely significant effects on the Newney Green Pit SSSI should be assessed within the ES.	The design presented within Chapter 4: Project Description in Volume I does not impact this site and therefore it has not been included within the baseline within Chapter 9: Contaminated Land, Geology and Hydrogeology in Volume I. Should the design change, and the site be affected following statutory consultation, it will be considered within the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Para 9.9.8 and Table 9.7	Disturbance and mobilisation of existing contaminants – operation (inc. maintenance)	The Inspectorate considers that significant effects from the disturbance and mobilisation of existing contamination during the operational phase are unlikely and agrees that this matter can be scoped out.	Noted.
Para 9.9.9 and Table 9.7	Discovery of unexpected contaminants – construction and operation (inc. maintenance)	The Scoping Report states that the risk from the discovery of unexpected contamination during construction would be mitigated by measures to be set out in the Outline CoCP; the Inspectorate notes that the Initial Outline CoCP proposes a protocol for dealing with unexpected contamination. Given the nature of the operational activities, the Inspectorate considers it unlikely that unexpected contaminants would be discovered. The Inspectorate is in agreement that these matters can be scoped out of the ES.	Noted.
Para 9.9.10 and Table 9.7	Introduction of new contamination – construction and operation (inc. maintenance)	The Inspectorate notes that the Outline CoCP would contain measures to reduce the risk of pollution, and for operation, standard control measures and best practice would be implemented resulting in a low risk of likely significant effects. However, the Environment Agency has highlighted recent problems with breakouts from HDD works under estuaries and inland alluvial soils. As the exact locations and designs for watercourse crossings are yet to be determined, the Inspectorate considers it premature to scope out this matter in respect of trenchless crossings. Any likely significant effects should be assessed within the ES.	At this stage, the Project is still considering trenchless construction methods for cabling. Chapter 9: Contaminated Land, Geology and Hydrogeology in Volume I identifies the requirement for a Foundation Works Risk Assessment, including at trenchless crossing which will assess the risk of bentonite break out. Commitments have also been included within Appendix 4.1: Draft Outline CoCP in Volume III. Where implemented, a review of trenchless crossing locations and potential breakout impacts will be

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
			reviewed and included within the ES, if necessary.
Para 9.9.13 and Table 9.7	Dewatering – operation (inc. maintenance)	On the basis that dewatering would not be required during operation, the Inspectorate agrees that this matter can be scoped out of the assessment. Should this position change during further design work, the ES should assess any likely significant effects from dewatering.	Noted.
Para 9.9.14 and Table 9.7	Discharge of water – construction and operation (inc. maintenance)	As noted above, the Scoping Report states at paragraph 9.9.13 that dewatering would not be required during operation. However, paragraph 9.9.14 refers to both construction and operation stages, stating that any discharges of pumped groundwater would be managed in accordance with relevant permits and agreements with the relevant authorities. The Inspectorate is in agreement that this matter can be scoped out of the ES on this basis.	Noted.
Para 9.9.16 and Table 9.7	Connection of aquifer units – operation (inc. maintenance)	Assuming there would be no works that would have the potential to create new connections between aquifers during operation and maintenance, the Inspectorate is in agreement that this matter can be scoped out of the ES.	Noted.
Paras 9.9.17 to 9.9.20	Groundwater flow – construction and operation (inc. maintenance)	The Inspectorate acknowledges that the overall dimensions of any foundations and cable ducts are small compared to the groundwater body as a whole. However, the Inspectorate does not consider that sufficient information has been presented in the Scoping Report to conclude that excavations or installation of new structures would not give rise to significant effects. The Inspectorate also notes there is an identified interrelationship between this matter and Chapter 11 (Historic Environment) as stated in paragraph 11.1.2 of the Scoping Report and specifically that paragraph 11.9.6 identifies potential impacts on archaeological remains as a result of changes	Likely significant effects on groundwater flow and quality will be assessed as part of the ES. If likely significant effects are identified, then the impacts on archaeological remains will also be considered within Chapter 11: Historic Environment within the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		in groundwater flow and quality. The Inspectorate is therefore not in a position to scope this matter out of the ES. Impacts to groundwater flow, including impacts on archaeological remains, should be assessed in the ES where significant effects are likely.	
Health and Wellbeing			
Paras 10.1.5, 10.10.2 to 10.10.6 and Table 10.2	Health related environmental change – construction and operation	The Scoping Report notes that likely significant effects from contributory factors would be considered by other environmental chapters; namely air quality, noise and vibration, geology and hydrogeology, traffic and transport. A discrete Health and Wellbeing chapter is therefore not proposed within the ES, although a specific section on health and wellbeing is proposed within Chapter 17: Cumulative Effects, as part of the intra-project cumulative effects assessment. The Inspectorate considers that a separate ES chapter covering Health and Wellbeing is required to ensure that the overall impacts of the scheme are not overlooked. Consideration should be given to direct and indirect impacts to both physical and mental health of receptors, as well as the potential for particular effects on any vulnerable populations. However, the ES should avoid duplication of assessment and, where relevant, the Health and Wellbeing aspect chapter should cross refer to information contained in other aspect chapters. The Health and Wellbeing chapter should take into account recent guidance such as the Institute of Environmental Management and Assessment (IEMA) 2022 guidance 'Determining Significance For Human Health In Environmental Impact Assessment'.	Chapter 10: Health and Wellbeing in Volume I has been produced in line with the new IEMA guidance on health in EIA (IEMA, 2022). The chapter summarises the findings of other environmental chapters on human health, taking account of vulnerable populations. It will also consider impacts on mental health, in line with IEMA guidance.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Para 10.10.11 and Table 10.2	EMFs – construction	The Inspectorate agrees that an assessment of EMFs during construction can be scoped out on the basis that they are associated with power distribution.	Noted.
Para 10.10.12 and Table 10.2	EMFs – operation	On the basis that the Proposed Development would be designed in accordance with cited Government guidance and precautionary policies (and that a compliance report will be submitted with the application for development consent), the Inspectorate agrees that an assessment of effects from EMFs during operation can be scoped out of the ES. However, the Inspectorate considers that the ES should contain a summary of the compliance report.	Noted. The ES will include a summary of the EMF compliance report.
Historic Environment			
Para 11.9.8 and Table 11.8	Physical impacts on archaeological remains – operation (inc. maintenance)	The Scoping Report states that no physical impacts on archaeological remains are anticipated during operation of the Proposed Development. On the basis that maintenance or repairs on subsurface features would be restricted to areas previously disturbed and mitigated during construction and that this commitment is secured through the dDCO (or other legal mechanism), the Inspectorate considers that significant effects are unlikely to occur. Physical impacts on archaeological remains during operation (including maintenance) can be scoped out of the ES.	Noted.
Paras 11.9.10 and 11.9.11 and Table 11.8	Direct physical impacts and indirect physical impacts (from vibration or subsidence) on designated and	On the basis that the Proposed Development is routed to avoid direct physical impacts on historic buildings, the Inspectorate agrees that significant effects are unlikely to occur. Direct physical impacts on designated and non-designated historic buildings during construction and operation (including maintenance) can be scoped out of the ES. In terms of indirect physical impacts, the Scoping	The potential for indirect impacts will be kept under review as the design progresses and the assessments for vibration and hydrology are developed. If any potential for impacts are identified then this will be scoped in and

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
	non-designated historic buildings – construction and operation (inc. maintenance)	Report states that no adverse impacts through vibration or subsidence caused by changes to groundwater are anticipated. The detailed route alignment and locations of associated infrastructure are yet to be defined. As a consequence, the Inspectorate does not agree that indirect physical impacts through vibration or subsidence (during construction and operation including maintenance) can be scoped out of the ES at this time.	assessed for the historic environment, based on the specialist assessments undertaken for these topics.
Para 11.9.16	Physical impacts on designated historic landscapes (including registered parks and gardens) and non-designated historic landscapes – operation (inc. maintenance)	The Inspectorate agrees that physical impacts on designated and non-designated historic landscapes during operation (including maintenance) are not likely to result in significant effects and can be scoped out of the ES. However, where there is permanent loss of vegetation or other features that contribute to the historic landscape character arising from maintenance activities for the Proposed Development, consideration of this matter should be scoped into the assessment where significant effects are likely to occur.	No further assessment is being conducted at this stage. Should any vegetation or features linked with historic landscape character be impacted, this will be assessed within the ES, based on the design presented in the DCO application.
Paras 11.10.11 and 11.10.12	Areas from the walkover survey	The Inspectorate is content that a walkover survey is not required for the areas described within the five bullet points listed under "Areas scoped out of survey". The areas scoped in for walkover survey should include military remains, including former airfields and pillboxes. The ES should describe any limitations to the walkover survey relating to land access and explain how these have been addressed.	The results of the walkover survey, including justification for any scoped-in areas that were not surveyed are provided in Appendix 11.1: Historic Environment Desk-Based Assessment in Volume III. This will be updated and appended to the ES.
Para 11.10.17	Impacts of the setting of listed buildings and	The Scoping Report states that for listed buildings and non-designated historic buildings located beyond the 250m study area that are outside the ZTV, a lack of	Refer to Chapter 13: Landscape and Visual in Volume I in relation

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
	non-designated historic buildings located beyond the 250m study area and outside the Zone of Theoretical Visibility (ZTV)	visibility of the Proposed Development would mean that no change to setting would occur. As set out in Section 3.11 below (Landscape and Visual), the Inspectorate considers that the study area and ZTV should represent the extent of the likely impacts from all phases of the Proposed Development, including construction, maintenance and decommissioning. The methodology for the ZTV should be agreed with the relevant local authorities. The Inspectorate agrees that any impacts on the setting of listed buildings and non-designated historic buildings located beyond the 250m study area and outside of the ZTV are not likely to result in significant effects. This matter can be scoped out of the ES. The Inspectorate understands from paragraph 11.3.1 of the Scoping Report that listed buildings within the 2km and 3km study areas and ZTV will be considered in the assessment.	to ZTVs for the Project. Updates will be provided within the ES.
Paras 11.10.17 and 11.10.18	Impacts on the setting of listed buildings and non-designated historic buildings as set out in bullet points 2 to 7 in paragraph 11.10.17 of the Scoping Report	Paragraph 11.10.18 of the Scoping Report states that the assumptions listed would be "…kept under review to establish whether there is a need to alter the scoping out thresholds and approach taken". Based on this statement and the limited information and justification provided in terms of individual heritage assets, the Inspectorate is not in a position to scope these matters out of the ES at this stage without further consideration of the significance of heritage assets and the contributions made by their setting on a case-by-case basis.	The proposed methodology has been agreed with stakeholders through consultation. Further details are included within Chapter 11: Historic Environment.
Table 11.8	Impacts on inter-tidal and marine archaeology – construction and	On the basis that the Proposed Development would not interact with intertidal or marine areas, the Inspectorate agrees that this matter can be scoped out of the ES.	Noted.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
	operation (inc. maintenance)		
Hydrology and Drainage			
Para 12.9.4 and Table 12.4	Water quality – operation	The Inspectorate agrees that pollution impact pathways to surface watercourses during operation would be limited as land would be reinstated following construction and there would be no operational discharges to surface watercourses, other than surface water drainage. On this basis, the Inspectorate agrees this matter can be scoped out subject to confirmation that there are no issues arising from aquifer connections created during construction that could have the potential to impact on surface water bodies during operation. Table 12.4 further justifies scoping out this matter on the basis that surface water drainage from operational infrastructure would be managed using suitable Sustainable Drainage Systems (SuDS). Details of the SuDS should be provided within the ES as there is no previous mention of them within the Scoping Report.	Noted. Details of SuDS will be provided in the ES together with relevant commitments within the ES.
Para 12.9.5 and Table 12.4	Surface water interests (surface water abstractions and discharges) – construction	The Inspectorate notes that the Proposed Development may not require large scale consumptive water uses at any single location. However, given the size of the Proposed Development, the need for welfare facilities and potential water requirements for mixing of drilling fluids, it considers that insufficient information has been provided to demonstrate that significant effects would not occur. The Inspectorate also notes that an abstraction licence would be applied for, if required, for construction activities. As such, the Inspectorate does not agree that this matter can be scoped out at this stage.	This aspect of the design is yet to be developed; therefore, once further information is available this will be included within the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Para 12.9.6 and Table 12.4	Surface water interests (surface water abstractions and discharges) – operation	Given the nature of the Proposed Development, the Inspectorate is content that there would be no large scale consumptive water uses or discharges during the operational phase. The Inspectorate agrees this matter can be scoped out of the ES.	Noted.
Para 12.9.8 and Table 12.4	Hydromorphology – operation (inc. maintenance)	On the basis that the design of any crossing points would be discussed with the Environment Agency and Lead Local Flood Authorities (LLFAs) and that watercourses would be reinstated following construction; the Inspectorate agrees that significant effects are unlikely and that this matter can be scoped out of the ES. However, the ES should confirm the measures that would be in place to ensure the reinstated condition of any affected watercourses is either the same as or better than their pre-construction condition.	Appendix 4.1: Draft Outline CoCP in Volume III contains details of commitments known at this stage, including a commitment to reinstate watercourses impacted by construction, to achieve the same or better than pre-construction conditions.
Para 12.9.12	Flood risk to and from other sources (sewers and reservoirs) – construction and operation.	The Inspectorate agrees that the Proposed Development would be of low vulnerability to flooding from sewers and reservoirs and that this matter can be scoped out of the ES.	Noted.
Landscape and Visual			
Paras 13.9.6, 13.9.11 and 13.9.19 and Table 13.4	Night-time effects on designated landscapes, landscape character and visual amenity – construction and	The Scoping Report proposes that measures in the Initial Outline CoCP would avoid any significant effects from night-time lighting during construction. The Scoping Report states that operational (including maintenance) lighting would be located at the proposed substation and CSECs and would be designed to minimise intensity and light spill as far as practicable. Given the limited scale of	At this time there is insufficient information to discount significant night-time effects. The ES will therefore assess and report on any significant night-time effects on designated landscapes, landscape character and visual amenity

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
	operation (inc. maintenance)	these works, the Inspectorate agrees that it is unlikely that significant effects would occur from operational lighting; however, there is insufficient information regarding the type, location and hours of lighting at this stage to confirm this conclusion. In the absence of a defined location for the proposed new substation and CSECs, the Inspectorate does not agree that this matter can be scoped out. Therefore, night-time effects on designated landscapes, landscape character and visual amenity (during construction and operation (inc. maintenance) should be assessed in the ES where significant effects are likely.	during construction, operation (and maintenance) once more detail is known. Chapter 4: Project Description of the ES will include details of the type, location and hours of lighting during construction and operation (and maintenance). This will subsequently be assessed within Chapter 8: Ecology and Biodiversity and Chapter 13: Landscape and Visual within the ES.
Para 13.9.12 and Table 13.4	Effects on visual receptors located outside the ZTV - construction and operation (inc. maintenance)	The Scoping Report explains that the identification of visual receptors would be informed by ZTV mapping, ground truthed by field work. The Scoping Report states that visual receptors located wholly outside the ZTV are highly unlikely to have views of the Proposed Development. The Inspectorate considers that the study area and ZTV should represent the extent of the likely impacts from all phases of the Proposed Development (including construction, maintenance and decommissioning) and should encompass long views from within the Dedham Vale National Landscape (an AONB). The Applicant should make effort to agree the methodology for the ZTV with relevant consultation bodies including local authorities. On this basis, Inspectorate agrees that any impacts on visual receptors located outside of the ZTV, once ground truthed by field	Chapter 13: Landscape and Visual in Volume I is supported by figures, including Figure 13.1: LVIA Study Area and Landscape Designations; Figure 13.7: Visual Receptors and Figure 13.8: Zone of Theoretical Visibility (ZTV) of Project by Section / CSE compounds / substations in Volume II. A selection of wireframe visualisations from viewpoints including long views from Dedham Vale National Landscape (an AONB) are presented in Figures 13.8.1 to 13.8.90 in Volume II.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
		work, are unlikely to result in significant effects. This matter can be scoped out of the ES.	The LVIA study area represents the extent of likely significant impacts from all phases of the Project. The ZTV presented in the PEIR is based on the operational above ground structures as these are most likely to give rise to significant effects and would typically also cover the extent of visibility during construction. The proposed approach to the ZTV has been issued to and discussed with Local Authorities, Dedham Vale National Landscape (an AONB) officers and Natural England. The ZTV will be updated in line with any changes to the Project following statutory consultation and presented in the ES.
Para 13.9.13 and Table 13.4	Effects on private views for individual properties – construction and	The Scoping Report explains that the routing process has sought to avoid residential areas as far as practicable. Effects on the visual amenity of local residents would be considered as part of the assessment of visual effects on settlements and communities, from representative viewpoints at publicly accessible places. Appendix H of	Chapter 13: Landscape and Visual in Volume I is supported by Figure 13.7: Visual Receptors in Volume II, which maps the 90 viewpoints that have been used to generate wireframes of the Project for the

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
	operation (inc. maintenance)	the Scoping Report sets out 41 indicative preliminary viewpoints, including representative viewpoints. The Inspectorate considers this is a relatively low number, given the nature and scale of the Proposed Development. There is also a lack of viewpoints to support the assessment of impacts on heritage assets. The number and location of viewpoints (representative, specific and illustrative), as well as the locations for wireframes and photomontages, should be agreed with relevant consultation bodies including local authorities, Historic England, NE and the National Landscape (AONB) Partnership and be in line with relevant guidance, where possible. On this basis, the Inspectorate agree that effects on private views for individual properties can be scoped out of the ES.	PEIR. It is intended that these viewpoints will be used to generate photomontages to accompany the ES. The locations of these viewpoints have been selected in consultation with Local Authorities, Dedham Vale National Landscape (an AONB) officers and Natural England. They will continue to be reviewed following the statutory consultation. The need for a separate residential visual amenity assessment is under ongoing review as there are a number of properties falling within 200 m of the Project. Further information and assessment will be provided to accompany the DCO, based on the design presented in the DCO application. Viewpoints to assess impacts to heritage assets have been agreed with Historic England and relevant Local Authorities. These will be presented in the ES and be used to inform the assessment in the ES.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Para 13.9.18 and Table 13.4	Visual effects on rail travellers - construction and operation (inc. maintenance)	Taking account of the nature and characteristics of the Proposed Development, the Inspectorate agrees that any visual impacts on rail travellers (during construction and operation including maintenance) are not likely to result in significant effects and that this matter can be scoped out of the ES.	Noted.
Noise and Vibration			
Para 14.9.7	Vibration effects on structures - construction	Vibration effects on structures from construction activities are proposed to be scoped out of the ES on the basis that all such activities would be located sufficient distance away from structures to avoid significant impacts (i.e. >10m). Given that vibration effects are influenced by a range of factors including ground conditions and the precise nature of the works, the Inspectorate does not consider that it is appropriate to apply an arbitrary distance threshold to consideration of vibration. The ES should assess the potential for peak particle velocity from construction works to exceed thresholds set out in relevant British Standards e.g. BS7385-2:1993 Evaluation and measurement for vibration in buildings. The assessment should give particular consideration to effects on heritage assets.	An assessment of potential construction vibration impacts is provided within Chapter 14: Noise and Vibration in Volume I. This will be updated within the ES to reflect the design presented in the DCO application.
Para 14.9.10	Vibration effects on the public highway from traffic - construction	The Scoping Report states that vibration is only generated when there are irregularities in the road surface. The Inspectorate considers it reasonable to assume that public highways road surface would be maintained and therefore significant effects are unlikely to occur. The Inspectorate agrees this matter can be scoped out.	Noted.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Para 14.9.11	Noise effects from substations – operation	The Scoping Report proposes to scope out operational noise impacts from the proposed new substation and extensions to the existing substations on the basis that they will include noise mitigation by design. Paragraph 14.8.5 of the Scoping Report identifies these as possibly including "…plant selection, siting, screening and enclosures, as appropriate". Paragraph 14.9.11 also states that these works would be subject to separate local planning applications, however these works are started to form part of the Proposed Development at paragraphs 1.1.7, 4.1.2, 4.4.9, 4.4.13 and 4.4.14. In the absence of information on the specific design measures, and as the location of the proposed new substation is yet to be determined, the Inspectorate does not consider sufficient information has been presented to provide confidence that significant effects would not occur. An assessment of operational noise consistent with the requirements of BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound should be provided.	An initial assessment of potential operational noise impacts from the proposed new EACN Substation is presented in Appendix 14.3: EACN Substation Operational Noise Assessment in Volume III. Operational noise from the substation extensions at Norwich Main and Bramford and substation works at Tilbury once operational would comprise only new connections with no new 'noisy' plant proposed to be installed (e.g. SGTs or shunt reactors). This will be updated within the ES.
Para 14.9.12	Noise effects from OHLs – operation	The Scoping Report states that the Proposed Development would use 'triple araucaria' conductors. The Inspectorate agrees that operational noise generated from OHLs and pylons is unlikely to give rise to significant effects and is therefore content to scope this matter out on the basis that this conductor type is used. The Inspectorate welcomes that the Applicant would consider an assessment within the ES should alternative designs be employed.	Noted.
Para 14.9.13	Noise effects from fittings (e.g., insulators,	The Inspectorate is content that pylon fittings designed to National Grid Technical Specifications are unlikely to	Noted.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
	dampers, spacer and clamps) – operation	result in significant noise effects and therefore this matter can be scoped out of the ES.	
Para 14.9.15	Noise effects from CSECs – operation	The Scoping Report proposes to scope out the effects of operational noise generated from CSECs on the basis that the source of the noise is the same as that of OHLs. The Inspectorate agrees that operational noise generated from CSECs is unlikely to give rise to significant effects and is therefore content to scope this matter out.	Noted.
Para 14.9.16	Noise effects from underground cables – operation	The Inspectorate agrees that operation of the underground cables is unlikely to generate noise on a scale that would result in significant effects. This matter can therefore be scoped out.	Noted.
Para 14.9.17	Vibration – operation	The effects of operational vibration are proposed to be scoped out of the ES on the basis that all plant with moving parts capable of generating vibration is to be mounted on anti-vibration mounts. The Inspectorate does not consider sufficient information has been presented at this stage to provide confidence that significant effects would not occur. The ES should provide sufficient information regarding the design specifications to demonstrate that significant vibration effects will not arise.	Transformers and other sound power equipment vibrate at twice power frequency i.e., 100 Hz and associated harmonic frequencies e.g. 200 Hz, 300 Hz. However, the effects are negligible and are countered by the use of industry standard mitigation techniques such as the use of vibration isolation pads to prevent transmission of ground borne vibration. Groundbourne vibration has never been raised as a significant issue or resulted in any complaints at any other operational National Grid substation sites. Therefore, this is

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
			not considered further in the PEIR and will not be considered in the ES.
Para 14.9.18	Maintenance activities	The Inspectorate agrees that noise and vibration from short term maintenance activities can be scoped out of the ES. However, the ES should consider the potential that more substantial activity is required as part of maintenance, eg replacement of components of the Proposed Development, which would be more akin to the impacts described during the construction stage. The ES should include an assessment of any likely significant effects.	Potential noise and vibration impacts from substantial maintenance activities is considered within Chapter 14: Noise and Vibration and will be updated in the ES. The activities would be broadly similar to those conducted during the construction phase, the assessment of noise and vibration impacts from substantial maintenance activities will align with those during the construction phase for applicable tasks.
Para 14.10.8	Baseline noise surveys	The Scoping Report states that baseline surveys would only be undertaken where there is a justifiable reason for a particular Noise Sensitive Receptor (NSR). The Inspectorate is content with this approach but considers that baseline noise surveys should be carried out at proposed substation locations consistent with the requirements of BS 7445-1:2003 Description and measurement of environmental noise: Guide to quantities and procedures. The Applicant should seek to agree the need for, and locations of, any such NSRs for which baseline surveys are considered necessary with relevant local authorities.	Chapter 14: Noise and Vibration in Volume I outlines that noise assessments conducted for the Five Estuaries offshore wind farm project have been used to establish the existing noise environment. This has been agreed with Tendring District Council.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Table 14.3	Lowest Observed Adverse Effect Level (LOAEL) for night-time effects	The Inspectorate assumes that the night-time LOAEL level identified in Table 14.3 of 50dB LAeqT is a typographic area, since the Significant Observed Adverse Effect Level (SOAEL) threshold is set at 45dB LAeqT. The LOAEL value should be set with reference to the SOAEL value and informed by reference values for daytime resting.	The LOAEL for night-time construction works is 40 dB LAeq,T.
Socio-economics, Recreation and Tourism			
Para 15.8.3 and Table 15.9	Financial effects on individual businesses - construction	The Inspectorate agrees this matter can be scoped out on the basis that this may be the subject of landowner negotiations and may result in compensation payments to offset effects. The Inspectorate also notes that construction phase impacts on farm businesses would be assessed within the agriculture and soils assessment.	Noted.
Para 15.8.3 and Table 15.9	Effects on property values – construction and operation	The Inspectorate notes that construction activities would be transitory and therefore does not consider that significant effects are likely; effects on property values during construction can be scoped out of the ES. With regards to operation, the Scoping Report does not provide a detailed route or confirm the likely receptors and consequences of the impact. The Inspectorate does not consider there is sufficient information to rule out the potential for significant effects. An assessment of likely significant effects should be provided.	National Grid welcomes confirmation from the Inspectorate that the effects on property values during construction can be scoped out of the Environmental Statement. However, National Grid disagrees with the Inspectorate's comment that an assessment of likely significant effects on property values during the Project's operation should be provided in the Environmental Statement. Effects on property values are not a matter for consideration under the EIA Regulations and they do

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
			not fit within any of the factors noted in the regulations. In addition, there is a long-standing position that planning applications cannot take into account private interest such as the impact on the value of nearby properties. National Grid is therefore of the view that the impact on the value of nearby properties is not a matter that requires assessment under the EIA Regulations and is not a material consideration in the determination of planning merits for the Project. As such National Grid reiterates its points made in the EIA Scoping Report to scope out the financial effects on individual businesses or property prices during construction and operation from its assessment. Other National Grid NSIP projects of a similar nature to this Project have also taken the view that this issue cannot be considered in their EIAs (e.g., Hinkley Point C Connection, Richborough Connection Project and the more recent Yorkshire GREEN and Bramford to Twinstead). This approach has been accepted by the Secretary of State through the relevant Scoping Opinions and the

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
			projects have been subsequently accepted into Examination and / or granted development consent. The information provided in the EIA Scoping Report for the Norwich to Tilbury Project contains the same level of information to that in other NSIP noted above.
Para 15.8.4 and Table 15.9	Employment and economy – operation (inc. maintenance)	The Inspectorate agrees that this matter can be scoped out of the ES on the basis that the Proposed Development would not generate a significant number of additional jobs, and that significant indirect employment i.e., to supply chains is unlikely.	Noted.
Para 15.8.5 and Table 15.9	Effects on business's ability to function – operation (inc. maintenance)	In the absence of a detailed route and confirmation of likely receptors, the Inspectorate does not consider there is sufficient information to rule out the potential for significant effects at this stage. An assessment of likely significant effects should be provided. The Inspectorate's comments in respect of land in agricultural use are provided in Section 3.4 of this Scoping Opinion.	Effects on businesses that fall within 1 km from the Order Limit where visual impacts are an economic consideration during operation (and maintenance) will be assessed in the ES.
Paras 15.8.9 to 15.8.10 and Table 15.9	Community facilities – operation (inc. maintenance)	In the absence of a detailed route and confirmation of likely receptors, the Inspectorate does not consider there is sufficient information to rule out the potential for significant effects at this stage. An assessment of likely significant effects should be provided.	Given that community facilities identified at this stage of the Project are places of worship, schools and village halls, the Project is would not affect the access or ability of the facilities to function during operation (and maintenance). Therefore, this is not considered further in the PEIR

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
			or the ES during operation (and maintenance).
Para 15.8.14 and Table 15.9	Tourism accommodation – operation (inc. maintenance)	The Inspectorate considers that significant effects on tourism accommodation from routine inspection and maintenance workers are unlikely. This matter can therefore be scoped out of the ES. However, the Inspectorate considers there may be potential for tourism accommodation to be affected by the presence of OHL infrastructure where it is in very close proximity to receptors. In the absence of a detailed route and confirmation of likely receptors, the Inspectorate does not consider there is sufficient information to rule out the potential for significant effects at this stage - an assessment of likely significant effects should be provided.	Noted - effects on tourism accommodation associated with routine inspection and maintenance works is scoped out. Tourism accommodation affected by the presence of overhead line infrastructure is considered within Chapter 15: Socio-economics, Recreational and Tourism in Volume I (the rationale for scoping it in is provided in the EIA Scoping Report paragraph 15.8.12). The assessment will be updated within the ES. The Inspectorate's concern about the overhead line infrastructure being in "very close proximity" to receptors is covered in the Landscape and Visual.
Traffic and Transport			
Para 16.9.6 to 16.9.7	Traffic and transport effects – operation (inc. maintenance)	The Inspectorate agrees that the number of vehicle trips generated by the operation and maintenance of the Proposed Development are unlikely to result in significant effects, it is therefore considered acceptable to scope this matter out. The ES description of the development should clearly set out the likely number and type of operation and maintenance vehicles.	Noted.

Reference from Scoping Opinion	Aspect	Planning Inspectorate's Comment in the Scoping Opinion	Project Response
Cumulative Impacts			
Para 17.2.3	Intra-project cumulative effects - receptors with negligible effects	The Inspectorate agrees that where a negligible effect on a receptor has been concluded as a result of the Proposed Development alone, the receptor can be scoped out of the intra-project cumulative effects assessment.	Noted.
Para 17.3.8	Inter-project cumulative effects - minor planning applications	The Inspectorate considers that small scale developments are unlikely to give rise to significant cumulative environment effects over and above the Proposed Development in isolation and agrees that this matter can be scoped out of further consideration.	Noted.

Appendix 7.1: Air Quality Assessment Methodology

nationalgrid

Appendix 7.1 – Air Quality Assessment Methodology

7.1 Construction Dust Assessment

7.1.1 The construction phase effects of the Project have been assessed using the five step, qualitative approach described in the Institute of Air Quality Management (IAQM) guidance (IAQM, 2024). The guidance applies to the assessment of dust from construction/demolition activities.

7.1.2 An 'impact' is described as a change in pollutant concentrations or dust deposition, while an 'effect' is described as the consequence of an impact. The main impacts that may arise during construction activities of the Project are:

- Dust deposition, resulting in the soiling of surfaces
- Visible dust plumes
- Elevated PM_{10} concentrations because of dust generating activities on site
- An increase in NO_2 and PM_{10} concentrations due to exhaust emissions from non-road mobile machinery and vehicles accessing the site

7.1.3 The IAQM guidance considers the potential for dust emissions from activities such as demolition of existing structures, earthworks, construction of new structures and track-out. Earthworks refer to the processes of soil stripping, ground levelling, excavation, and land capping, while track-out is the transport of dust and dirt from the site onto the public road network where it may be deposited and then re-suspended by vehicles using the network. This arises when vehicles leave the site with dust materials, which may then spill onto the road, or when they travel over muddy ground on site and then transfer dust and dirt onto the road network.

7.1.4 For each of these dust-generating activities, the guidance considers three separate effects:

- Annoyance due to dust soiling
- Harm to receptors, and
- The risk of health effects due to a significant increase in PM_{10} exposure

7.1.5 The receptors can be human or ecological and are selected based on their sensitivity to dust soiling and PM_{10} exposure. Sensitive receptors are defined as those properties/schools/hospitals that are likely to experience a change in pollutant concentrations and/or dust nuisance due to the construction of the Project.

7.1.6 The methodology takes into account the scale at which the above effects are likely to be generated (classed as small, medium or large), the levels of background PM_{10} concentrations and the distance to the closest receptor in order to determine the sensitivity of the area. This is then taken into consideration when deriving the overall risk of for the site. Suitable mitigation measures are also proposed to reduce the risk of the potential impacts on local air quality as a result of the construction works.

7.1.7 The five steps in the assessment process described in the IAQM guidance is summarised below.

Step 1: Need for assessment

7.1.8 The first step is the initial screening for the need for a detailed assessment. According to the IAQM guidance, an assessment is required where there are sensitive receptors within 250 m of the site boundary (for ecological receptors that is 50 m) and/or within 50 m of the route(s) used by the construction vehicles on the public highway and up to 250 m from the site entrance(s).

Step 2: Assess the risk of dust impacts

7.1.9 This step is split into three sections as follows:

2A. Define the potential dust emission magnitude

2B. Define the sensitivity of the area

2C. Define the risk of impacts

7.1.10 Each of the dust-generating activities is given a dust emission magnitude depending on the scale and nature of the works (step 2A) based on the criteria shown in Table A7.1.1.

7.1.11 The sensitivity of the surrounding area is then determined (step 2B) for each dust effect from the above dust-generating activities, based on the proximity and number of receptors, their sensitivity to dust, the local PM_{10} background concentrations and any other site-specific factors. Table A7.1.2 and Table A7.1.3 show the criteria for defining the sensitivity of the area to different dust effects.

7.1.12 The overall risk of the impacts for each activity is then determined (step 2C) prior to the application of any mitigation measures (Table A7.1.4) and an overall risk for the site derived.

Table A7.1.1 - Dust Emission Magnitude

Dust Emission Magnitude		
Small	**Medium**	**Large**
Demolition		
• Total building volume <12,000 m^3 • Construction material with low potential for dust release (e.g., metal cladding or timber) • Demolition activities <6 m above ground, demolition during wetter months	• Total building volume 12,000 m^3 to 75,000 m^3 • Potentially dusty construction material • Demolition activities 6-12 m above ground level	• Total building volume >75,000 m^3 •Potentially dusty construction material (e.g., concrete) • On-site crushing and screening, demolition activities >12 m above ground level
Earthworks		
• Total site area <18,000 m^2, soil type with large grain size (e.g., sand)	• Total site area 18,000 m^2 110,000 m^2, moderately dusty soil type (e.g., silt)	• Total site area >110,000 m^2 potentially dusty soil type (e.g., clay, which will be prone to suspension when dry due to small particle size)

Dust Emission Magnitude		
Small	**Medium**	**Large**
• <5 heavy earth moving vehicles active at any one time • Formation of bunds <3 m in height	• 5-10 heavy earth moving vehicles active at any one time • Formation of bunds 3m-6m in height	• >10 heavy earth moving vehicles active at any one time • Formation of bunds >6 m in height • Total material moved
Construction		
• Total building volume <12,000 m^3 • Construction material with low potential for dust release (e.g., metal cladding or timber)	• Total building volume 12,000m^3 -75,000 m^3 • Potentially dusty construction material (e.g., concrete) • On-site concrete batching	• Total building volume >75,000 m^3 • On-site concrete batching • Sandblasting
Track out		
• <20 HDV (>3.5 t) trips in any one day • Surface material with low potential for dust release • Unpaved road length <50 m	• 20-50 HDV (>3.5 t) trips in any one day • Moderately dusty surface material (e.g., high clay content) • Unpaved road length 50 m – 100 m;	• >50 HDV (>3.5 t) trips in any one day • Potentially dusty surface material (e.g., high clay content) • Unpaved road length >100 m

Table A7.1.2 - Sensitivity of the Area to Dust Soiling Effects

Receptor sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	<10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table A7.1.3 - Sensitivity of the Area to Human Health Impacts

Receptor sensitivity	Annual mean PM_{10}	Number of receptors	<20	<50	<100	<250
High	>32µg/m^3	>100	High	High	High	Medium
		10-100		High	Medium	Low
		<10		Medium	Low	

Receptor sensitivity	Annual mean PM_{10}	Number of receptors	<20	<50	<100	<250
	28-32µg/m^3	>100	High	High	Medium	Low
		10-100		Medium	Low	
		<10				
	24-28µg/m^3	>100	High	Medium	Low	Low
		10-100				
		<10	Medium	Low		
	<24µg/m^3	>100	Medium	Low	Low	Low
		10-100	Low			
		<10				
Medium	>32µg/m^3	>10	High	Medium	Low	Low
		1-10	Medium	Low		
	28-32µg/m^3	>10	Medium	Low	Low	Low
		1-10	Low			
	24-28µg/m^3	>10	Low	Low	Low	Low
		1-10				
	<24µg/m^3	>10	Low	Low	Low	Low
		1-10				
Low	-	>1	Low	Low	Low	Low

Table A7.1.4 - Risk of Dust Impacts

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
Demolition			
High	High risk site	Medium risk site	Medium risk site
Medium	High risk site	Medium risk site	Low risk site
Low	Medium risk site	Low risk site	Negligible
Earthworks			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible

Sensitivity of Area	Dust Emission Magnitude		
	Large	**Medium**	**Small**
Construction			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible
Track out			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible

Step 3: Determine the site-specific mitigation

7.1.13 Once each of the activities is assigned a risk rating, appropriate mitigation measures are identified. Where the risk is negligible, no mitigation measures are necessary.

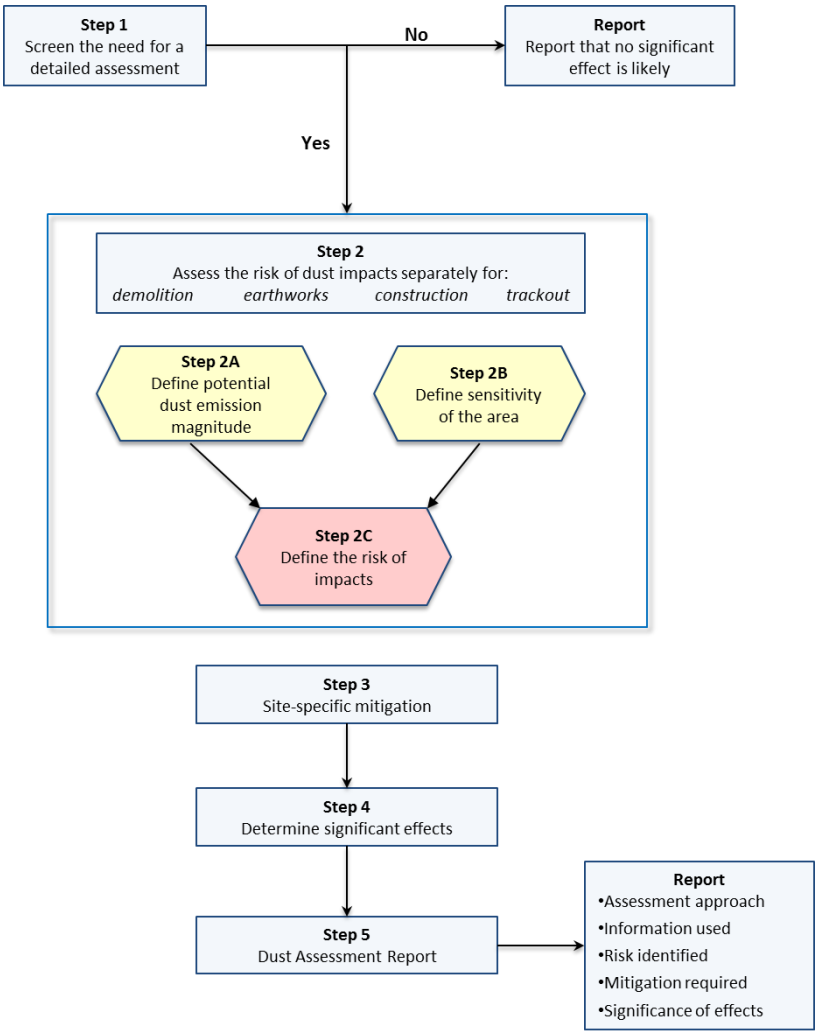
Step 4: Determine any significant residual effects

7.1.14 Once the risk of dust impacts has been determined and the appropriate dust mitigation measures identified, the final step is to determine whether there are any residual significant effects. The IAQM guidance (IAQM, 2024) notes that it is anticipated that with the implementation of effective site-specific mitigation measures, the environmental effect will not be significant in most cases.

Step 5: Prepare a dust assessment report

7.1.15 The last step of the assessment is the preparation of a Dust Assessment Report (Appendix 7.3: Air Quality Assessment Results in Volume III).

Image A7.1.1 - IAQM Dust Assessment Methodology



7.2 Construction Traffic

7.2.1 The results of the traffic modelling (Arcadis, 2024) confirm that changes to traffic for the Project during the construction period exceed the thresholds for requiring further assessment (more than 25 AADT within or adjacent to an AQMA and more than 100 elsewhere). On that basis, a detailed assessment of construction traffic has been scoped into the assessment.

7.2.2 This chapter provides the methodology for the assessment of the construction traffic phase.

Traffic Data

7.2.3 Traffic data for the air quality assessment have been provided by the Project transport modelling specialists (Arcadis, 2024). The traffic data included the Strategic Road Network, the Primary Access Routes, and the haul roads consisting of:

- 24-hour annual average daily traffic (AADT)
- Percentage of heavy-duty vehicles (HDV)
- Speed band information for use in calculation of emission factors

7.2.4 The traffic data provided for the haul roads include the traffic data for HGVs and LDVs where LDVs count for the works vehicles. The baseline traffic data provided represents a baseline year of 2019.

7.2.5 Traffic data has been provided by the Project transport specialists for use in the assessment. The traffic data was screened against the latest IAQM/EPUK thresholds to define the affected road network (ARN).

7.2.6 Emissions from traffic data were calculated within the latest Defra Emissions Factor Toolkit (version 12.0.1).

7.2.7 The geographic information system (GIS) software, ArcMap, was used to assist in inputting the road link information in the air quality spreadsheet model.

Assumptions made in relation to the traffic data used in the assessment are presented below.

- The road type[1] was not provided from the transport team therefore open-source data2 was used to make assumptions for the road type. The road type for haul roads were assumed to be all 'rural'
- The speed for the haul roads was assumed to be 30[3] mph

Human Receptors

7.2.8 This section details the human receptors selected for inclusion in the assessment. Human receptors are chosen to capture the closest receptors along the ARN and at junctions. The receptor choices are considered to capture the most sensitive receptors.

7.2.9 To identify receptors sensitive to air quality, the building usage was determined using the Ordnance Survey (OS) Address Base Plus dataset, and air quality calculations were made at the nearest façade to the busiest road. A total of 40 human receptors (Table A7.1.5) were included in the assessment and were selected using professional judgement at worst case locations.

7.2.10 The list includes dwellings and educational establishments, and the locations are shown in Figure 7.5: Air Quality Affected Road Network in Volume II. These locations are all considered to be sensitive receptors.

[1] Road Type classifies as. London Central, Inner, Outer, Motorway, all other Areas Urban (not London), Rural (not London), Motorway (not London) (EFT v12 user guide, https://laqm.defra.gov.uk/wp-content/uploads/2023/11/EFTv12.0-user-guide-v1.0.pdf) .

[2] Rural-Urban Classification for Output Areas Locator Tool (arcgis.com)

[3] Speed limits are likely to be 20 mph along the haul road -however, this will be confirmed in the ES. Although 30 mph has been modelled a reduction to 20 mph would not significantly change the outcome of the assessment presented in the assessment or trigger significant air quality effects.

Table A7.1.5 - Details of Human Receptors

ID	Description	Grid Reference (m)	
		X	Y
HR_1	Residential	593412	226194
HR_2	Residential	572441	216206
HR_3	Residential	565384	181402
HR_4	Residential	611593	246437
HR_5	Residential	622141	300900
HR_6	Residential	603700	232745
HR_7	Residential	603569	232378
HR_8	Residential	603414	231908
HR_9	Residential	602775	230209
HR_10	Residential	602373	229753
HR_11	Residential	600656	229191
HR_12	Residential	598562	228809
HR_13	Residential	597953	229661
HR_14	Residential	589338	224101
HR_15	Residential	591481	223761
HR_16	Residential	587003	222955
HR_17	Residential	565811	181354
HR_18	Residential	567161	181536
HR_19	Residential	613035	249448
HR_20	Residential	612543	243549
HR_21	School	599668	228502
HR_22	Residential	611277	226568
HR_23	Residential	594739	225179
HR_24	Residential/AQMA	595060	225173
HR_25	Residential/AQMA	595127	225129
HR_26	Residential	573964	220030
HR_27	Residential	574116	221743
HR_28	Residential/AQMA	563649	176333

ID	Description	Grid Reference (m)	
		X	Y
HR_29	Residential	565237	176292
HR_30	Residential	621254	301210
HR_31	Residential	612033	246582
HR_32	Residential	611929	247368
HR_33	Residential	606714	248646
HR_34	Residential	604867	230995
HR_35	Residential	571781	215113
HR_36	Residential	585581	220858
HR_37	Residential	593810	228391
HR_38	Residential	599414	230414
HR_39	Residential	604953	230008
HR_40	Residential	607166	228967

Ecological Receptors

7.2.11 Sensitive ecological receptors are defined as those sites whose features have been designated as sensitive to air pollutants, either directly or indirectly. A total of 17 ecological receptors (Table A7.1.6) were included in the assessment and were selected using professional judgement at worst case locations.

7.2.12 High levels of NOx can adversely affect vegetation, including leaf or needle damage and reduce plant growth. Deposition of pollutants derived from NOx emissions contribute to acidification and/or eutrophication of sensitive habitats leading to loss of biodiversity. The likelihood of such effects occurring is determined by pollutant thresholds known as 'critical loads' which are defined by the United Nations Economic Commission for Europe (UNECE) as:

> *'a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge.'*

7.2.13 It is important to distinguish between a critical load and the air quality standard (or critical level) for NOx. The critical load relates to the quantity of pollutant (in this case nitrogen) deposited from air to the ground, whereas the critical level is the gaseous concentration of a pollutant in the air. Critical loads are defined by Air Pollution Information System (APIS) and are specific to a particular ecological receptor site or the habitats in them.

Table A7.1.6 Details of Ecological Receptors

ID	Designated sites	Description	Grid Reference (m)	
			X	Y
ER_1	Sites of Special Scientific Interest (SSSI)	Creeting St. Mary Pits	609720	255311
ER_2		Creating St. Mary Pits	609674	255510
ER_3		Creating St. Mary Pits	609627	255855
ER_4		Marks Tey Brickpit	591439	223826
ER_5	Local Nature Reserve (LNR)	Cuckoo Wood	573512	221100
ER_6		Fen Alder Carr	608923	256769
ER_7	Ancient Woodlands (AW)	AW 4	607555	225770
ER_8		Birch Wood	602829	230354
ER_9		Bullen Wood	610134	245924
ER_10		Bushy/Breams Woods	573512	218747
ER_11		Fiddlers Wood	593039	226957
ER_12		Kiln Wood	601662	229221
ER_13		Millers Wood	610677	246214
ER_14		Sheepcotes Wood 2	571259	213847
ER_15		Walls Wood 1	603829	227503
ER_16		Walls Wood 2	603827	227540
ER_17	SSSIs	Middle Wood, Offton	605674	250050

Dispersion Model Set-up

7.2.14 This section details the inputs and set-up for the construction traffic dispersion modelling. NOx, PM_{10} and $PM_{2.5}$ have been modelled. The detailed assessment has been undertaken using ADMS-Roads v5.0.0.1 model.

A7.1.7 – Model Input Parameters

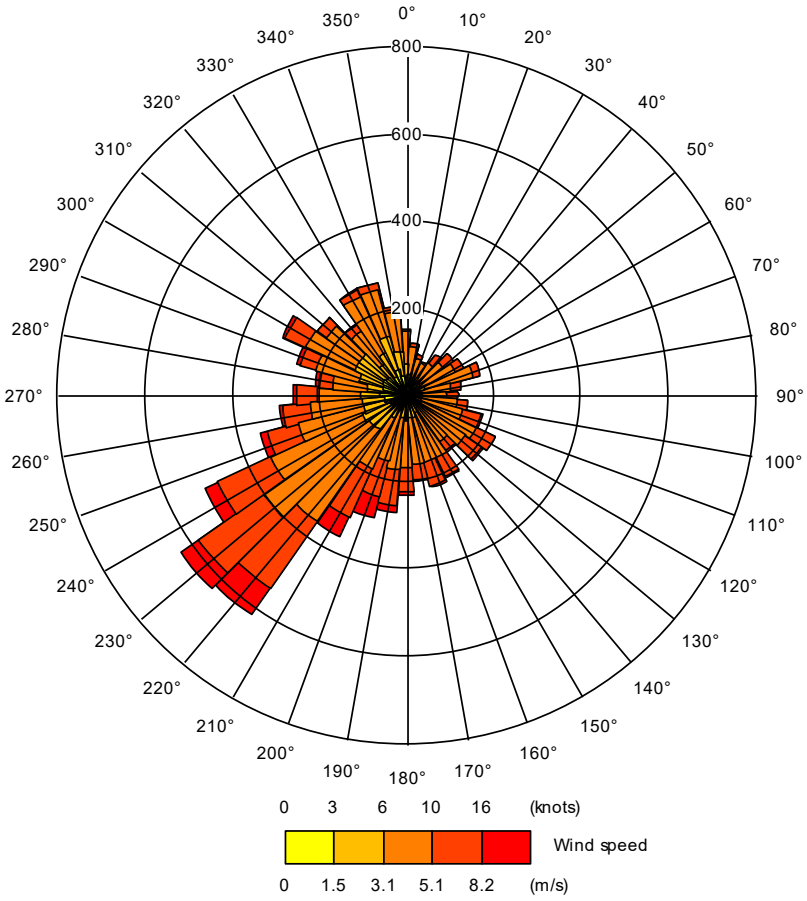
Variables	Model Input
Surface roughness at source	0.3 m
Minimum Monin-Obukhov length for stable conditions	10 m
Terrain types	Flat
Receptor location	x,y coordinates determined by GIS. Z height of 1.5m for human receptors, 0m for ecological receptors.
Emissions	NOx, PM_{10}, $PM_{2.5}$
Emission Factors	Defra Emission Factor Toolkit v12.0.1
Meteorological data	1 year (2019) hourly sequential data from London Stansted Airport
Model output	Long term annual mean NOx concentrations ($\mu g/m^3$) Long-term annual mean PM_{10} concentrations ($\mu g/m^3$) Long-term annual mean $PM_{2.5}$ concentrations ($\mu g/m^3$)

Meteorological Data

7.2.15 The effect of meteorological conditions on dispersion has been accounted for in the dispersion model. The most significant factors that affect dispersion are wind speed, wind direction and atmospheric stability.

7.2.16 Meteorological data from Stansted Airport for 2019 has been used in the assessment. This meteorological site is located approximately 22 km north-west of Chelmsford. A wind rose for this site is presented in Figure 7.1.1 below.

Figure 7.1.1 - Stansted Airport 2019 Wind Rose



Background Concentrations

7.2.17 'Background' air quality is a concept used to enable assessment of the effects of particular emission sources without the need for all sources in the area to be explicitly considered. For the purpose of this assessment, the background air quality represents the contribution of all other relevant sources of air pollutants except those roads specifically included in the air quality model. The pollution due to the modelled roads has been added to the background pollution concentrations.

7.2.18 The Defra air quality website provides NOx and NO_2, PM_{10} and $PM_{2.5}$ for each 1 kilometre by 1 kilometre grid square covering England.

7.2.19 The total Defra background concentrations (with no road sector contributions removed) have been used in the modelling. This is because only the roads directly adjacent to the receptor being assessed are included in the model. Therefore, there is no risk of double counting road traffic emissions from additional road sources in the grid square.

7.2.20 Local authority background data are lower on average than the local monitored background data. The monitored background concentrations are well below the annual mean air quality objective 40 µg/m^3 for NO_2. Due to the limiting existing background monitoring data available specifically for the study area, and the geographical spread of the ARN, this assessment has used concentrations from the Defra maps to provide background concentrations.

Model Verification

7.2.21 A comparison of modelled and measured NO_2 concentrations has been undertaken. This process is known as model verification. Verification has been undertaken for the base year (2019), using the principles laid out in Local Air Quality Management Technical Guidance (LAQM TG.22) published in August 2022. The locations of selected verification points are shown in Figure 7.1: Air Quality Study Area and Constraints in Volume II.

7.2.22 The objectives of the model verification are to evaluate model performance, determine whether model adjustment is required, and to provide confidence in the assessment.

7.2.23 LAQM TG.22 suggests that if modelled annual mean NO_2 concentrations are within ±25% and preferably within ±10% of the monitored concentration and there is no systematic under or over prediction, then model adjustment is not considered necessary to further improve modelled results.

7.2.24 Modelled and monitored results may not compare well at some locations for several reasons including:

- Uncertainties in estimated traffic flow and speed data
- Model setup (including street canyons, road widths, receptor locations)
- Model limitations (treatment of roughness and meteorological data)
- Uncertainty in monitoring data (notably diffusion tubes, e.g., bias adjustment factors and annualisation of short-term data)
- Uncertainty in emissions/emission factors

7.2.25 The above factors were investigated as part of the model verification process to reduce the uncertainties as far as practicable.

7.2.26 Some monitoring locations are not suitable for model verification purposes as there may be specific local influences or they are located too close to the road. In these circumstances, LAQM TG.22 advises they should not be used. Therefore, each site was examined, and it was considered whether it was suitable for use in the verification study. Some locations were then removed from the verification. For those monitoring sites not used, the justification for their removal is provided in Table A7.3.4 of Appendix 7.3: Air Quality Assessment Results in Volume III.

7.2.27 Further detail on the verification process is provided in Appendix 7.3: Air Quality Assessment Results in Volume III.

NOx to NO_2

7.2.28 The approach to calculating the conversion of roadside NOx to NO_2 has been the guidance in LAQM TG.22. This approach allows the calculation of NO_2 from NOx concentrations, considering the difference between ambient NOx concentration with and without the Project, the concentrations of ozone and the different proportions of primary NO_2 emissions in different years. This approach is available as a spreadsheet calculator (Department for Environment, Food and Rural Affairs, 2020); the version released in August 2020 (v8.1) has been used.

Appendix 7.2: Air Quality Baseline Data

nationalgrid

Appendix 7.2 - Air Quality Baseline Data

7.1 Introduction

7.1.1 Existing or baseline ambient air quality refers to the concentration of relevant substances that are already present in the environment. These are present from various sources, such as industrial processes, commercial and domestic activities, traffic, and natural sources.

7.2 Sources of Air Pollution

Industrial Processes

7.2.1 There are nine Part A processes with emissions to air listed on the Environment Agency website within 2 km of the Project, as shown in Table A7.2.1 and Figure 7.1: Air Quality Study Area and Constraints in Volume II.

Table A7.2.1 - Part A Processes within 2km of the draft Order Limits

Site ID	Permit Number	Process	Local Authority
EPR/PP3135SU	Tarmac Aggregates Limited	Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion)	Chelmsford City Council
EPR/LP3839LV	National Grid Gas PLC	Burning any fuel in an appliance – 50 MWe	Chelmsford City Council
EPR/SP3802SZ	Vital Energy Utilities Limited	Burning any fuel – new, medium combustion plant	Mid Suffolk District Council
EPR/FP3132PH	Muntons PLC	Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion)	Mid Suffolk District Council
EPR/UP3936QS	Precise Energy Limited	Burning any fuel - Tranche B SG	Mid Suffolk District Council
EPR/MP3636QC	Valence Power Limited	Burning any fuel - Tranche B SG	Mid Suffolk District Council
EPR/AP3634DG	Esken Renewables Limited	Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day (or	Thurrock Borough Council

Site ID	Permit Number	Process	Local Authority
		100 tonnes per day if the only waste treatment activity is anaerobic digestion)	
EPR/EP3433LZ	RWE Generation UK PLC	Burning any fuel in an appliance – 50 MWe	Thurrock Borough Council
EPR/TP3538UB	EDL (UK) LFG Generation Limited	Associated Process	Thurrock Borough Council

7.3 Monitoring Results

Automatic Monitoring

7.3.1 The details of the monitoring locations are shown in Table A7.2.2. The results for recent years are shown in Table A7.2.3 to Table A7.2.5. Monitoring locations are provided in Figure 7.1: Air Quality Study Area and Constraints in Volume II.

Table A7.2.2 - Details of Automatic Monitoring Sites

Site Name	Site ID	Location		Site Type	Pollutant Monitored
		X	Y		
Chelmsford City Council					
Chignal St James	CM1	566463	210830	Rural	NO, NOx, NO_2, PM_{10}, O_3
Thurrock Borough Council					
Stanford-le-Hope, Manorway	Thurrock 3 (TK3)	569358	182736	Roadside	NO_2, PM_{10}, $PM_{2.5}$
Tilbury, Calcutta Road	Thurrock 4 (TK4)*	563900	176282	Roadside	NO_2
Dock Road Tilbury	Thurrock 9 (TK9)	563489	176497	Roadside	NO_2, $PM_{2.5}$
Notes: * Site decommissioned December 2019, but replaced by TK9 in December 2020					

Table A7.2.3 - Annual Mean NO_2 Concentrations at Automatic Monitoring Sites

Site ID	NO_2 concentration (µg/m^3)					NO_2 1-hour mean >200µg/m^3				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
CM1	12.4	11.9	9.3	8.9	12.9	0	0	0 (57.73)	0	0
Thurrock 3 (TK3)	27.6	25.3	21.2	22.1	39.3	0	0	0	0	0
Thurrock 4 (TK4)*	33.8	30.0	32.2	n/a	n/a	0	0	1 (111.9)	n/a	n/a
Thurrock 9 (TK9)	n/a	n/a	29.4	23.1	29.2	n/a	n/a	n/a	n/a	1
Air Quality Objective	40µg/m^3					200µm^3 not to be exceeded more than 18 times/year				

Notes:

Exceedances of the NO_2 annual mean objective of 40 µg/m^3 are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

n/a – data not recorded at this site.

"-" – data not available.

* Site decommissioned December 2019, but replaced by TK9 in December 2020

Table A7.2.4 - Annual Mean PM_{10} Concentrations at Automatic Monitoring Sites

Site ID	PM_{10} concentration (µg/m^3)					PM_{10} 24-hour mean >50µg/m^3				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
CM1	13.5	15.9	12.4	10.9	16.0	1	3	0	0	0
Thurrock 3 (TK3)	18.4	17.4	16.7	16.8	16.6	4.0	14.0	9.0	1.0	3.0
Air Quality Objective	40 µg/m^3					35 exceedances				

Table A7.2.5 - Annual Mean $PM_{2.5}$ Concentrations at Automatic Monitoring Sites

Site ID	$PM_{2.5}$ concentration (µg/m^3)				
	2018	2019	2020	2021	2022
Thurrock 3 (TK3)	10.1	11.6	11.6	11.8	11.7
Thurrock 9 (TK9)	n/a	n/a	n/a	10.8	11.2

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

Diffusion Tube Monitoring

7.3.2 The details of the diffusion tube locations are shown in Table A7.2.6. The results for recent years are shown in Table A7.2.7. Monitoring locations are provided in Figure 7.1: Air Quality Study Area and Constraints in Volume II.

Table A7.2.6 - Details of Diffusion Tube Monitoring Results within 2 km of the draft Order Limits

Local Authority	Site ID	Description	Coordinates (based on OS grid reference, m)		Type of site
			X	Y	
Basildon	BA018	Dunton Caravan Park	565831	188372	Kerbside
Basildon	BA019	Ford Dunton	567026	189010	Kerbside
Braintree	BR11	High St Kelvedon	586386	219106	Roadside
Brentwood	BRW28I	Ingatestone Junior School, The Furlongs - playground	564446	199509	Urban Background
Brentwood	BRW29	Trimble Close lamp-post	564617	199849	Roadside
Brentwood	BRW29	Trimble	564654	199898	Roadside
Brentwood	BRW31	New Road, Ingatestone - telegraph pole	565186	200071	Roadside
Brentwood	BRW38	58 Roman Road	563659	198314	Roadside
Brentwood	BRW39	Thorndon Avenue/A127	562412	189153	Roadside
Chelmsford	CB13	60 Roxwell Road	569077	207528	Roadside
Chelmsford	CB62, CB63, CB64	Chignal 3	566463	210830	Rural
Chelmsford	CB113	Broomfield Road	570669	210486	Roadside
Colchester	CBC90	London Rd 170 Marks Tey	591312	223431	Roadside
Colchester	CBC96	Mill Rd 239	599909	228288	Roadside
Colchester	CBC135	11 Bridge Farm Coggeshall Road	591366	223679	Roadside
Colchester	CBC136	85 Coggeshall Road	590444	223502	Roadside
Colchester	CBC137	93B Coggeshall Road	590325	223495	Roadside

Local Authority	Site ID	Description	Coordinates (based on OS grid reference, m)		Type of site
			X	Y	
Gravesham	GR13	88 West Street, Gravesend, Kent, DA11 0BX Pelican Crossing	564696	174431	Roadside
Gravesham	GR24	28- 29 Milton Road (Lamp post), Gravesend, Kent, DA12 2RF	565128	174049	Roadside
Gravesham	GR31	32 Harmer Street GF (façade), Gravesend, DA12 2AX	565052	174149	Roadside
Gravesham	GR45	Princes Street (Sign Post) (Opp Jury Street), Gravesend, Kent, DA11 0AA	564708	174266	Roadside
Gravesham	GR47	29- 31 Harmer Street (façade), Gravesend, DA12 2A	565043	174173	Roadside
Gravesham	GR58	The Venue (Lamppost), Milton Road, Gravesend, DA12 2rf	565166	174036	Roadside
Gravesham	GR62	The Terrace (façade), Gravesend, DA12 2BB	565004	174324	Roadside
Gravesham	GR66	Russell Quay (Lamppost), West Street, Gravesend, DA11 OBE	564512	174448	Roadside
Gravesham	GR78	Canal Tavern Public House, Canal Road, Gravesend, DA12 2RS	565658	174195	Roadside
Gravesham	GR140	Nuxley Toys, 13-14 Milton Road	564955	174098	Roadside
Gravesham	GR145	Lamp post adjacent Chantry Community Academy, Ordnance Road	565336	174066	Roadside
South Norfolk and Broadland	DT4	4-87 DENMARK ST,DISS	611943	279567	Suburban
South Norfolk and Broadland	DT5	5-131 VICTORIA RD,DISS	611943	279567	Suburban

Local Authority	Site ID	Description	Coordinates (based on OS grid reference, m)		Type of site
			X	Y	
South Norfolk and Broadland	DT30	30 -Morrisons/Parsons Diss	611785	279593	Roadside
Tendring	DT20	A120 Hempstall Farm	612619	227395	Roadside
Tendring	DT50	Harwich Road, Ardleigh	605355	229466	Roadside
Thurrock	B	Bulphan (RB)	563855	184772	Rural
Thurrock	ML, MM, MR	Manorway Monitoring Station	569357	182737	Roadside
Thurrock	PKSL	Park Road (R)	567781	182400	Roadside
Thurrock	SL	Stanford Library (UB)	568501	182459	Urban Background
Thurrock	TL	Calcutta Road Tilbury	563867	176293	Roadside
Thurrock	TILA	North Dock Road (R)	563498	176483	Roadside
Thurrock	TILB	Dock Road Broadway interstection (R)	563645	176348	Roadside
Thurrock	TILC	St Andrews Road (R)	563600	176321	Roadside
Thurrock	TILD	Calcutta Road between Malta & Bermuda Road (R)	563995	176291	Roadside
Thurrock	TILE	Northside Calcutta Road (R)	563870	176305	Roadside
Thurrock	TSR	Tilbury Sydney Road (UB)	564122	176152	Urban Background
Thurrock	BSB LTC	Baker Street (B) (South) (I)	563574	180770	Industrial
Thurrock	HR LTC	Heath Road (I)	563785	180157	Industrial
Thurrock	SR LTC	Station Road (I)	567351	177555	Industrial
Thurrock	TTS LTC	Treetops School (UB)	563828	179597	Urban Background
Thurrock	TK9A, TK9B	Tilbury Dock Road Thurrock 9	563489	176497	Roadside

Table A7.2.7 - Annual Mean NO_2 Concentrations at Diffusion Tube Monitoring Sites

Local Authority	Site ID	NO_2 annual mean concentrations (µg/m^3)				
		2018	2019	2020*	2021*	2022
Basildon	BA018	19.7	18.7	-	-	-
Basildon	BA019	26.1	24.1	-	-	-
Braintree	BR11	23.1	22.1	17.2	18.0	-
Brentwood	BRW28I	28.3	28.4	22.5	-	-
Brentwood	BRW29	24.6	24.5	19.6	-	-
Brentwood	BRW29	26.4	26.9	21.0	-	-
Brentwood	BRW31	28.3	25.9	**41.5**	-	-
Brentwood	BRW38	18.5	19.1	21.8	-	-
Brentwood	BRW39	27.1	25.7	20.8	-	-
Chelmsford	CB13	18.3	17.7	14.5	14.7	13.7
Chelmsford	CB62, CB63, CB64	11.6	11.6	9.2	9.0	9.0
Chelmsford	CB113	-	-	-	25.1	23.6
Colchester	CBC90	27.1	26.7	17.5	17.5	16.3
Colchester	CBC96	18.4	19.9	14.4	13.8	10.6
Colchester	CBC135	-	32.5	25.6	23.8	19.6
Colchester	CBC136	-	30.6	22.2	24.4	23.2
Colchester	CBC137	-	37.9	28.5	33.3	22.4
Gravesham	GR13	**47.1**	**46.1**	38.0	**41.2**	37.6
Gravesham	GR24	**45.4**	**42.7**	36.7	40.0	35.0
Gravesham	GR31	**42.9**	**43.7**	38.2	37.4	34.0
Gravesham	GR45	27.0	29.3	24.1	24.4	21.7
Gravesham	GR47	**45.4**	**42.9**	36.3	**41.0**	35.0
Gravesham	GR58	37.6	38.0	31.2	33.0	31.6
Gravesham	GR62	30.7	30.8	25.8	25.6	24.8
Gravesham	GR66	31.9	31.6	27.9	28.2	26.3
Gravesham	GR78	31.3	32.5	26.2	27.5	26.9
Gravesham	GR140	38.1	38.5	33.7	34.2	30.8
Gravesham	GR145	32.2	30.6	28.9	29.6	29.3

Local Authority	Site ID	NO_2 annual mean concentrations (µg/m^3)				
		2018	2019	2020*	2021*	2022
South Norfolk and Broadland	DT4	24.8	21.5	18.7	22.1	22.4
South Norfolk and Broadland	DT5	26.2	26.9	19.5	21.9	21.5
South Norfolk and Broadland	DT30	-	-	15.8	19.4	17.6
Tendring	DT20	20.3	20.7	15.8	15.5	15.9
Tendring	DT50	0.0	0.0	0.0	15.9	16.0
Thurrock	B	15.2	14.6	11.9	9.5	12.3
Thurrock	ML, MM, MR	28.5	26.5	21.6	18.9	20.6
Thurrock	PKSL	29.4	26.0	20.7	18.1	19.7
Thurrock	SL	26.2	25.5	19.5	17.8	18.7
Thurrock	TL	32.9	34.8	28.0	23.8	24.7
Thurrock	TILA	38.0	39.8	31.1	23.4	25.7
Thurrock	TILB	**42.4**	**41.2**	32.8	26.8	28.3
Thurrock	TILC	37.8	33.3	28.2	22.5	25.2
Thurrock	TILD	35.0	35.1	31.3	25.3	22.4
Thurrock	TILE	33.4	35.2	31.7	22.8	25.5
Thurrock	TSR	26.8	28.5	24.2	20.3	20.9
Thurrock	BSB LTC	30.2	28.3	23.5	20.1	20.9
Thurrock	HR LTC	27.3	29.0	22.1	17.7	18.6
Thurrock	SR LTC	18.7	17.1	15.4	13.1	12.2
Thurrock	TTS LTC	23.7	21.5	19.2	16.0	17.5
Thurrock	TK9A, TK9B	-	-	29.4	23.1	25.9

Notes:

Bold represents exceedance of annual mean objective of 40 µg/m^3.

"-"denotes no monitoring data is available.

* 2020-2021 years were impacted by Covid-19, and they are not representative of air quality concentrations at normal traffic conditions

**The overall data capture at the automatic monitoring site TK4 was "Poor", therefore this factor was not included in calculating the local bias adjustment factor.

TK4 A, TK4 B - CLOSED Dec 2019 co-located duplicate tube site to TK9A, TK9B

Appendix 7.3: Air Quality Assessment Results

nationalgrid

Appendix 7.3 - Air Quality Assessment Results

7.1 Construction Dust Assessment

7.1.1 This appendix provides the results of the assessment of construction-related activities on air quality. The Project requires the following activities: removal of existing infrastructure, construction and earthworks, with associated trackout.

Magnitude of impacts

7.1.2 The construction dust assessment has been summarised to indicate potential risk and identify locations which pose the greatest risks to air quality.

7.1.3 The magnitude of the dust generating activities during construction phase is summarised in Table A7.3.1.

Table A7.3.1 - Dust Magnitude for Dust Generating Activities

Activity	Dust Emission Magnitude	Reasoning
Removal of Existing Infrastructure	Small	Total volume for the removal of existing infrastructure <12,000 m^3
Earthworks	Large	Total site area for earthworks >110,000 m^2 >10 heavy earth moving vehicles moving at any one time
Construction	Large	Total building volume >75,000 m^3 Potentially dusty construction material (e.g. concrete)
Trackout	Large	>50 HDV trips in any one day Potentially dusty surface material

Sensitivity of Receptors

7.1.4 The sensitivity of the area is defined by determining the number of receptors using a set of distance criteria (20 m, 50 m, 100 m and 250 m) from the IAQM construction guidance. The sensitivity of the area for dust soiling is defined as high due to the presence of >100 high sensitivity receptors within 20 m of the draft Order Limits.

7.1.5 The annual average PM_{10} concentration estimated by Defra for the grid squares within and around the Project are lower than 32 µg/m^3. Therefore, sensitivity of the area to human health has been assigned as high.

7.1.6 Middle Wood, Offton Site of Special Scientific Interest (SSSI) and Marks Tey Brickpit SSSI are within 20 m and 50 m of the draft Order Limits respectively. SSSIs are considered to be ‘medium sensitivity receptor’ in line with IAQM guidance.

7.1.7 The Middle Wood SSSI is a medium sensitivity receptor and as it is within 20 m of the draft Order Limits, it is considered to be of medium sensitivity to dust.

Risk categorisation of dust impacts

7.1.8 Taking into consideration the dust emission magnitude and the sensitivity of the area, the Project has been classified as high risk to dust soiling prior to mitigation, high risk to human health effects and low risk to ecological effects from removal of existing infrastructure, earthworks, construction and trackout as summarised in Table A7.3.2. Specific mitigation measures to minimise the risk of dust soiling, human health effects and ecological sites are provided below in Construction Dust Phase Mitigation Section.

Table A7.3.2 – Summary Dust Risk Table Prior to Mitigation

Activity	Dust Soiling	Human Health	Ecological
Removal of Existing Infrastructure	Medium Risk	Medium Risk	Low Risk
Earthworks	High Risk	High Risk	Low Risk
Construction	High Risk	High Risk	Low Risk
Trackout	High Risk	High Risk	Negligible

Significance of Effects

7.1.9 The finding that without dust controls, there would be a high risk of impact has informed the dust management measures that would be implemented as part of the Project (see Section 7.2). Such measured are expected to ensure that the risk of impact is reduced to negligible. Therefore, the effect of dust emissions during the construction phase would be negligible and not significant.

7.2 Construction Phase Mitigation

7.2.1 The dust-emitting activities can be greatly reduced or eliminated by applying the site-specific mitigation measures for high risk sites following measures recommendations in the Institute of Air Quality Management (IAQM) guidance (IAQM, 2024). The IAQM guidance states that with the implementation of effective site-specific mitigation measures, the environmental effect would not be significant in most cases.

7.2.2 The following measures from the guidance are relevant and are included within Appendix 4.1: Draft Outline CoCP in Volume III.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager
- Display the head or regional office contact information

- Develop and implement a DMP, which may include measures to control other emissions, approved by the local authority

Site management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner and record the measures taken
- Make the complaints log available to the local authority when asked
- Record any exceptional incidents that cause dust and/or air emissions, either on or off-site and the action taken to resolve the situation in the log book
- Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised

Monitoring

- Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary
- Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results and make an inspection log available to the local authority, when asked
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions
- Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the local authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction

Preparing and maintaining the site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site (where appropriate and practical)
- Adopt site specific operations where there is a high potential for dust production and the site is active for an extensive period (where noted in the DMP and appropriate and practical)
- Avoid site runoff of water or mud
- Keep site fencing, barriers and scaffolding clean using wet methods where appropriate
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site

- Cover, seed or fence stockpiles to prevent wind whipping (where needed and depending on duration)

Operating vehicle/machinery and sustainable travel

- Ensure all on-road vehicles comply with non-road mobile machinery (NRMM) requirements
- Ensure all vehicles switch off engines when stationary – no idling vehicles where practicable
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable
- Impose and signpost a maximum-speed-limit on haul roads and work areas
- Implement a Construction Staff Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing), and encourage construction workers to report to an offsite location before loading into a site vehicle and travelling to site, where practicable

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques, such as water sprays or local extraction
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate
- Use enclosed chutes and conveyors and covered skips where reasonably practicable
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use the fine water sprays on such equipment wherever appropriate
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods

Waste Management

- Bonfires and burning of waste materials is prohibited

Demolition

- Avoid explosive blasting, use appropriate manual or mechanical alternatives where reasonably practicable
- Bag and remove any biological debris or damp down such material before demolition

Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable – where appropriate

Construction

- Avoid scabbling (roughening of concrete surfaces) if possible
- Ensure sand and other aggregates are stored in bundled areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust

Trackout

- Regularly use water-assisted dust sweeper(s) on the access and local roads, to remove, as soon as practicable any material tracked out of the site
- Avoid dry sweeping of large areas
- Ensure vehicles entering and leaving the site are covered to prevent escape of materials during transport
- Inspect on-site haul roads for integrity and instigate necessary repairs to the surface as soon as reasonably practicable
- Record all inspections of haul roads and any subsequent action in a site log book
- Install hard surfaced haul roads, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned so far as is reasonably practicable
- Access gates to be located at least 10 m from receptors where possible

7.3 Construction Traffic

Model Verification

7.3.1 The model results at existing monitoring locations were used for model verification based on the method set out in Appendix 7.1 Air Quality Assessment Methodology in Volume III.

7.3.2 Verification has been completed using 10 monitoring sites across the draft Order Limits. Where appropriate, the locations on the monitoring sites were updated following location reviews.

7.3.3 Verification followed the methodology outlined in LAQM TG.22. The following method has been used:

- Comparison of the modelled road NOx versus the monitored road NOx. Road NOx measured at the diffusion tube monitoring sites was calculated using the latest Department for Environment, Food and Rural Affairs (Defra) NOx to NO_2 calculator
- A verification factor was calculated based on the regression equation and this was applied to the modelled road NOx concentrations

- The adjusted modelled road NOx contribution was then used to calculate the total NO_2 using the Defra NOx to NO_2 calculator

7.3.4 The air quality monitoring data collected as part of this assessment was reviewed to determine the suitability of each of the monitoring locations for inclusion in the model verification process. The criteria used to determine the suitability of the monitoring data for inclusion into the verification process is outlined below:

- Monitoring locations were required to be within 200 m of a road within the draft Order Limits
- Monitoring data in 2019 was required to have a data capture of ≥75 %
- Monitoring data influenced by major road emissions sources which were missing from the traffic model, and hence could not be included in the dispersion model was excluded
- Monitoring data from sites where the exact location could not be accurately identified or validated was excluded

7.3.5 Ten monitoring sites were not used in the verification process, and the reasons are detailed in Table A7.3.3.

7.3.6 Table A7.3.4 provides the verification details, and graphs showing the model performance for the Project are shown in Figure 7.3.1 Model Performance below. As the model verification factor is more than 1 the results have been adjusted to provide a conservative assessment.

Table A7.3.3 – Monitoring sites removed from the Verification Process

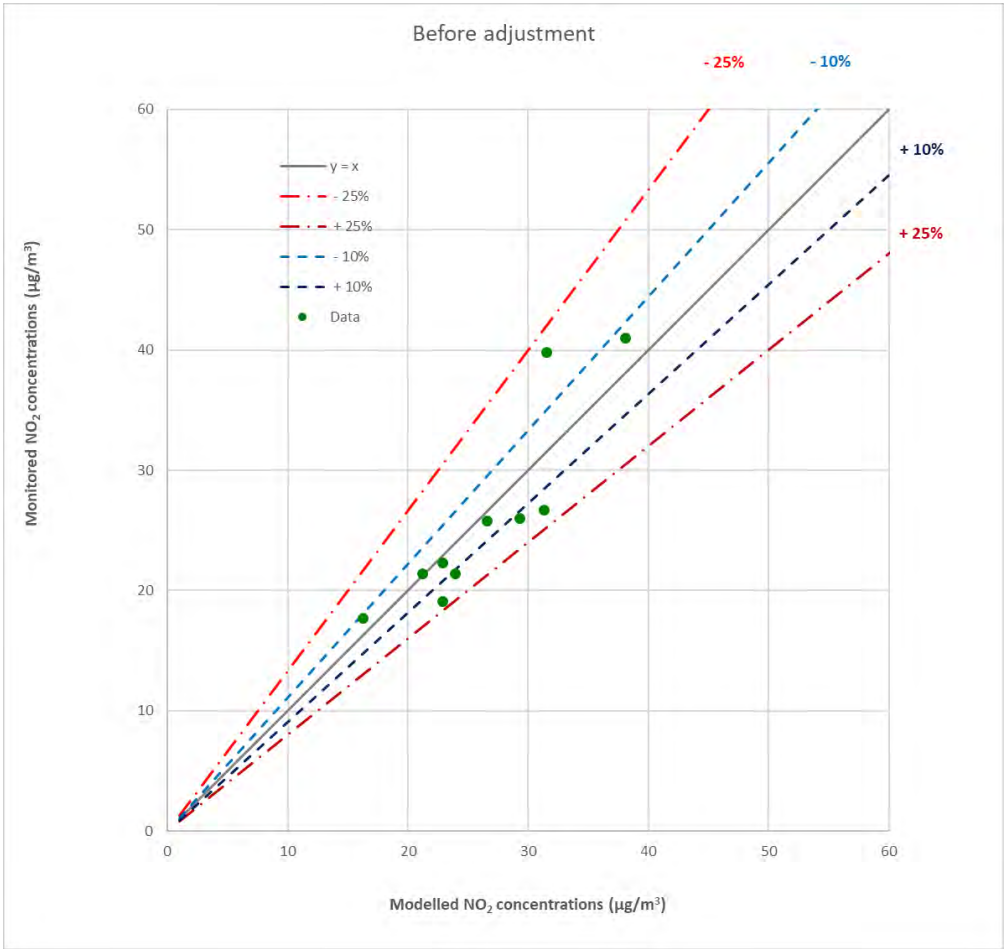
Site ID	Location	Reasoning
BR13	Bridge Street Witham	This tube is located at a complex junction. The modelling can't replicate conditions at a complex junction, causing the model to underpredict at this location.
BRW26	289 Chelmsford Road-telegraph pole	This tube is located adjacent to a bus stop. The modelling can't replicate conditions at a bus stop, causing the model to underpredict at this location.
BRW29	Thorndon Avenue/A127	The exact location of this diffusion tube could not be accurately identified and therefore was excluded.
BRW30	8 Trimble	The exact location of this diffusion tube could not be accurately identified and therefore was excluded.
CB36	2 Rainsford Lane	This tube is located <1m from the road, and therefore is located too close to the road for suitable model verification.
CBC135	85 Coggeshall Road	The exact location of this diffusion tube could not be accurately identified and therefore was excluded.
CBC137	93B Coggeshall Road	The exact location of this diffusion tube could not be accurately identified and therefore was excluded.

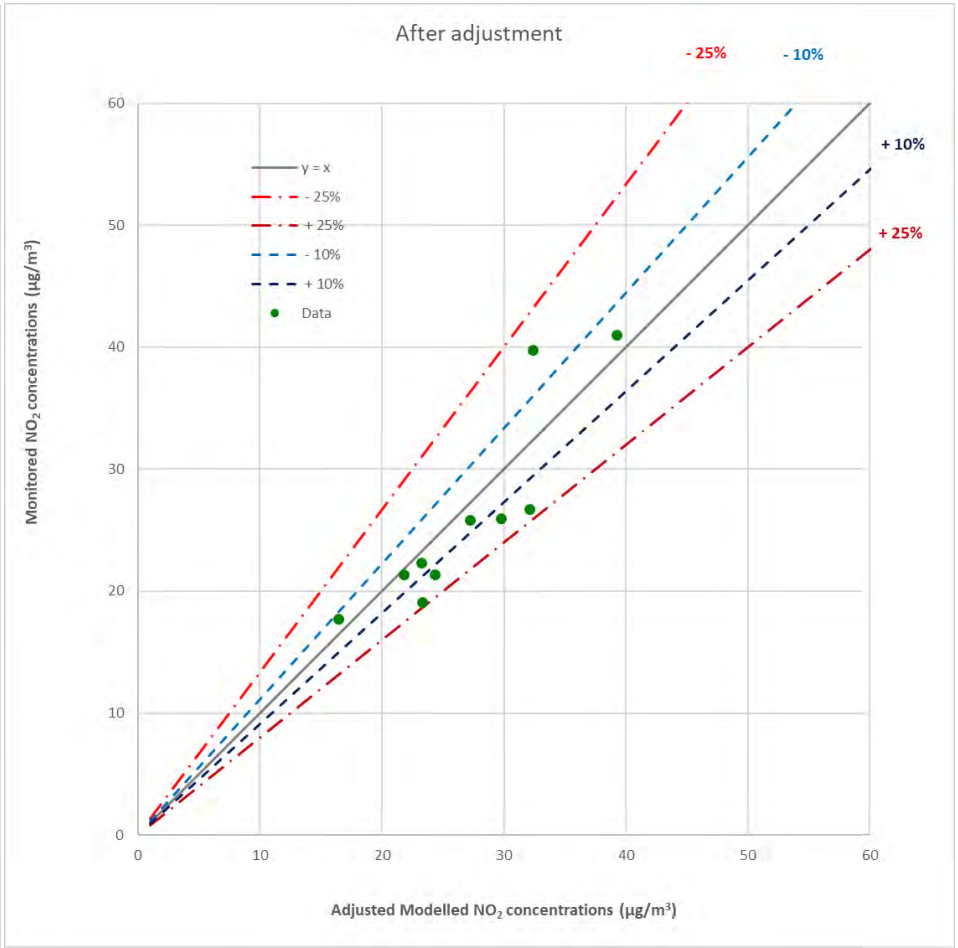
Site ID	Location	Reasoning
DT30	Clacton Hospital / Sea Front	There is no monitoring data available for the baseline year of 2019, therefore this site has been excluded from verification.
TILC	St Andrews Road (Tilbury) (R)	The exact location of this diffusion tube could not be accurately identified and therefore was excluded.
BRW39	Thorndon	The exact location of this diffusion tube could not be accurately identified and therefore was excluded.

Table A7.3.4 – Model performance

Adjustment Factor	1.06
Within +10%	3
Within -10%	2
Within +-10%	5
Within +10 to 25%	4
Within -10 to 25%	1
Within +-10 to 25%	5
Over +25%	0
Under -25%	0
Greater +-25%	0
Within +-25%	10
Total	10
Uncertainties Assessment	
Correlation	0.892
RMSE (µg/m3)	3.630
Fractional bias	-0.032

Figure 7.3.1 Model Performance





Human Receptors

7.3.7 This section describes the predicted concentrations at human receptor locations as a result of the Project in the modelled year (2028) when there would be a change in vehicle flows which meet the EPUK/IAQM guidance screening criteria.

7.3.8 The modelled NO_2, PM_{10} and $PM_{2.5}$ concentrations and magnitude of change for all 40 human receptors modelled are presented for the Project in Table A7.3.5 to Table A7.3.7. There were no predicted exceedances of the air quality objective for all pollutants assessed in all three scenarios (Baseline, DM and DS).

NO_2 Results

7.3.9 The maximum increase in NO_2 as a result of changes in traffic is 0.1 µg/m^3 at receptor H31 due to an increase in traffic. At this location, the maximum total concentration in 2028 for the DS scenario is predicted to be 7.7 µ/m^3 which is well below the air quality objective (AQO) (40 µg/m^3).

7.3.10 The highest concentration was predicted at receptor HR28 and was 19.8 µg/m^3 in the DM and DS scenarios.

7.3.11 The magnitude of change in predicted annual mean NO_2 concentrations at all receptor locations is considered to be negligible, according to EPUK/IAQM guidance.

PM_{10} Results

7.3.12 The maximum increase in PM_{10} as a result of changes in traffic is 0.8 at receptor H31 due to an increase in traffic. At this location, the maximum total concentration in 2028 for the DS scenario is predicted to be 14.4 µ/m^3 which is well below the AQO (40 µg/m^3).

7.3.13 The highest concentration was predicted at receptor HR24 and was 20.0 µg/m^3 in the DM and DS scenarios.

7.3.14 The magnitude of change in predicted annual mean PM_{10} concentrations at all receptor locations is considered to be negligible, according to EPUK/IAQM guidance.

$PM_{2.5}$ Results

7.3.15 The maximum increase in $PM_{2.5}$ as a result of changes in traffic is 0.3 µg/m^3 at receptor H22 due to an increase in traffic. At this location, the maximum total concentration in 2028 for the DS scenario is predicted to be 8.9 µ/m^3 which is below the AQO of 12 µg/m^3 which will apply as an interim target in that year.

7.3.16 The highest concentration was predicted at receptor HR24 and was 11.2µg/m^3 in the DM and DS scenarios.

7.3.17 The magnitude of change in predicted annual mean $PM_{2.5}$ concentrations at all receptor locations is considered to be negligible, according to EPUK/IAQM guidance.

Summary

7.3.18 There were no predicted exceedances of the AQO for annual mean NO_2, PM_{10} and $PM_{2.5}$ at human receptor locations along the affected road network.

7.3.19 The magnitude of change at all receptors, for all pollutants assessed is considered to be negligible.

Table A7.3.5 – Air Quality NO_2 Human Receptor Results

Receptor ID	2019 Baseline (µg/m^3)	2028 DM (µg/m^3)	2028 DS (µg/m^3)	Magnitude of Change (µg/m^3)	Impact Descriptor
HR_1	12.4	8.1	8.1	<0.1	Negligible
HR_2	10.2	7.3	7.3	<0.1	Negligible
HR_3	31.2	18.7	18.7	<0.1	Negligible
HR_4	9.1	6.9	7.0	0.1	Negligible
HR_5	11.9	7.7	7.7	<0.1	Negligible
HR_6	15.1	9.7	9.7	<0.1	Negligible
HR_7	18.7	10.9	10.9	<0.1	Negligible
HR_8	19.9	11.2	11.2	<0.1	Negligible
HR_9	19.6	11.3	11.3	<0.1	Negligible
HR_10	20.0	11.9	12.0	<0.1	Negligible
HR_11	22.2	12.8	12.9	<0.1	Negligible
HR_12	24.7	13.3	13.3	<0.1	Negligible
HR_13	12.8	8.4	8.5	<0.1	Negligible
HR_14	10.3	7.2	7.2	<0.1	Negligible
HR_15	23.6	13.1	13.1	<0.1	Negligible
HR_16	14.9	8.6	8.6	<0.1	Negligible
HR_17	29.2	18.0	18.0	<0.1	Negligible
HR_18	20.6	14.0	14.0	<0.1	Negligible

Receptor ID	2019 Baseline (µg/m^3)	2028 DM (µg/m^3)	2028 DS (µg/m^3)	Magnitude of Change (µg/m^3)	Impact Descriptor
HR_19	22.7	12.3	12.3	<0.1	Negligible
HR_20	24.3	12.6	12.6	<0.1	Negligible
HR_21	14.5	9.6	9.6	<0.1	Negligible
HR_22	11.2	7.5	7.6	0.1	Negligible
HR_23	25.8	13.9	13.9	<0.1	Negligible
HR_24	38.0	18.8	18.8	<0.1	Negligible
HR_25	34.7	17.4	17.4	<0.1	Negligible
HR_26	12.2	8.1	8.1	<0.1	Negligible
HR_27	14.2	9.3	9.3	<0.1	Negligible
HR_28	24.5	19.8	19.8	<0.1	Negligible
HR_29	19.9	15.8	15.8	<0.1	Negligible
HR_30	8.6	6.6	6.6	<0.1	Negligible
HR_31	10.5	7.6	7.7	0.1	Negligible
HR_32	10.5	7.4	7.5	<0.1	Negligible
HR_33	7.5	5.9	5.9	<0.1	Negligible
HR_34	10.5	7.6	7.6	<0.1	Negligible
HR_35	11.0	7.5	7.5	<0.1	Negligible
HR_36	8.9	6.7	6.7	<0.1	Negligible
HR_37	8.7	6.5	6.5	<0.1	Negligible

Receptor ID	2019 Baseline (µg/m^3)	2028 DM (µg/m^3)	2028 DS (µg/m^3)	Magnitude of Change (µg/m^3)	Impact Descriptor
HR_38	10.4	7.4	7.4	<0.1	Negligible
HR_39	10.5	7.5	7.6	<0.1	Negligible
HR_40	9.2	6.9	6.9	<0.1	Negligible

Table A7.3.6 – Air Quality PM_{10} Human Receptor Results

Receptor ID	2019 Baseline (µg/m^3)	2028 DM (µg/m^3)	2028 DS (µg/m^3)	Magnitude of Change (µg/m^3)	Impact Descriptor
HR_1	16.7	15.5	15.5	<0.1	Negligible
HR_2	16.9	15.8	15.8	<0.1	Negligible
HR_3	19.7	18.2	18.2	<0.1	Negligible
HR_4	16.1	14.9	15.0	0.1	Negligible
HR_5	17.0	15.7	15.7	<0.1	Negligible
HR_6	17.5	16.2	16.2	<0.1	Negligible
HR_7	18.3	16.9	16.9	<0.1	Negligible
HR_8	19.1	17.7	17.7	<0.1	Negligible
HR_9	18.0	16.6	16.7	0.1	Negligible
HR_10	18.1	16.7	16.7	<0.1	Negligible
HR_11	19.3	17.8	17.8	<0.1	Negligible
HR_12	19.8	18.3	18.3	<0.1	Negligible
HR_13	16.7	15.5	15.5	0.1	Negligible
HR_14	16.8	15.6	15.7	0.1	Negligible
HR_15	20.3	19.0	19.0	<0.1	Negligible
HR_16	18.1	16.8	16.9	<0.1	Negligible
HR_17	20.4	19.0	19.0	<0.1	Negligible
HR_18	17.2	15.9	15.9	0.1	Negligible

Receptor ID	2019 Baseline (µg/m^3)	2028 DM (µg/m^3)	2028 DS (µg/m^3)	Magnitude of Change (µg/m^3)	Impact Descriptor
HR_19	19.7	18.2	18.2	<0.1	Negligible
HR_20	20.5	19.0	19.0	<0.1	Negligible
HR_21	17.1	15.8	15.9	<0.1	Negligible
HR_22	16.6	15.4	15.5	0.1	Negligible
HR_23	19.9	18.4	18.4	<0.1	Negligible
HR_24	21.8	19.9	20.0	0.1	Negligible
HR_25	21.8	19.9	19.9	<0.1	Negligible
HR_26	16.4	15.2	15.2	<0.1	Negligible
HR_27	17.0	15.7	15.7	<0.1	Negligible
HR_28	17.0	15.8	15.8	<0.1	Negligible
HR_29	16.0	14.8	14.8	<0.1	Negligible
HR_30	15.7	14.5	14.5	<0.1	Negligible
HR_31	15.5	14.3	14.4	0.1	Negligible
HR_32	17.3	16.1	16.1	<0.1	Negligible
HR_33	16.3	15.2	15.2	<0.1	Negligible
HR_34	15.7	14.6	14.6	<0.1	Negligible
HR_35	16.8	15.6	15.6	0.1	Negligible
HR_36	16.1	14.9	14.9	<0.1	Negligible
HR_37	16.5	15.4	15.4	<0.1	Negligible

Receptor ID	2019 Baseline (µg/m^3)	2028 DM (µg/m^3)	2028 DS (µg/m^3)	Magnitude of Change (µg/m^3)	Impact Descriptor
HR_38	16.6	15.4	15.4	<0.1	Negligible
HR_39	15.7	14.5	14.6	<0.1	Negligible
HR_40	16.4	15.2	15.2	<0.1	Negligible

Table A7.3.7 – Air Quality $PM_{2.5}$ Human Receptor Results

Receptor ID	2019 Baseline (µg/m3)	2028 DM (µg/m3)	2028 DS (µg/m3)	Magnitude of Change (µg/m3)	Impact Descriptor
HR_1	10.1	9.1	9.1	<0.1	Negligible
HR_2	10.0	9.1	9.1	<0.1	Negligible
HR_3	12.1	11.0	11.0	<0.1	Negligible
HR_4	9.6	8.7	8.7	<0.1	Negligible
HR_5	9.6	8.6	8.6	<0.1	Negligible
HR_6	10.5	9.5	9.5	<0.1	Negligible
HR_7	10.7	9.6	9.7	<0.1	Negligible
HR_8	11.0	9.9	9.9	<0.1	Negligible
HR_9	10.9	9.8	9.8	<0.1	Negligible
HR_10	11.2	10.1	10.1	<0.1	Negligible
HR_11	11.5	10.3	10.3	<0.1	Negligible
HR_12	11.6	10.4	10.4	<0.1	Negligible
HR_13	10.0	9.0	9.0	<0.1	Negligible
HR_14	9.9	8.9	9.0	<0.1	Negligible
HR_15	11.7	10.6	10.6	<0.1	Negligible
HR_16	10.2	9.2	9.2	<0.1	Negligible
HR_17	12.1	11.0	11.0	<0.1	Negligible
HR_18	10.8	9.8	9.8	<0.1	Negligible

Receptor ID	2019 Baseline (µg/m3)	2028 DM (µg/m3)	2028 DS (µg/m3)	Magnitude of Change (µg/m3)	Impact Descriptor
HR_19	11.3	10.1	10.1	<0.1	Negligible
HR_20	11.8	10.6	10.6	<0.1	Negligible
HR_21	10.5	9.5	9.5	<0.1	Negligible
HR_22	9.8	8.8	8.9	<0.1	Negligible
HR_23	11.8	10.7	10.7	<0.1	Negligible
HR_24	12.6	11.2	11.2	<0.1	Negligible
HR_25	12.3	10.9	10.9	<0.1	Negligible
HR_26	10.0	9.0	9.0	<0.1	Negligible
HR_27	10.5	9.5	9.5	<0.1	Negligible
HR_28	11.3	10.3	10.3	<0.1	Negligible
HR_29	10.7	9.8	9.8	<0.1	Negligible
HR_30	9.2	8.3	8.3	<0.1	Negligible
HR_31	9.8	8.9	8.9	<0.1	Negligible
HR_32	9.9	9.0	9.0	<0.1	Negligible
HR_33	9.5	8.6	8.6	<0.1	Negligible
HR_34	9.7	8.7	8.7	<0.1	Negligible
HR_35	9.9	9.0	9.0	<0.1	Negligible
HR_36	9.6	8.7	8.7	<0.1	Negligible
HR_37	9.8	8.9	8.9	<0.1	Negligible

Receptor ID	2019 Baseline (µg/m3)	2028 DM (µg/m3)	2028 DS (µg/m3)	Magnitude of Change (µg/m3)	Impact Descriptor
HR_38	10.0	9.0	9.0	<0.1	Negligible
HR_39	9.7	8.7	8.7	<0.1	Negligible
HR_40	9.7	8.8	8.8	<0.1	Negligible

Air Quality Management Areas

7.3.20 A summary of the Project's impact on local AQMAs is provided in Table A7.3.8.

Table A7.3.8 – Summary of AQMA Modelled Results

AQMA	2028 Modelled Results
Lucy Lane North, Stanway	The Lucy Lane North AQMA was declared in 2012 due to exceedances in the annual mean NO_2 concentration. HR_24 is a sensitive human receptor located within the AQMA. The maximum predicted annual mean NO_2 concentration at this receptor location is 18.3 µg/m^3. This is below the AQO. The predicted change as a result of the Project is 0.05 µg/m^3. This is considered to be a negligible effect as the concentration is below the AQO.
AQMA 24 (Tilbury Dock Road, Calcutta Road part of St Chads Road, Tilbury)	AQMA 24 was declared in 2014 due to exceedances in the annual mean NO_2 concentration. HR_28 is a sensitive human receptor located within the AQMA. The maximum predicted annual mean NO_2 concentration at this receptor location is 19.8 µg/m^3. This is below the AQO. The predicted change as a result of the Project is <0.1 µg/m^3. This is considered to be a negligible effect as the concentration is below the AQO.

Ecological Receptors

7.3.21 The change in total NOx to compare against the critical level has been carried out and results are provided in Table 7.3.9. There are no increases in NOx concentration predicted to be above 1 % of the critical level.

7.3.22 The magnitude of change at all receptors, for all pollutants assessed is considered to be negligible.

7.3.23 The change in nutrient nitrogen deposition as a result of the Project has been predicted at one ecological site (Table A7.3.10). Although there were 17 ecological receptors modelled, 16 are either geological features not sensitive to nitrogen, or critical load data was not available, therefore the assessment against critical loads was only carried out for ER_17.

7.3.24 The increase in nutrient nitrogen deposition as a result of the Project in 2028 is predicted to be <0.1 kg N/ha/yr (to one decimal place) at receptor ER_17. At this location, there is a 0.93 % increase in N deposition as a percentage of the lower critical load for the relevant habitat (15 kg N/ha/yr). The impact is less than 1% of the relevant lower critical load and therefore considered to be insignificant.

Table A7.3.9 – Nitrogen Deposition (N dep) rates for Ecological Results

Receptor ID	X	Y	Critical Load (CL) (kg N/ha/yr)	2019 Baseline total NO_X ($\mu g/m^3$)	2028 DM total NO_X ($\mu g/m^3$)	2028 DS total NO_X ($\mu g/m^3$)	Change in NO_X concentration ($\mu g/m^3$)
ER_17	605674	250050	15	0.1	0.1	0.1	<0.1

Table A7.3.10 –Oxides of Nitrogen (NOx) concentrations for Ecological Results

Receptor ID	2019 Baseline total N Dep (kg N/ha/yr)	2028 DM total N Dep (kg N/ha/yr)	2028 DS total N Dep (kg N/ha/yr)	Critical Load (CL) (kg N/ha/yr)	Total N Dep (kg N/ha/yr)	DM-DS	% change to CL
ER_17	8.35	8.34	8.34	15	8.35	<0.1	0.93

Air Quality Summary

7.3.25 The assessment has examined the potential impacts of the Project on local air quality during the modelled year 2028.

7.3.26 A review of the current air quality legislation and planning policies relevant to the Project has been undertaken. The assessment covers each of the main areas highlighted as being essential for an air quality assessment in the National Policy Statement for National Networks (NPSNN) (Department for Transport, 2014).

7.3.27 The baseline assessment demonstrates that there are existing air quality issues in the draft Order Limits, with exceedances of the NO_2 annual mean AQO being observed at five roadside diffusion tube sites (GR13, GR24, GR31, GR47 and TILB (in Section H)), in 2019.

7.3.28 The Project Operation are not considered to result in a significant effect to human health in the draft Order Limits. There were no exceedances of the AQOs NO_2, PM_{10} and $PM_{2.5}$ in the modelled year 2028.

7.3.29 The assessment of construction phase impacts shows that the Project's potential effect on selected designated habitat sites is considered to be insignificant.

7.3.30 Therefore, the Project is not likely to result in any significant adverse effects that would require additional mitigation to be implemented to make the Project acceptable for air quality.

7.3.31 A summary of the air quality results is provided in Table A7.3.11.

Table A7.3.11 – Summary of Air Quality Results

Impact	Magnitude	Receptor Sensitivity	Embedded/Standard Mitigation	Description of effect and Likely Significance
Construction dust	Human receptors – High Ecological receptors - medium	Human and ecological receptors within 20m of the works	EMP, standard mitigation measures	Following application of best practice guidance impacts would be negligible and not significant
Human health	Negligible	High for receptors within 200m of the Affected Road Network (ARN)	None	Not significant
Ecological receptors	Negligible	High for receptors within 200m of the ARN	None	Not significant

Appendix 8.1: Habitat Report

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The Great Grid Upgrade

Norwich to Tilbury

Norwich to Tilbury

Preliminary Environmental Information Report - Volume III

Appendix 8.1: Habitat Report

April 2024

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Annex A: Figures
Annex B: NVC Survey types for each location
Annex C: Protected/Notable plant species highlighted in the desk study.

1. Introduction

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1. Introduction

1.1 Project Background

1.1.1 This report has been produced as an appendix to Chapter 8: Ecology and Biodiversity in Volume I, for the Norwich to Tilbury Project (referred to as 'the Project').

1.1.2 The Project (formerly known as East Anglia Green Energy Enablement ((GREEN)) would facilitate the transfer of power from the East Anglia region to the rest of the National Electricity Transmission System (NETS) thereby enabling connection of offshore wind generation, nuclear power generation and interconnectors which are expected into East Anglia by 2035.

1.1.3 As described in Chapter 1: Introduction in Volume I, the Project has been broken down into eight sections based largely on local authority boundaries. The eight sections are described below and referred to throughout this report:

- 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
- Section G: Brentwood Borough Council and Basildon Borough Council (and part of Chelmsford City Council)
- Section H: Thurrock Council

1.1.4 Further details of the Project are included within Chapter 4: Project Description of the PEIR within Volume I.

1.2 Ecological Background

1.2.1 The ecological background and scope of the habitat surveys are set out in the Environmental Impact Assessment (EIA) Scoping Report (National Grid, 2022).

1.2.2 The EIA Scoping Report (National Grid, 2022) for the Project, issued to the Planning Inspectorate in November 2022, identified the need for further assessment of Ancient Woodland, notable/protected plants and fungi, habitats of principal importance.

1.2.3 It was known there was potential for the presence of terrestrial notable vascular and non-vascular plants, with the presence of these requiring appropriate mitigation to avoid adverse effects. In this instance, the Project would seek to avoid habitats with the potential to support protect/notable species.

1.2.4 Ancient Woodlands would be avoided as far as practically possible, but there is potential for habitat damage/modification caused by construction traffic and corresponding deterioration of air quality.

1.2.5 There was anticipation that the Project would pass through or near habitats of principal importance, causing direct and indirect effects through construction. This included removal of sections of hedgerows; however, it was unknown whether any hedgerows within the draft Order Limits, would be classified as 'Important' under the Hedgerows Regulations (HMSO, 1997).

1.2.6 The EIA Scoping Report anticipated potential habitat loss through construction, with no perceivable pathways to impact from operation. Permanent habitat loss would be limited to permanent infrastructure, with all other habitats being reinstated on completion of construction as far as practical. Additional areas of planting and habitat creation to deliver a net gain in biodiversity would be implemented. Overall, the Project approach aims to provide habitats of equal or better quality than that affected by the Project.

1.3 Brief and Objectives

1.3.1 The aim of the survey work is to obtain baseline data for the Project. This is achieved by undertaking the following:

- Detailed desk studies
- Field surveys to establish the habitats present on site and their conditions
- Characterise habitats within the draft Order Limits

1.3.2 The objective of the study is to:

- Identify the habitats present within the site and their condition
- Provide detailed assessments of habitats on site which will be directly affected by the proposals
- Outline requirements for further survey work to inform detailed mitigation design

2. Relevant Legislation and Policy

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2. Relevant Legislation and Policy

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 and policy is provided in Table A8.1.1.

2.2 Legal Compliance

2.2.1 The following legislation (Table A8.1.1) has been considered about the methodology included within this report.

Table A8.1.1 - Legal Compliance

Legislation	Details
Conservation of Habitats and Species Regulations 2017, as amended (Habitats Regulations) (HMSO, 2019a)	The Regulations require authorities on behalf of the Secretary of State to maintain a list of sites which are important for either habitats or species (Special Areas if Conservation (SACs) and Special Protection Areas (SPAs)) and to provide protection for these sites through designation, planning, and other controls. The Regulations make it an offence (subject to exceptions) to deliberately, kill, injure, disturb, capture, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licences by the appropriate authorities (Natural England in England). Licences may be granted for several purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on the favourable conservation status of the species concerned.
The Wildlife and Countryside Act 1981, as amended (WCA) (HMSO, 1981)	The Act is the main mechanism for legislative protection of wildlife in England. It gives protection to native species (particularly threatened species), their resting places and places of shelter by making it an offence to kill, injure, take, damage, destroy, sell, or possess them (with exceptions). The Act gives protection to certain species of wild plants and safeguards important habitats by making it an offence to damage or destroy certain types of designated habitats, such as Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). This Act also prohibits the spread and release of certain non-native species into the wild.
The Natural Environment and Rural Communities (NERC) Act (HMSO, 2006)	The NERC 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. A total of 387 species of bryophyte, lichen, fungi, and vascular plants are included under s41, these are species of principal importance (SPI).

Legislation	Details
	Twenty-eight habitats that have the potential to occur within the Project boundary are included under s41, these are habitats of principal importance (HPI), s41 does include more than 28 habitats but those that are coastal, upland or with a restricted distribution have no potential to be affected by the Project.
Countryside and Rights of Way Act 2000 (HMSO, 2000)	The Act places a duty on government departments to have regard to the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity (this duty was strengthened in the NERC Act). It also strengthens legal protection for species considered to be threatened under the WCA and increases powers for the protection and management of SSSIs.
The Hedgerows Regulations (HMSO, 1997)	The Hedgerows Regulations 1997 aims to protect important hedgerows, defined as lines of trees or shrubs acting as barriers or boundaries in the rural landscape. The regulations prohibit the removal of certain hedgerows without permission from the local planning authority.
The Invasive Alien Species (Enforcement and Permitting) Order (Invasive Species Order) (HMSO, 2019b)	This order strengthens the legislation in relation to widely spread species of European Union concern; requiring effective management measures to be put in place to minimise their impacts. A person who plants or otherwise causes to grow in the wild any specimen which is of a species of plant which is included in Part 2 of Schedule 2 is guilty of an offence.
The Environment Act (HMSO, 2021)	In line with the 25 Year Plan for the Environment (HM Government, 2018), new development should identify and pursue opportunities for securing measurable net gains for biodiversity and for the wider environment. The Environment Act 2021 introduces a mandatory requirement for 10% biodiversity net gain for new developments to ensure that they enhance biodiversity and create new green spaces for local communities to enjoy. Integrating biodiversity net gain into the planning system will provide a step change in how planning and development is delivered. There is also a strong focus on delivering environmental net gain. This would preferably be achieved onsite, however there are options to deliver these gains offsite and this would be demonstrated via the Statutory Biodiversity Metric calculation tool.

2.3 Planning Policy

2.3.1 Chapter 8: Ecology and Biodiversity in Volume I provides further details of relevant planning policy.

3. Methodology

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3. Methodology

3.1 Desk Study

3.1.1 A desk study was completed in September 2023, with details amended as necessary in January 2024 following a design change.

3.1.2 The study area for Project varies with the different biodiversity receptors based on the CIEEM Guidelines for Ecological Impact Assessment (CIEEM, 2018), and defined in Table A8.1.2.

Table A8.1.2 - Study Area

Biodiversity Receptor	Study Area
Ancient Woodlands	Draft Order Limits and a buffer of 200 m
Habitats of Principal Importance	Draft Order Limits and a buffer of 200 m
Protected/Notable Plant and Fungi Species	Draft Order Limits and a buffer of 2 km

Ancient Woodland and Habitats of Principal Importance

3.1.3 The Multi-Agency Geographic Information for the Countryside website (MAGIC, 2023) was used to identify the location of HPI and Ancient Woodland within 2 km of the draft Order Limits.

3.1.4 Aerial photography from Google Earth (Google Earth, 2023) was used to assess habitats within the study area in a wider context and allowed the identification of potential wildlife corridors or barriers to animal movement. Information from Google Earth allowed a review of changes to habitats over time so that an assessment of reliability/longevity could be made.

3.1.5 APEM aerial imagery from 2022 was also used to provide Digital Surface Model (DSM) tiles, Digital Terrain Model (DTM) tiles, Ortho-mosaic tiles, and tree crown mapping for the Scoping Report Corridor. Imagery at a resolution of 3 cm Ground Sampling Distance was captured using fixed-wing aircraft.

Protected/Notable Plant and Fungi Species

3.1.6 Data requests were made to Local Environmental Record Centres (LERCs) to provide information on protected/notable species of plants (including bryophytes and fungi) within the draft Order Limits and a 2 km search area extending from the boundary of the draft Order Limits. The following LERCs were contacted:

- Norfolk Biodiversity Information Service (NBIS, 2022)
- Suffolk Biodiversity Information Service (SBIS, 2022)
- Essex Field Club (EFC, 2022)

3.2 Survey Methodology

3.2.1 The proposed survey area outlined in Table A8.1..3 is based on the results of the desk study, best practice guidance as defined in section 8.4: Project Engagement and Consultation in Chapter 8: Ecology and Biodiversity in Volume I.

Table A8.1.3 - Survey Area

Type of Survey	Survey Area
Biodiversity Net Gain (BNG) Habitat Condition Assessment	Draft Order Limits and a buffer of 50 m.
Modular River Survey	All impacted watercourses within the draft Order Limits.
Hedgerows Regulations Assessment	Intersected hedgerows within 50 m of the draft Order Limits.
Invasive Plants	Draft Order Limits and a buffer of 50 m.
National Vegetation Classification	Targeted locations within the draft Order Limits.
Ancient and Veteran Trees	Draft Order Limits and a buffer of 30 m.

Phase 1 Habitat Survey

3.2.2 Habitats were digitally mapped through an aerial drone survey conducted by APEM in April and May 2022 using fixed-wing aircraft to capture imagery at a high resolution (Figure 8.1.1: Phase 1 habitat map, in Annex A). The habitats within the Scoping Report Corridor[1] referenced the definitions outlined in the Joint Nature Conservation Committee (JNCC) Phase 1 Handbook (JNCC, 2010). At the time of survey, the draft Order Limits had not been defined and the survey area comprised the Scoping Report Corridor, the draft Order Limits are mostly located within the Scoping Report Corridor.

3.2.3 In 2023, ground-truthing surveys were conducted between April and October within the draft Order Limits, these surveys will resume in April 2024 until October 2024 to cover areas that were not surveyed in 2023. The ground-truthing survey involved competent surveyors walking the land within the draft Order Limits to confirm the APEM data, where it was apparent that the fixed-wing survey mapping was not correct, or land had not been subject to fixed-wing survey the Phase 1 habitat mapping has been amended.

UK Habitat Survey and BNG Condition Assessment

3.2.4 In parallel with the Phase 1 habitat ground-truthing survey, land within the draft Order Limits has been mapped using the UK Habitat Classification (UKHab Ltd, 2023) and the habitat condition assessed using the criteria provided in the technical guidance that accompanies Statutory Biodiversity Metric (Department for Environment, Food and Rural Affairs, 2023). This data has been collected to identify HPI and facilitate a BNG calculation and hereafter are referred to as the 'BNG' survey(s).

[1] The preferred corridor in the CPRSS that was consulted on at non-statutory consultation in 2022 and referred to within the EIA Scoping Report as the 'Scoping Report Corridor'.

3.2.5 Target Notes have been used to identify any features on conservation importance and to record plant species lists to provide further information on the Phase 1 habitats and/or the UK Habitat Classification.

Hedgerows Regulations Assessment

3.2.6 In parallel with the BNG survey, the hedgerows that would be impacted by the Project have been subject to a preliminary assessment, whereby data on their plant species composition has been collected. Where there is the potential that a hedgerow may be classified as important under the Hedgerows Regulations (HMSO, 1997), and a significant length of the hedgerow has the potential to be removed by underground cabling or under permanent infrastructure, a targeted assessment survey will be undertaken in 2024. This survey follows published good practice guidance by Defra (Defra, 2007). Targeted surveys will be undertaken where five or more woody species have been identified within the hedgerow. Hedgerows that have existed for more than 30 years, will be assessed by an ecologist (with input from the heritage team) as to whether they meet any of the eight criteria outlined in Part II, Schedule 1 of the Hedgerows Regulations (HMSO, 1997).

3.2.7 Potential hedgerows classified under the Hedgerows Regulations (HMSO, 1997), were selected for further assessment dependant on following at least one of four criteria, either:

- Classified as species rich with five or more woody species within 30 m
- Has the confirmed presence of bluebell (*Hyacinthoides non-scripta*), a WCA Schedule 8 species.
- Is situated on an 'Old Lane'
- Is situated on a parish boundary

3.2.8 Following selection, a total of 77 hedgerows will undergo a Hedgerows Regulations Assessment in 2024 as outlined in Table A8.1.4 and illustrated on Figure A8.1.3: NVC survey locations and Hedgerow Assessment locations. As the Phase 1 habitat surveys progress through 2024, further hedgerow assessments will be required for newly surveyed hedgerows that meet the criteria.

Table A8.1.4 – Hedgerows Regulations Assessment per Project Section

Project Section	Total Hedgerows	Species rich	Bluebell Present	Old Lane	Parish Boundary
A	1	1	0	0	0
B	25	22	0	2	6
C	20	18	0	0	8
D	4	4	0	0	1
E	5	5	0	0	0
F	3	3	0	0	1
G	8	8	0	0	0
H	11	11	0	1	0

National Vegetation Classification (NVC)

3.2.9 NVC surveys will commence from April 2024 for a total of 44 locations, where targeted surveys are deemed necessary to inform mitigation (Figure 8.1.3: NVC survey locations and Hedgerow Assessment locations, in Annex A). Only habitats within the draft Order Limits that will be affected by the haul road, underground cable, pylon locations or where overhead lines pass through woodland or wetland habitats, were selected for survey. NVC surveys will not be undertaken where overhead lines pass over dry grassland and heathland habitats, and no potential impact pathways are identified. Locations will be subject to grassland, woodland, or wetland NVC surveys dependant on habitat/s. An outline of the NVC surveys required for each location is provided in Annex B.

3.2.10 These surveys methodologies would follow published good practice guidance in line with the NVC Users' Handbook (J.S. Rodwell, 2006). During BNG surveys any habitats identified that may qualify as HPI are being noted. NVC surveys will only take place within any such habitat where it is likely to be impacted by the Project.

Ground Water Dependent Terrestrial Ecosystems (GWDTE)

3.2.11 The results of the BNG and NVC surveys will be used to identify where habitats associated with GWDTE are present within the draft Order Limits and in proximity to potential impact pathways. Desk study data will also be reviewed to identify the priority habitats, statutory and non-statutory designated sites that support habitats associated with GWDTE that have the potential to be impacted by the Project due to the potential for the disruption of hydrological links, where the Project is located underground or where large above ground installations are proposed. Where the Project has the potential to affect surface water flows, the potential for effects to habitats associated with GWDTE will also be investigated due to the potential for hydrological links between surface and subsurface waterbodies.

Modular River Survey

3.2.12 The methodology begins with the identification of watercourses that may be impacted by the Project using digital online mapping. Field surveys will be conducted to assess whether these watercourses meet the criteria for a River Condition Assessment for Biodiversity (A.M. Gurnell *et. al,* 2020), focusing on flowing water conditions. The surveys comprehensively evaluate the quality of physical habitat and the functionality of river systems, aligning with the latest survey requirements.

3.2.13 The scope of the survey encompasses all impacted watercourses within the draft Order Limits to ensure a thorough understanding of the potential environmental effects. Surveys will commence during the spring and summer of 2024, considering seasonal variations and distinct habitat characteristics.

Invasive Plant Survey

3.2.14 Invasive plant species will be identified and recorded during the BNG surveys and other ecological surveys within the draft Order Limits extending 50 m from the draft Order Limit boundary where access permits.

3.2.15 Surveyors will systematically identify and record the invasive plant species encountered during the surveys. Recording specific locations and density of these invasive plant

species within the survey area. The locations of invasive plants will continue to be recorded in parallel with other ecological surveys.

Ancient and Veteran Trees

3.2.16 Ancient and veteran trees will be identified by the arboriculturist as part of the comprehensive tree survey. The assessment of these notable trees will be integrated into the broader tree survey, providing insights into their distribution, unique characteristics, historical significance, and overall condition within the defined survey area. An Arboricultural Impact Assessment (AIA) will be submitted with the ES.

3.3 Dates of Survey and Personnel

3.3.1 All lead surveyors are members of the Chartered Institute of Ecology and Environmental Management. They are trained, experienced ecologists competent in undertaking the respective habitat surveys. The surveys have taken/will take place in the survey season as outlined in Table A8.1.5.

Table A8.1.5 - Survey Timings

Type of Survey	Survey Dates
Phase 1 Habitat Survey	May to October 2023; April to October 2024
BNG Survey	May to October 2023; April to October 2024
Hedgerows Regulations Assessment	May to October 2023; April to October 2024
Invasive Plant Survey	May to October 2023; April to October 2024
NVC Survey	Commencing April 2024
Modular River Survey	April to October 2024

3.4 Notes and Limitations

3.4.1 Records held by LERCs are collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage. The data collection is not exhaustive and can be biased towards areas with public access or where surveys have taken place to inform other development projects. It is therefore possible that there are protected/notable species of plants present within/adjacent to the draft Order Limits that are not identified during the data searches.

3.4.2 LERC data relies on contributions from multiple sources, including citizen scientists, volunteers, and professionals. This can result in variations in data quality and accuracy. Errors in species identification, misinterpretation of data, or inconsistent sampling methodologies can affect the reliability of the data. This also means there is a lack of standardisation in collecting data.

3.4.3 LERC data may not always be regularly updated or maintained, leading to potential gaps in recent data or changes in ecological conditions. This can limit the accuracy and relevance of the data. Collecting bespoke field survey data will overcome any gaps in desk study data coverage. This data is to be used to inform the assessment, but the baseline will be created using a combination of desk study and field surveys and so the partial nature of desk study records will not be a limiting factor in the assessment.

3.4.4 Using aerial imagery may result in inaccuracies from misidentification of certain habitats due to unclear images. Undertaking ground-truthing surveys will overcome this limitation.

3.4.5 Land access restrictions may result in some land parcels not being surveyed on the ground and survey data may therefore be incomplete. Every effort will be made to obtain access and where access is not available a combination of the APEM data and past aerial imagery data available on Google (Google Earth, 2023) and surveys from vantage points will overcome this limitation, a precautionary approach to ecological value will be taken where the value of a habitat is uncertain.

3.4.6 Data collected to date is partial with surveys ongoing to provide a complete picture of the baseline conditions within the draft Order Limits.

3.4.7 There is the potential that some areas of invasive plant species may be missed during the walkover surveys, this is sufficient to inform the impact assessment and outline Code of Construction Practice (CoCP). Pre-construction surveys will provide a detailed picture of the location of invasive plant species in relation to the design to be presented in the DCO application.

4. Results

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4. Results

4.1 Overview

4.1.1 This section shows the results of the desk study as well as the habitat and/or species surveys undertaken across the Project with respect to Ancient Woodlands, priority habitats and protected/notable plant and fungi species.

4.1.2 As identified in section 3.3 surveys commenced in May 2023 and are due to be completed by October 2024. Only data collected up to September 2023 has been included within this report, to allow enough time for the processing of results. Desk study data is presented on Figure A8.1.2: Protected / notable habitat and plant desk study map, in Annex A. Further desk-based data and survey results obtained beyond September 2023 will be reported within the ES.

4.2 Desk Study Results

Ancient Woodland

4.2.1 There are 45 blocks of Ancient Woodland that fall within 200 m of the draft Order Limits across Norfolk, Suffolk, and Essex. Of these, four blocks are located within the draft Order Limits, with a further six on the border or immediately adjacent and are displayed in Table A8.1.6. All the Ancient Woodland blocks are illustrated in Figure A8.1.1: Phase 1 Habitat Map and Figure A8.1.2: Protected / notable habitat and plant desk study map, in Annex A.

Table A8.1.6 - List of Ancient Woodlands within or adjacent to the draft Order Limits

Ancient Woodland	Project Section	Within Order Limits / on the border
Round Wood	Section B	Within Order Limits
Bullen Wood	Section B	Within Order Limits
Millers Wood	Section B	On the border
Great Newton Wood	Section B	On the border
Fiddler's Wood	Section D	On the border
Unnamed Woodland	Section E	On the border
Mann/Parsons Woods	Section E/F	On the border
Bushy Wood	Section F	On the border
Bushey Wood	Section F	Within Order Limits
Writtle - Writtlepark Wood	Section F	Within Order Limits

4.2.2 Ancient Woodlands that are illustrated on inventories (MAGIC, 2023) are woodlands that cover more than 2 ha that are shown on maps on, or before, 1600. Small woodlands and linear features are not shown on the inventories. The BNG and/or NVC surveys will determine if wooded areas affected by the Project support Ancient Woodland ground flora species and the arboricultural survey will identify veteran and/or ancient trees.

Habitats of Principal Importance in England

4.2.3 The following habitats are shown on the Priority Habitats Inventory (Natural England, 2023) on land within the draft Order Limits:

- Deciduous woodland
- Good quality semi-improved grassland
- Coastal and floodplain grazing marsh
- No main habitat but additional habitats present (this represents the HPI open mosaic habitat on previously developed land)
- Traditional orchards
- Lowland fens
- Lowland calcareous grassland
- Lowland heathland

4.2.4 Also, the following habitats shown on the Priority Habitats Inventory (Natural England, 2023) are present outside the draft Order Limits but within the study area (200 m from the draft Order Limits):

- Coastal saltmarsh
- Lowland dry acid grassland
- Lowland meadows
- Purple moor grass and rush pastures

4.2.5 The Priority Habitat Inventory identifies that there are likely inaccuracies in the habitat mapping which was primarily completed through historical and aerial map assessment rather than physical survey. The locations of these habitats, as they are illustrated on the inventory (Natural England, 2023), are shown on Figure A8.1.2: Protected / notable habitat and plant desk study map, in Annex A.

4.2.6 It is apparent from a review of the APEM data that some of the areas identified as Priority Habitat such as coastal and floodplain grazing marsh may be arable land, the extent of Priority Habitat within the draft Order Limits will be verified as part of the BNG survey.

Protected/Notable Plant and Fungi Species

4.2.7 There one record of a protected/notable fungi (sandy stilt puffball *Battarrea phalloides*) within 2 km of the draft Order Limits, an SPI and a WCA schedule 8 species located in Norfolk. This fungus is associated with sandy soils and mostly recorded on road sides and adjacent to hedgerows. The desk study returned records of protected/notable

plants, bryophytes, and invasive plant species as listed on schedule 9 of the WCA. The locations of these records can be found in Figure A8.1.2: Protected / notable habitat and plant desk study map, in Annex A. A summary can be found in Annex C.

4.2.8 Eighty-six species of protected/notable plant species were returned from the three local record centres under the following designations: England Red Listed Species by Botanical Society of Britain and Ireland (BSBI, 2014) (near threatened to endangered), nationally scarce and nationally rare excluding red listed taxa (JNCC, 2023), Section 41 of the NERC Act (HSMO, 2006), and WCA Schedule 8 (HMSO, 1981). These species are associated with diverse or valuable habitats that have declined in area in recent years, species of least concern are not currently considered to be in danger of extinction but are likely to indicate that an area supports a valuable habitat.

4.2.9 Only one species of notable bryophyte (*Tortula schimperi*), a woodland moss was reported within 2 km of the draft Order Limits, listed as nationally rare (O.L. Prescott, 2016).

4.2.10 Eight invasive plant species designated as WCA schedule 9 species (HMSO,1981) were recorded within the study area. These were:

- Canadian water weed (*Elodea canadensis*) - associated with waterbodies
- New Zealand pigmyweed (*Crassula helmsii*)- associated with still waterbodies
- Giant rhubarb (*Gunera tinctoria*) - associated with waterbodies and wetlands
- Giant knotweed (*Fallopia scahalinensis*) - associated with former industrial sites
- Japanese knotweed (*Fallopia/Reynoutria japonica*) - associated with former industrial sites, areas where garden waste has been deposited on road verges and by waterways
- Rhododendron (*Rhododendron ponticum*) – associated with woodlands and heathland sites
- Three-cornered garlic (*Allium triquetrum*) – associated with areas where garden waste has been deposited typically on trackways and hedgerows

4.2.11 Twenty-one other invasive species that are not WCA Schedule 9 species (HMSO, 1981), have been recorded within the study area. These plants were introduced to the UK as exotic species and have subsequently been found to have a detrimental effect on biodiversity.

4.3 Survey Results

4.3.1 As previously mentioned, only data collected between the survey start date and September 2023 has been included within this report.

4.3.2 The Phase 1 Habitat ground-truthing survey, BNG survey, Hedgerows Regulations Assessments and Invasive Plant survey are in progress, approximately 46% of the land area within the draft Order Limits has been surveyed up to the end of September 2023.

4.3.3 The surveys revealed that most of the land within the draft Order Limits comprised cropped arable farmland, with pockets of woodland, improved grassland fields and fields supporting semi-improved grassland. There are several parcels of habitat in the Tilbury area that have regenerated naturally on land that was previously occupied by industrial development.

4.3.4 One area of lowland meadow was identified during the survey. This was located on Dunton Hills Family golf course and appeared to have been created from sown seed.

4.3.5 The areas of woodland, fields that appeared to support diverse or valuable plant communities and areas of open mosaic habitat on previously developed land that have the potential to be directly affected by access routes, underground cables or above ground permanent infrastructure will be subject to more detailed surveys in 2024 to assess the value of these habitats and inform mitigation. It is not proposed to undertake targeted surveys of habitats that will be located beneath overhead lines as it is not anticipated that these habitats would be affected by their presence.

4.3.6 Very few ponds were recorded within the draft Order Limits, most of the drainage ditches were dry or held very little water, most of the watercourses held water. No direct effects on ponds are anticipated and so no targeted surveys of ponds are proposed. The dry drainage ditches did not support wetland plants. Surveys of aquatic flora within watercourses will take place where there is the potential for direct effects to bankside habitat or downstream effects are anticipated.

4.3.7 GWDTE were identified within the draft Order Limits these were damp/wet grasslands and wet woodlands associated with open watercourses. These habitats will be subject to further botanical survey if there is the potential that they may be affected by the Project. In some cases, it would be possible to avoid direct effects by utilising existing roads and tracks for access and to over sail these habitats.

4.3.8 At least one invasive non-native species was recorded within the draft Order limits. This was Himalayan balsam (*Impatiens glandulifera*).

4.3.9 The surveys have revealed that there are trees within the draft Order Limits and that some of the woodlands supported ancient and/or veteran trees. The location and status of these trees will be confirmed by the arboricultural survey.

4.3.10 Habitat surveys will recommence in the 2024 survey season and full results will be submitted within the ES.

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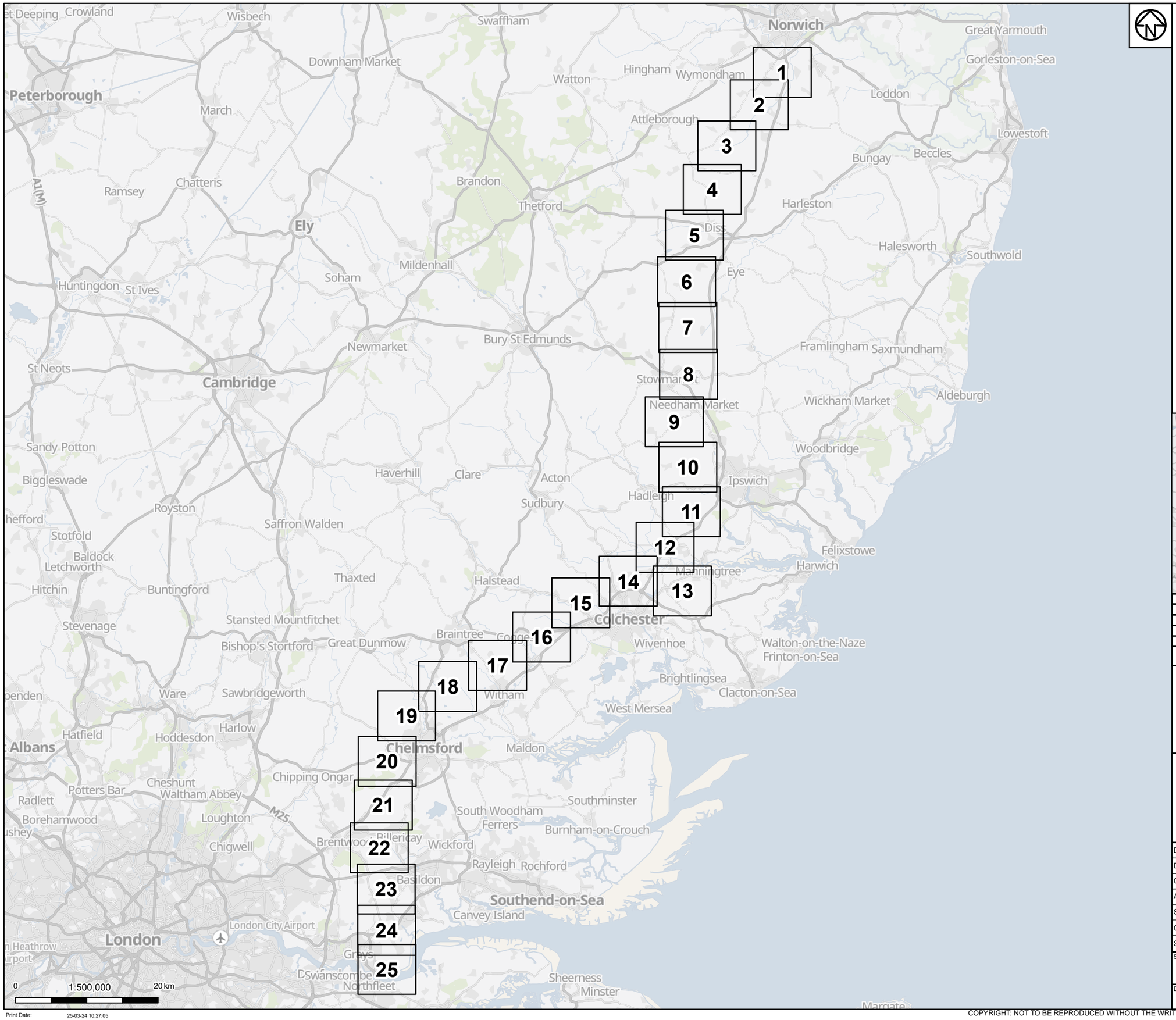
Annex A: Figures

Figure A8.1.1: Phase 1 habitat map



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PROJECT:
Norwich to Tilbury

Title:
A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Overview

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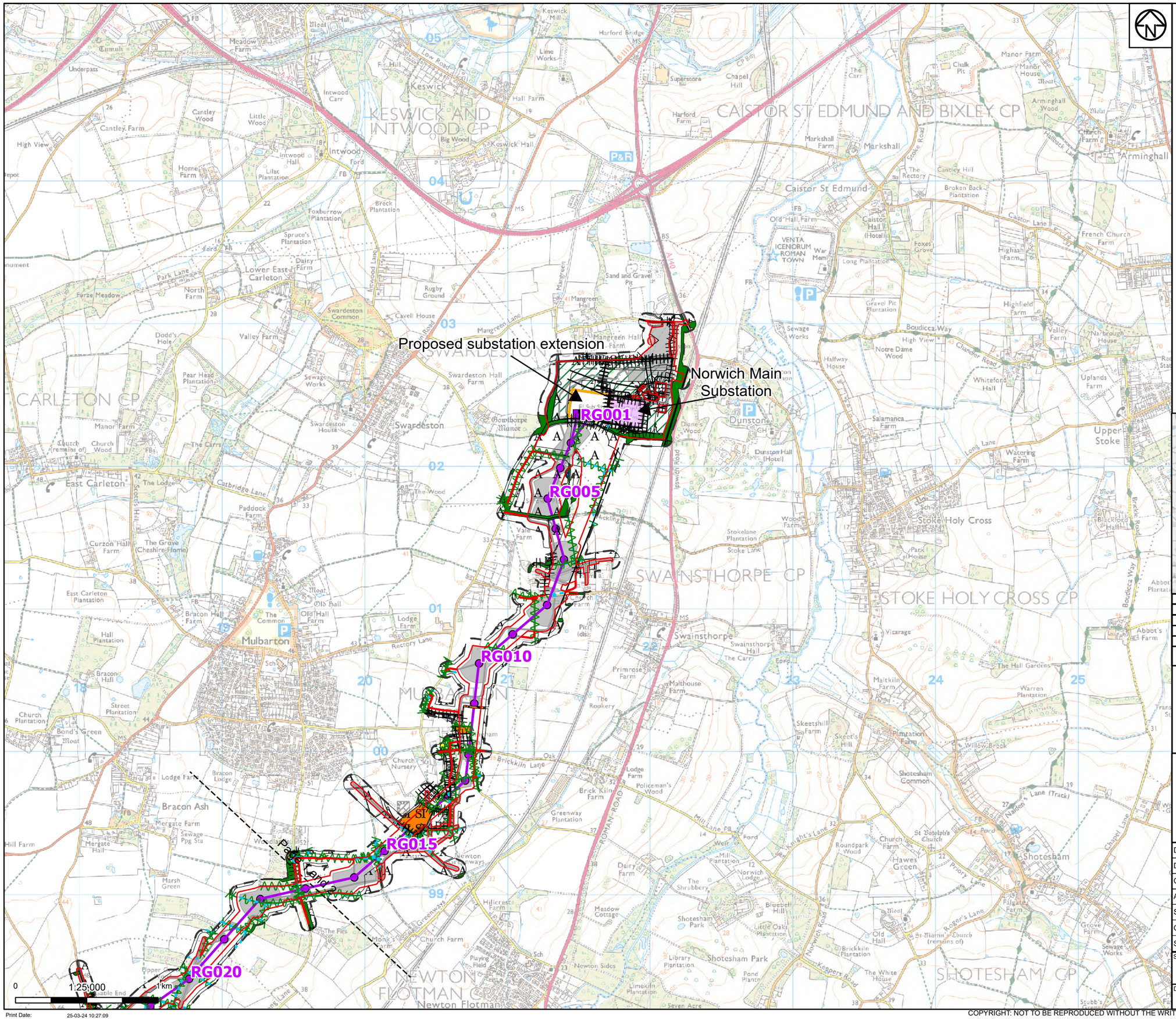

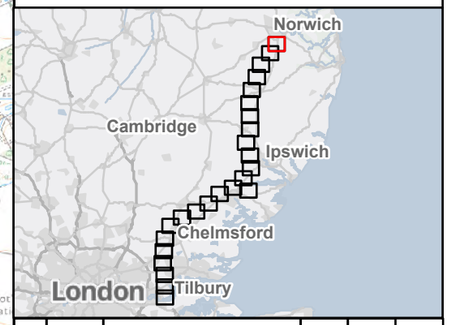

- Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Existing substation
- Proposed substation extension
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Other tall ruderal
- Standing water
- Artificial - quarry
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Cultivated / disturbed land - emphemeral / short perennial
- Built up areas - buildings
- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

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A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 1 of 25

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Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland mixed semi-natural
- Woodland mixed plantation
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Other tall ruderal
- Standing water
- Running water
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Cultivated / disturbed land - emphemeral / short perennial
- Built up areas - buildings
- Bare ground
- Other habitat

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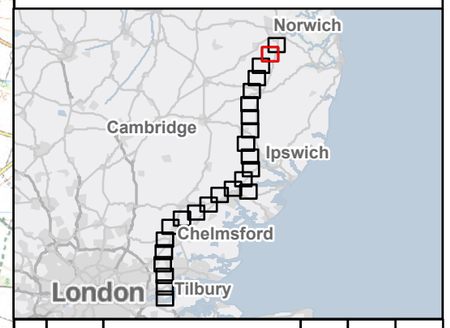

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Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

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- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Woodland broadleaved semi-natural
- Woodland coniferous semi-natural
- Woodland mixed plantation
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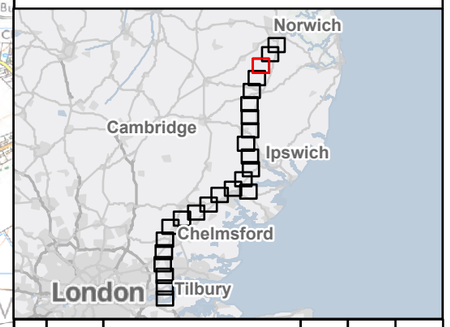

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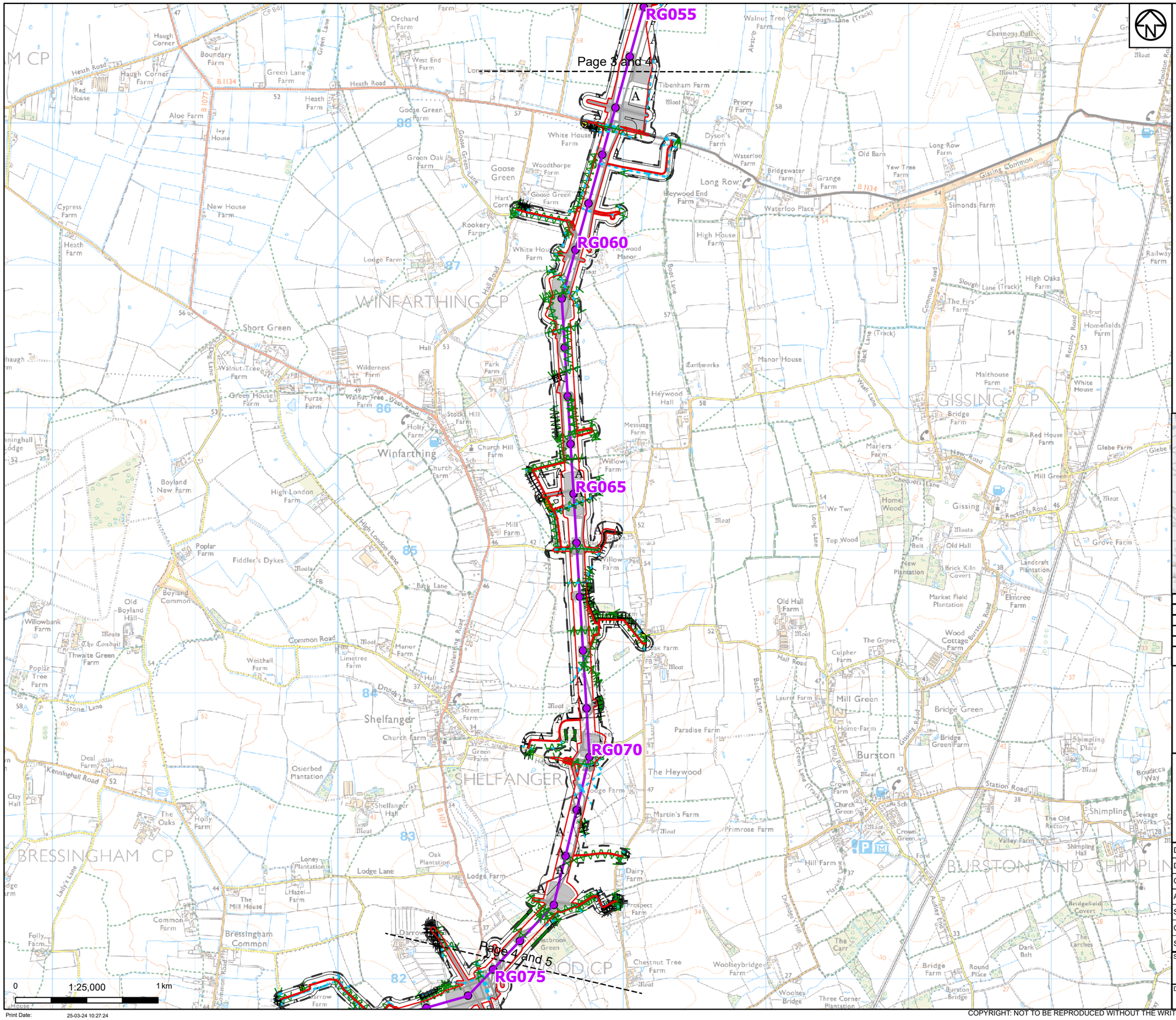

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Woodland broadleaved semi-natural
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Standing water
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- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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Waveney Valley Overhead Line

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Route 4 and 5

Section A

Section B

Page 5 and 6

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Legend

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland coniferous plantation
- Woodland mixed semi-natural
- Woodland mixed plantation
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Bracken continuous
- Standing water
- Running water
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Cultivated / disturbed land - emphemeral / short perennial
- Built up areas - buildings
- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map
Page 5 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092 Revision: A

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RG070

RG075

RG080

Waveney Valley Alternative

RG85

RG90

RG095

Trenchless Crossing:
Waveney Valley Alternative
(north channel)

Trenchless Crossing:
Waveney Valley Alternative
(south channel)

Section A

Section B

0 1:25,000 1 km

Print Date: 25-03-24 10:26:12

Draft order limits
Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed low duty gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland coniferous plantation
- Woodland mixed semi-natural
- Woodland mixed plantation
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Bracken continuous
- Standing water
- Running water
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Built up areas - buildings
- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 5a of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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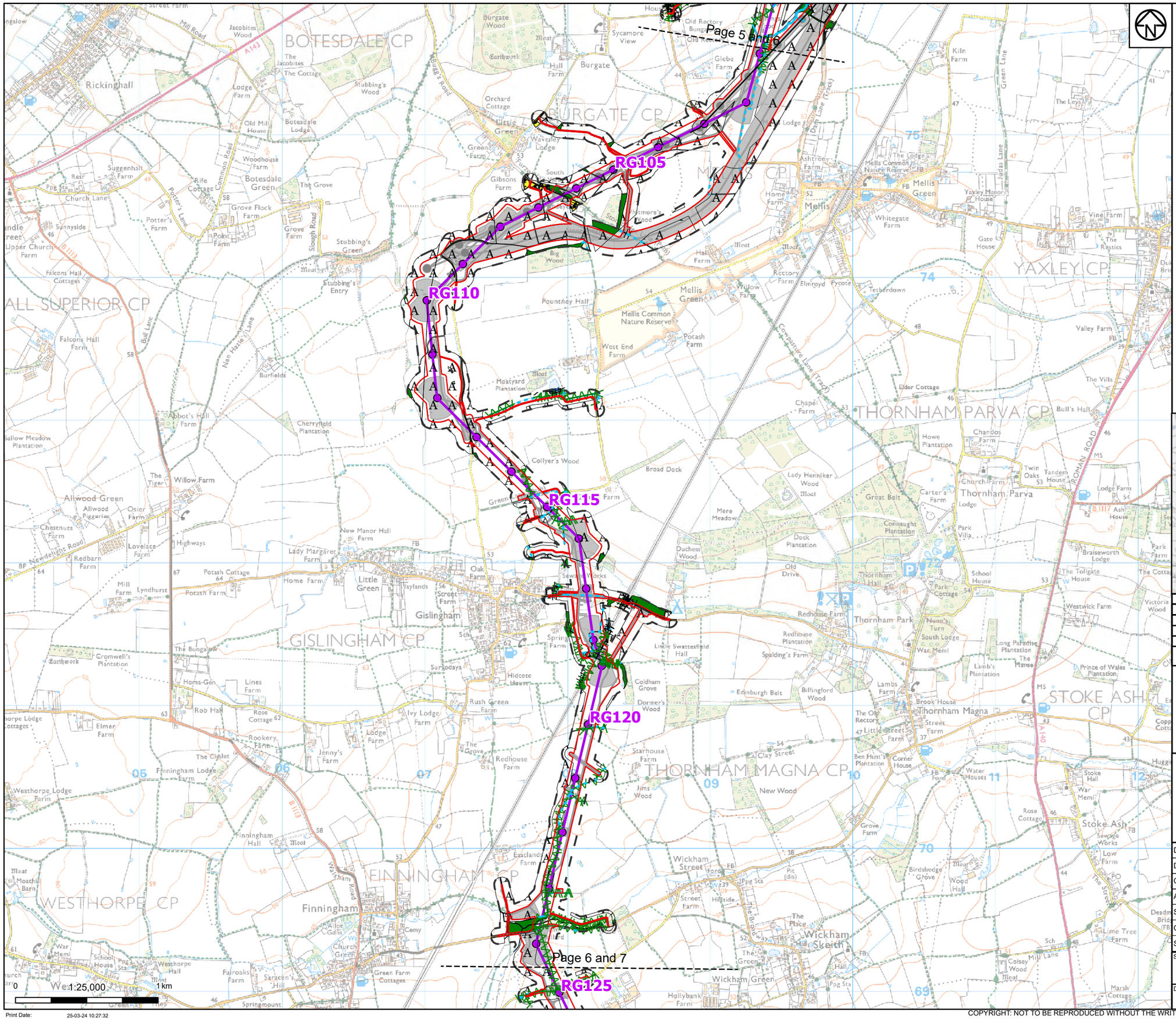

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Other tall ruderal
- Marginal vegetaion
- Standing water
- Running water
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Cultivated / disturbed land - emphemeral / short perennial
- Built up areas - buildings
- Other habitat
- Other habitat - hardstanding

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 6 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

Print Date: 25-03-24 10:27:32

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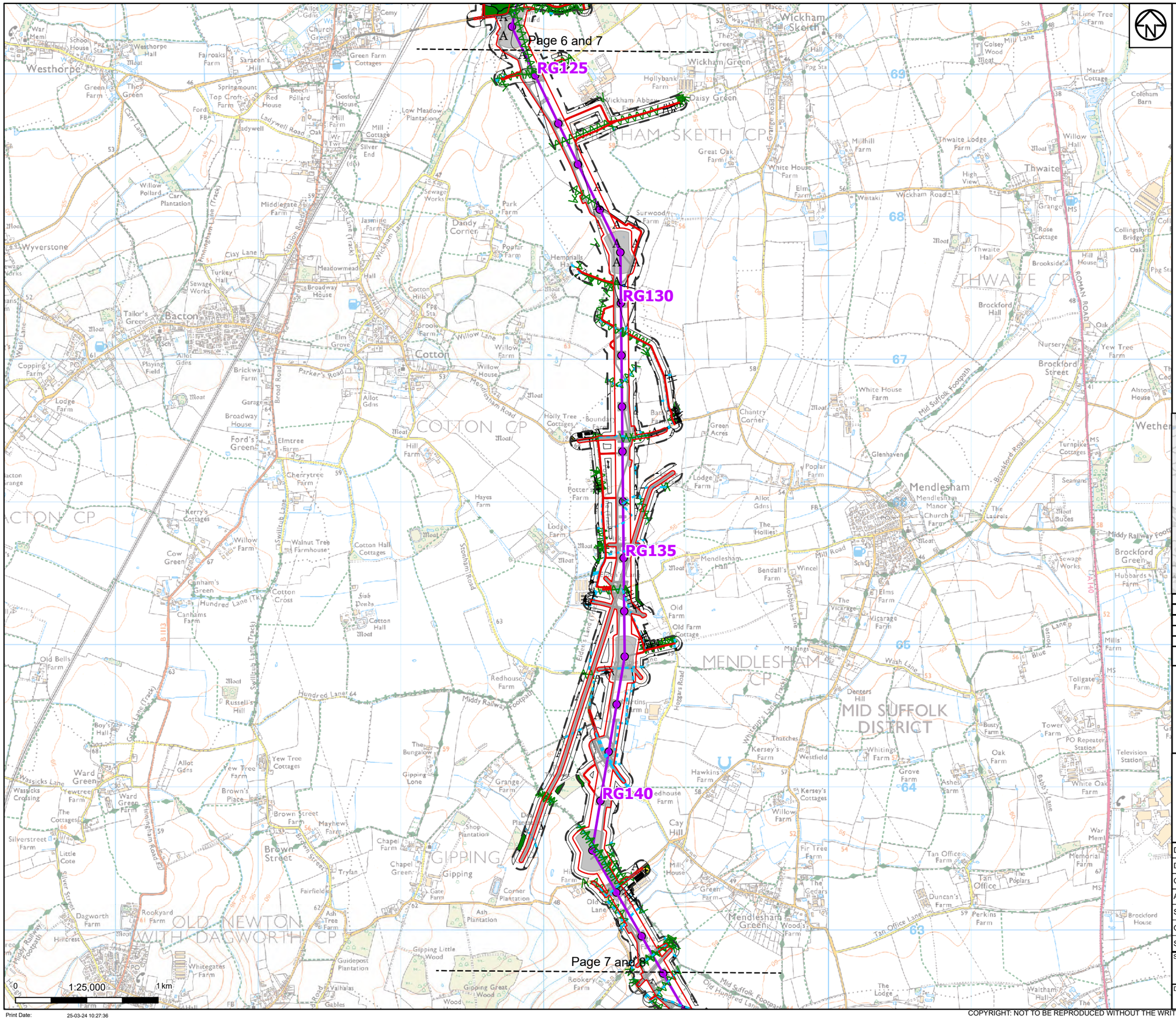
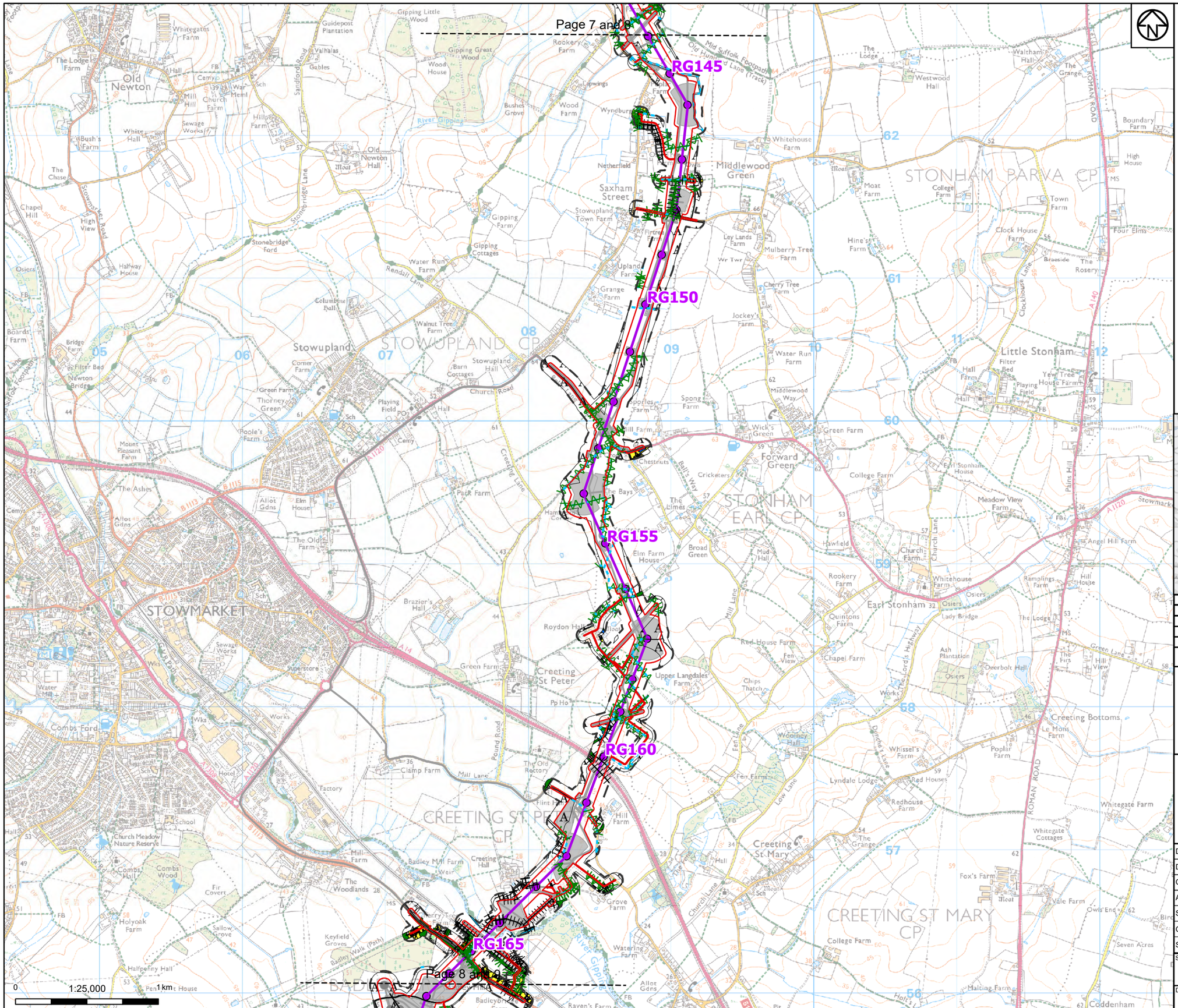
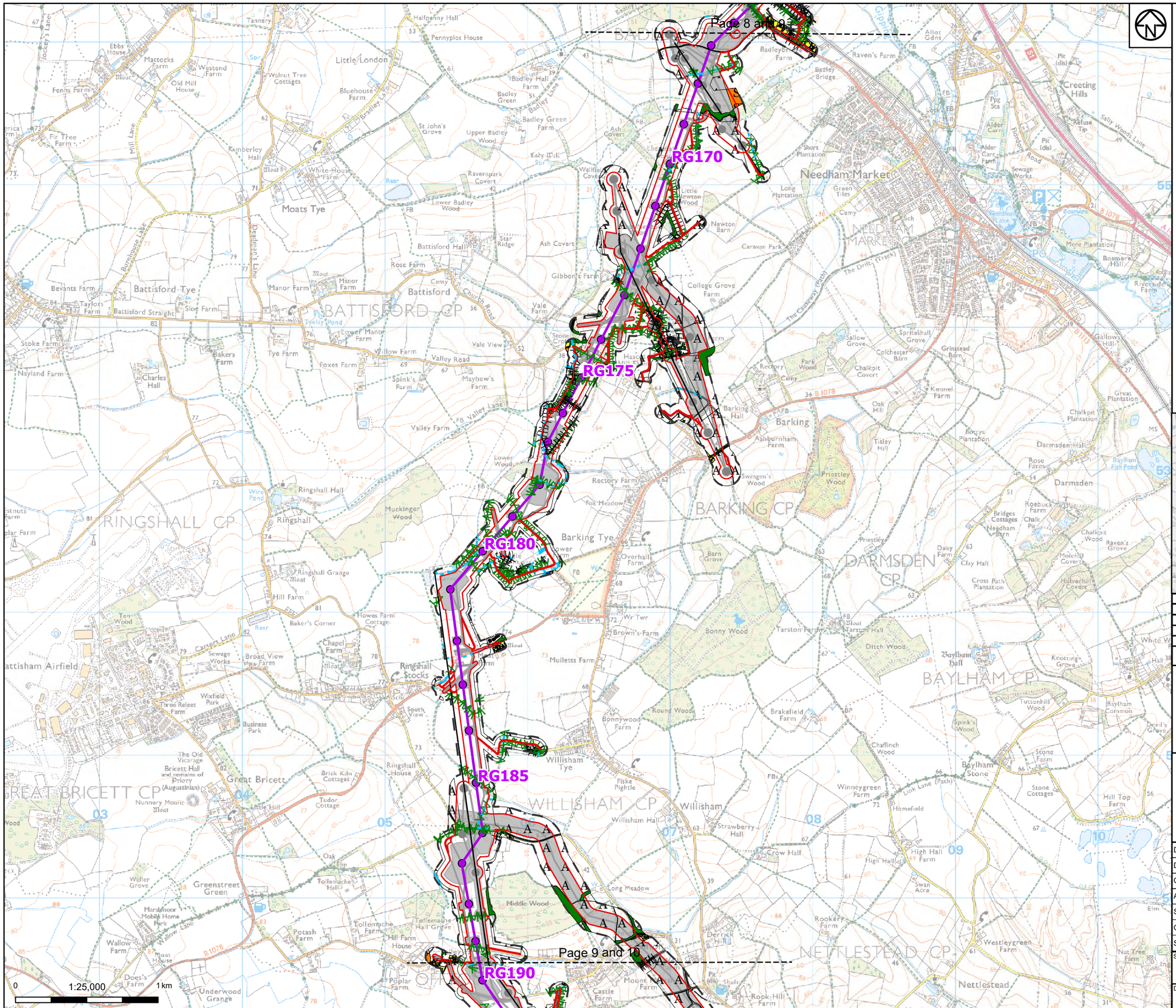

Page 6 and 7
RG125
RG130
RG135
RG140
Page 7 and 8
WICKHAM SKEITH CP
THWAITE CP
COTTON CP
MENDLESHAM CP
GIPPING CP
OLD NEWTON WITH DAGWORTH CP
MID SUFFOLK DISTRICT
Westhorpe
Wyverstone
Bacton
Cotton
Wickham Skeith
Wickham Green
Thwaite
Mendlesham
Gipping
Brockford Street
Brockford Green
Hemnalls
Dandy Corner
Daisy Green
Hollybank Farm
Great Oak Farm
White House Farm
Millhill Farm
Thwaite Lodge Farm
Surwood Farm
Park Farm
Middlegate Farm
Jasmine Farm
Meadowmead
Broadway House
Brook Farm
Willow Farm
Willow House
Holly Tree Cottages
Green Acres
Chantry Corner
Glenhaven
Poplar Farm
Lodge Farm
Potter Farm
Hayes Farm
Cotton Hall Cottages
Walnut Tree Farmhouse
Kerry's Cottages
Cow Green
Canham's Green
Canhams Farm
Cotton Cross
Fish Ponds
Cotton Hall
Redhouse Farm
Gipping Lone
Grange Farm
Hawkins Farm
Kersey's Farm
Kersey's Cottages
Cay Hill
Mill House
Green Farm
Fir Tree Farm
Tan Office Farm
Tan Office
The Poplars
Duncan's Farm
Perkins Farm
Mendlesham Green
Wood's Farm
Bendall's Farm
Old Farm
Old Farm Cottage
The Vicarage
Vicarage Farm
Elms Farm
Maltings
Denters Hill
Whitings Farm
Grove Farm
Ashes Farm
Oak Farm
Busey's Farm
Tower Farm
Tollgate Farm
Mills' Farm
Hubbards Farm
Brockford Hall
Nursery
Yew Tree Farm
Alston House
Wethers
Mendlesham Manor
Church Farm
The Laurels
Moat Buces
Sewage Works
Middy Railway Footpath
Mid Suffolk Footpath
Old Hundred Lane
Elder's Land
Hobbies Lane
Hogsars Road
Whitegates Farm
Valhalas
Gables
Rookery Farm
Gipping Great Wood
Gipping Little Wood
Ash Plantation
Corner Plantation
Shop Plantation
Gate Farm
Chapel Farm
Chapel Green
Tryfan
Fairfields
Old Lane
Mayhews Farm
Brown Street Farm
Brown's Place
Yew Tree Cottages
Ward Green
Ward Green Farm
Wassicks Crossing
Wassicks Lane
Yewtree Farm
Silverstreet Farm
Little Cote
Dagworth Farm
Rookyard Farm
Hillcrest
Ash Tree Farm
Elmtree Farm
Ford's Green
Broadway House
Brickwall Farm
Lodge Farm
Copping's Farm
Playing Field
Tailor's Green
Allot Gdns
Parker's Road
Broad Road
Mendlesham Road
Stonham Road
Swilltub Lane
Swilltub Lane (Track)
Hundred Lane
Hundred Lane (Track)
Green Lane (Track)
Cherrytree Farm
Kerry's Cottages
Old Bells Farm
Boy's Hall
Russell's Hill
The Bungalow
Yew Tree Farm
Brown Street
Silver Street
Immingham Road
Rookyard Farm
Dagworth Farm
Hillcrest
Whitegates Farm
Valhalas
Gables
Gipping Great Wood
Gipping Little Wood
Guidepost Plantation


Page 7 and 9
RG145
RG150
RG155
RG160
RG165
Page 8 and 25
Gipping Little Wood
Gipping Great Wood
Old Newton
Stowupland
STOWUPLAND CP
STONHAM PARVA CP
STONHAM EARL CP
CREETING ST PETER CP
CREETING ST MARY CP
STOWMARKET
Saxham Street
Middlewood Green
Forward Green
Little Stonham
Creeting St Peter
Creeting St Mary
Earl Stonham
Creeting Bottoms
A140
A1120
A14
B1115
B1113
ROMAN ROAD
Mid Suffolk Footpath 4
Old Hundred Lane (Track)
River Gipping
Stonebridge Lane
Rendall Lane
Church Road
Mill Lane
Pound Road
Creeting Lane
Pains Hill
Fen Lane
Low Lane
Lords Highway
Green Lane
Church Lane
Mulberry Way
Ball's Way
Badley Walk (Path)
Keyfield Groves
Sandford Road
Stowmarket Road
Whitegates Farm
Guidepost Plantation
Valhalas
Gables
Rookery Farm
Lapwings
Wyndburn
Bushes Grove
Wood Farm
Wood House
Netherfield
Gipping Farm
Gipping Cottages
Water Run Farm
Upland Farm
Grange Farm
Columbine Hall
Walnut Tree Farm
Stowupland Town Farm
Stowupland Hall
Barn Cottages
Corner Farm
Green Farm
Thorney Green
Poole's Farm
Mount Pleasant Farm
The Ashes
Allot Gdns
Elm Pk House
The Old Farm
Bridge Farm
Filter Bed
Newton Bridge
Boards Farm
Osiers
Halfway House
Chapel Hill
High View
The Chase
Bush's Farm
White Hall
Sewage Works
Hill Farm
Church Farm
Mill Hill
War Mem
Cemy
Sch
FB
PO
Hall
Meeting House
Moat
Old Newton Hall
Stonebridge Ford
Columbine Hall
Playing Field
Cemetery
Sewage Works
Water Mill
Combs Ford
Wks
Works
Superstore
Factory
Hotel
Clamp Farm
Roydon Hall
Brazier's Hall
Green Farm
Pp Ho
Upper Langdales Farm
Chips Thatch
Red House Farm
Fen View
Chapel Farm
Ash Plantation
Overbolt Hall
Osiers
Lady Bridge
Quintons Farm
Mud Hall
Hawfield
Broad Green
Elm Farm House
Church Meadow Nature Reserve
Combs Hall
Combs Wood
Fir Covert
Sallow Grove
Holyoak Farm
Halfpenny Hall
Pen House
The Woodlands
Badley Mill Farm
Creeting Hall
Mill Farm
Flint House
Hill Farm
Grove Farm
Watering Farm
Raven's Farm
Allot Gdns
Badley Hall Farm
Whitehouse Farm
Ramplings Farm
Hill House
The Lodge
The Firs
Hill View
Ash Plantation
Overbolt Hall
Le Mons Farm
Poplar Farm
Whissel's Farm
Red Houses
Lyndale Lodge
Redhouse Farm
Fen Farm
Whitegate Farm
Whitegate Cottages
Fox's Farm
Vale Farm
Owls End
Seven Acres
Malting Farm
Coddenham
Angel Hill Farm
Meadow View Farm
Earl Stonham House
College Farm
Westwood Hall
Waltham Hall
The Grange
Boundary Farm
High House
Moat Farm
College Farm
Town Farm
Four Elms
Clock House Farm
Braeside
The Rosery
Hine's Farm
Mulberry Tree Farm
Ley Lands Farm
Cherry Tree Farm
Jockey's Farm
Water Run Farm
Spong Farm
Poples Farm
Wick's Green
Green Farm
Chestnuts
Cricketers
The Bays
The Limes
Hall Farm
Hall Farm
Filter Bed
Playing Field
Yew Tree House Farm
Clockhouse Lane
Braeside
The Rosery



Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland coniferous plantation
- Woodland mixed plantation
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Standing water
- Running water
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Built up areas - buildings
- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 9 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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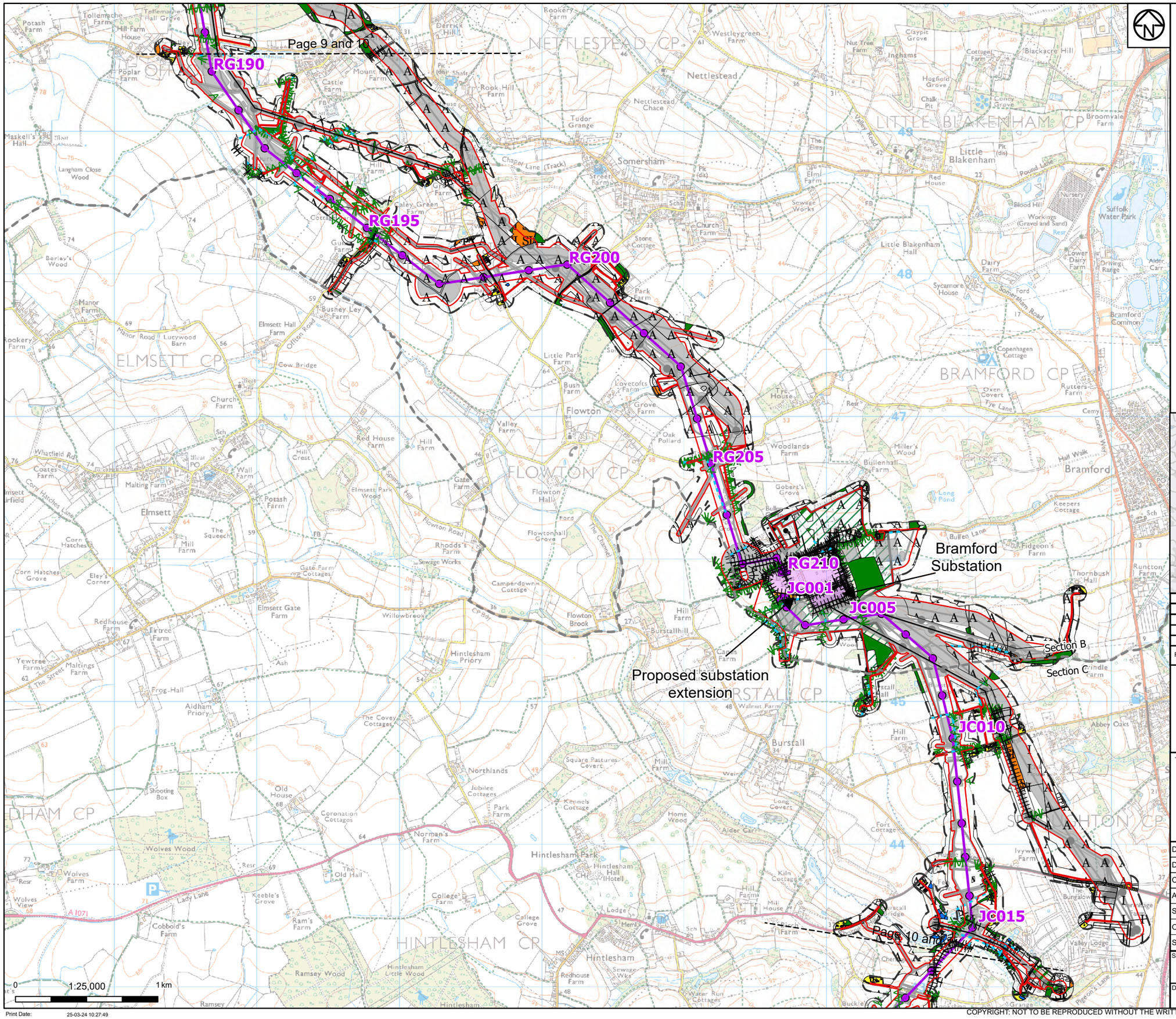

Proposed project design details

- Proposed overhead line alignment
- Proposed low duty gantry
- Proposed pylon position
- Existing substation
- Proposed substation extension
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Draft order limits
- Project sections
- Woodland broadleaved plantation
- Woodland mixed plantation
- Scrub dense / continuous
- Neutral grassland unimproved
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Standing water
- Running water
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Cultivated / disturbed land - emphemeral / short perennial
- Built up areas - buildings
- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 10 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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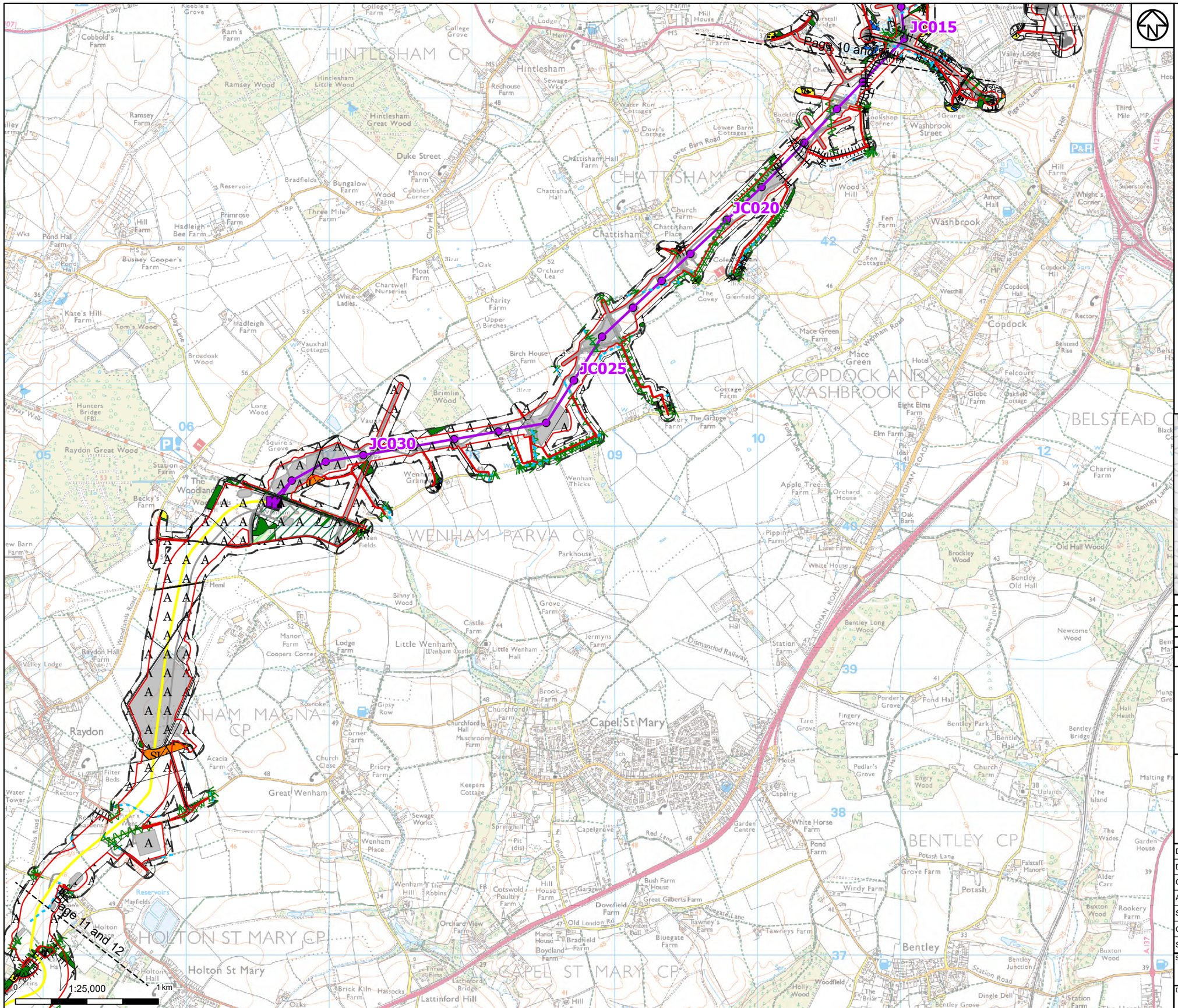

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland coniferous plantation
- Woodland mixed plantation
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Standing water
- Running water
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Cultivated / disturbed land - emphemeral / short perennial
- Built up areas - buildings
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 11 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

Print Date: 25-03-24 10:27:55

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

Trenchless Crossing:
A12 highway crossing

Page 11 and 12

Page 12 and 13

0 1:25,000 1km

Print Date: 25-03-24 10:28:03

Draft order limits

Proposed project design details

- Proposed underground cable alignment
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland coniferous plantation
- Woodland mixed semi-natural
- Woodland mixed plantation
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Marsh / marshy grassland
- Poor semi-improved
- Dry heath / acid grassland mosaic
- Fen flood plain
- Standing water
- Running water
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Cultivated / disturbed land - emphemeral / short perennial
- Built up areas - buildings
- Bare ground
- Other habitat
- Other habitat - hardstanding

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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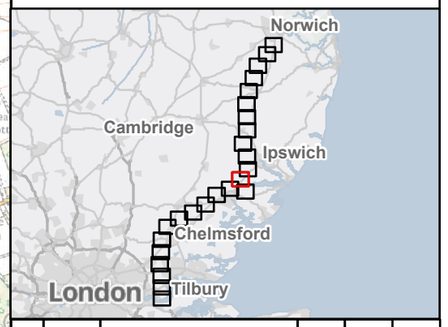

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map
Page 12 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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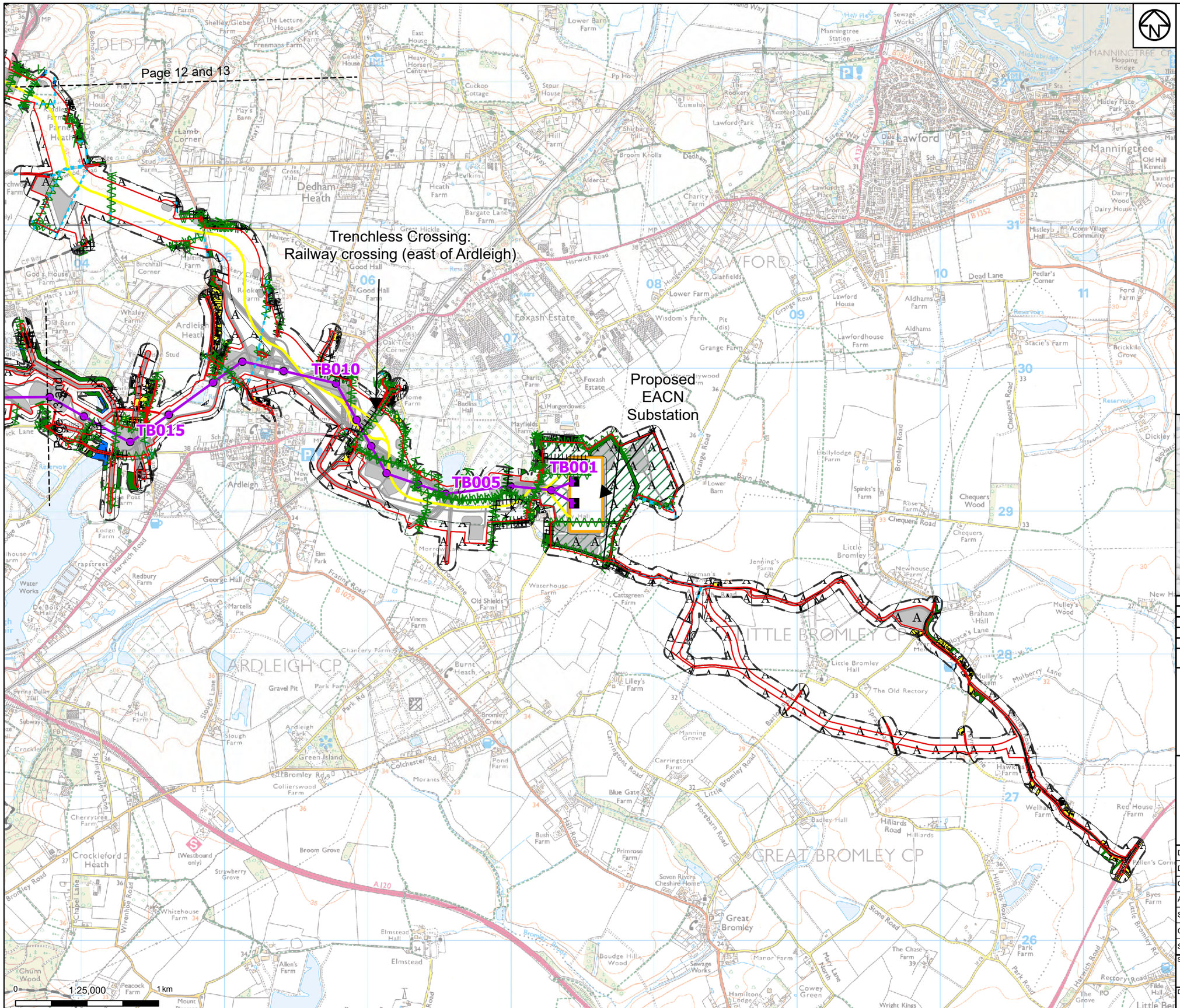

Print Date: 25-03-24 10:28:08

Proposed project design details

- Draft order limits
- Project sections
- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed EACN substation
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland coniferous plantation
- Woodland mixed semi-natural
- Woodland mixed plantation
- Scrub dense / continuous
- Improved grassland
- Poor semi-improved
- Standing water
- Running water
- Artificial - quarry
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Built up areas - buildings
- Bare ground
- Other habitat
- Other habitat - hardstanding

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 13 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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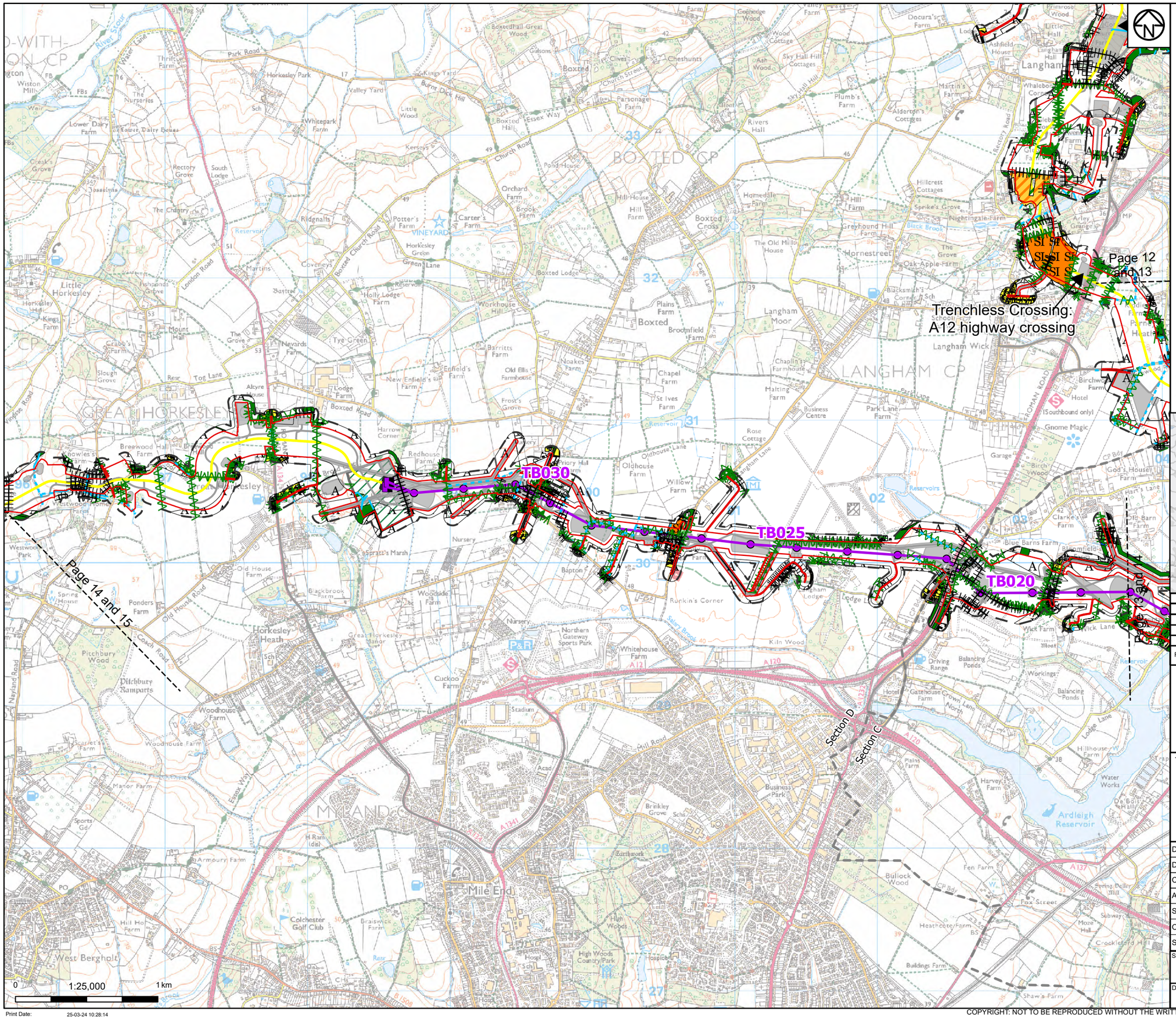

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed pylon position
Proposed underground cable alignment
Proposed cable sealing end compound
Proposed environmental areas
Other temporary and permanent construction and operational works

Discipline specific constraints

50m Study Area
Water
Intact Hedge
Hedge and Trees
Fence
Dry Ditch
Woodland broadleaved semi-natural
Woodland broadleaved plantation
Woodland coniferous plantation
Woodland mixed semi-natural
Woodland mixed plantation
Scrub dense / continuous
Neutral grassland semi-improved
Improved grassland
Marsh / marshy grassland
Poor semi-improved
Bracken continuous
Other tall ruderal
Dry heath / acid grassland mosaic
Standing water
Running water
Artificial - quarry
Cultivated / disturbed land - arable
Cultivated / disturbed land - amenity grassland
Cultivated / disturbed land - emphemeral / short perennial
Built up areas - buildings
Bare ground
Other habitat
Other habitat - hardstanding

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map
Page 14 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision:
A

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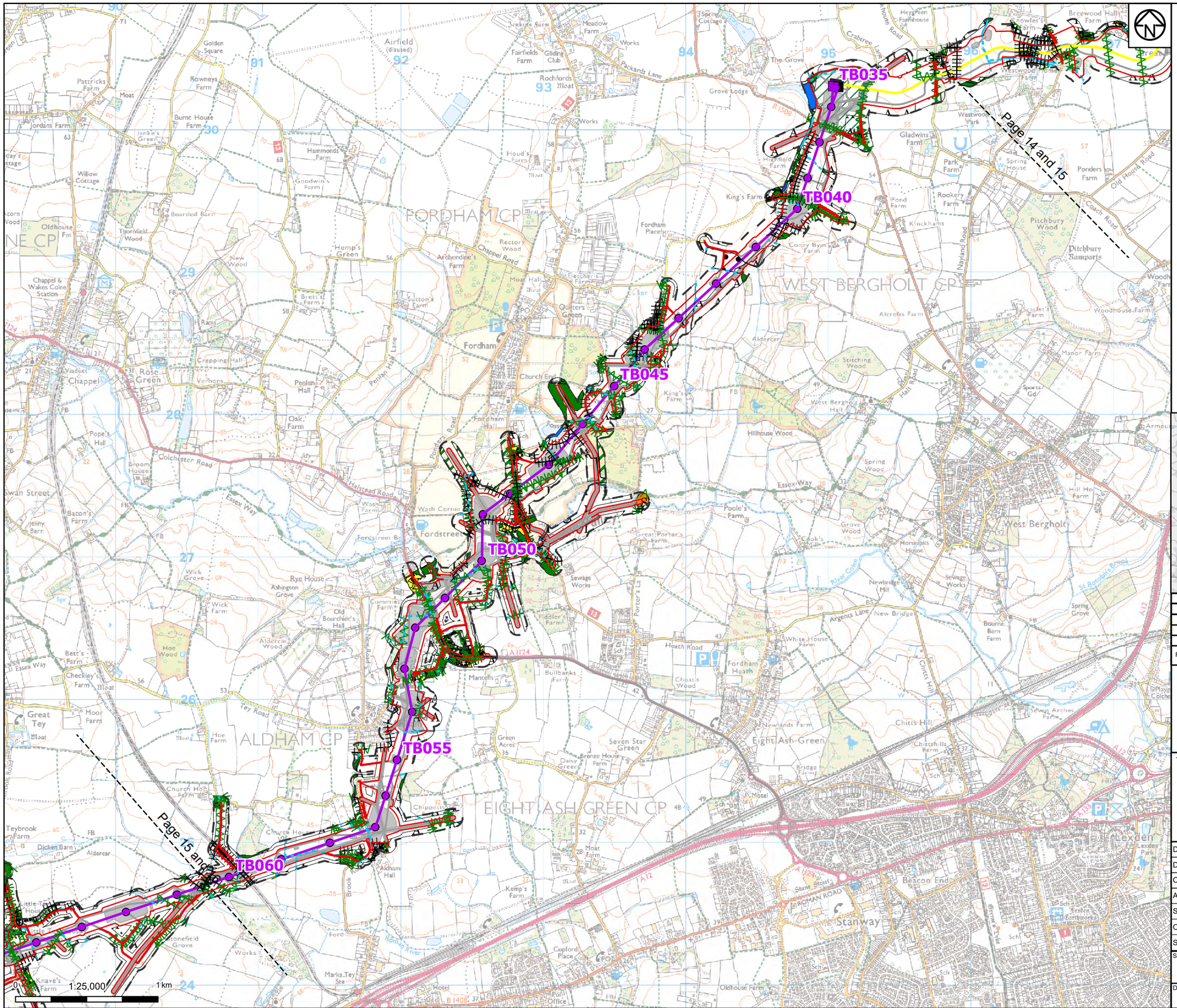

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland coniferous plantation
- Woodland mixed semi-natural
- Woodland mixed plantation
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Other tall ruderal
- Standing water
- Running water
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Built up areas - buildings
- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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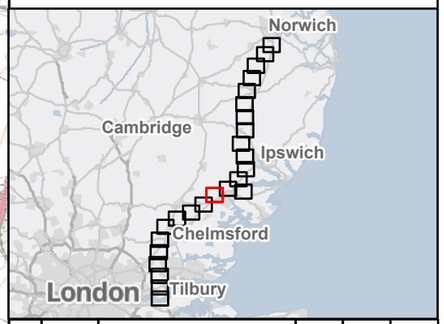

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map
Page 15 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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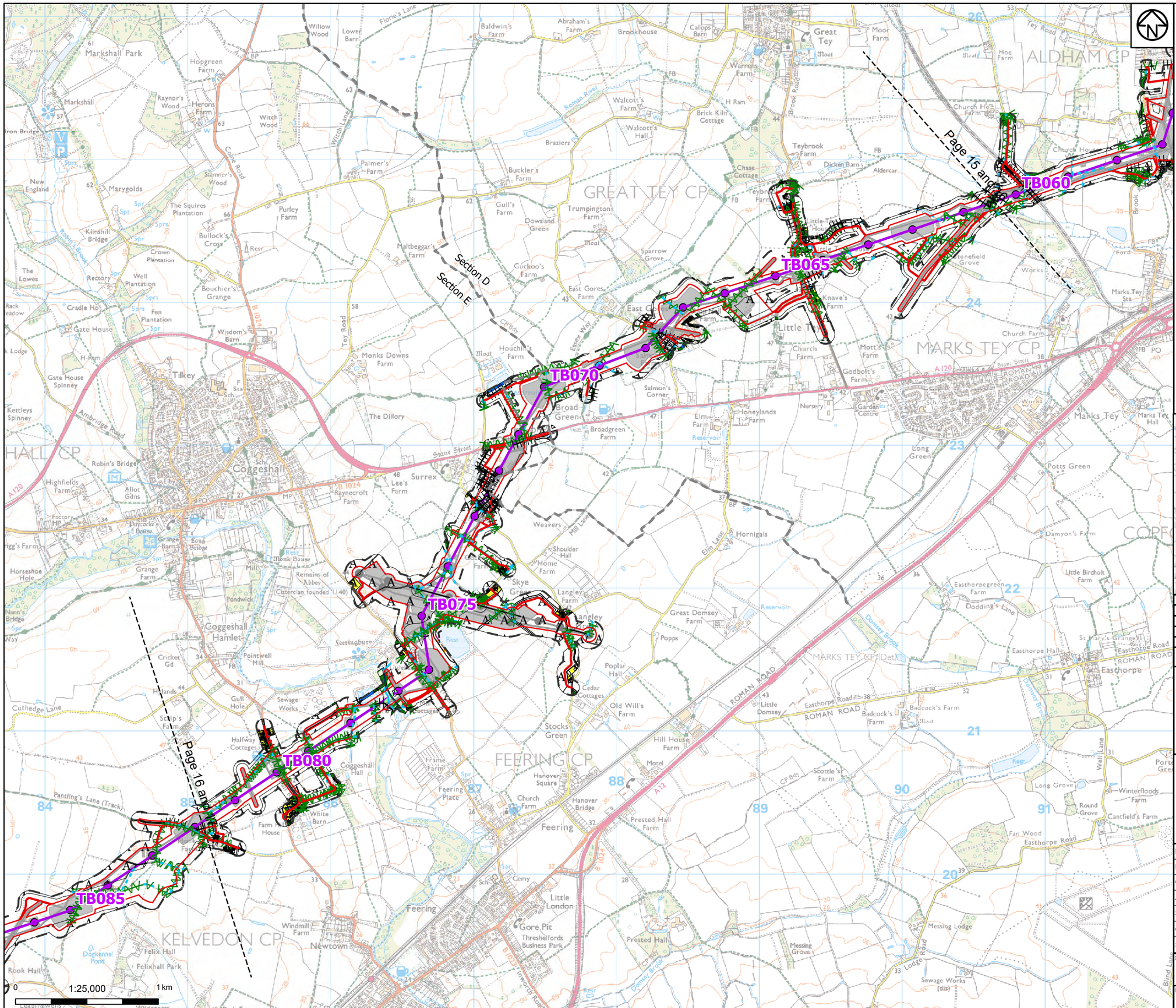

Print Date: 25-03-24 10:28:27

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

50m Study Area
Water
Intact Hedge
Hedge and Trees
Fence
Dry Ditch
Other-Transmission line
Woodland broadleaved semi-natural
Woodland broadleaved plantation
Woodland coniferous plantation
Woodland mixed plantation
Scrub dense / continuous
Neutral grassland semi-improved
Improved grassland
Marsh / marshy grassland
Poor semi-improved
Standing water
Running water
Cultivated / disturbed land - arable
Cultivated / disturbed land - amenity grassland
Built up areas - buildings
Bare ground
Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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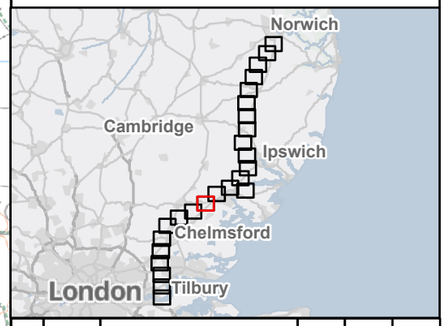

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 16 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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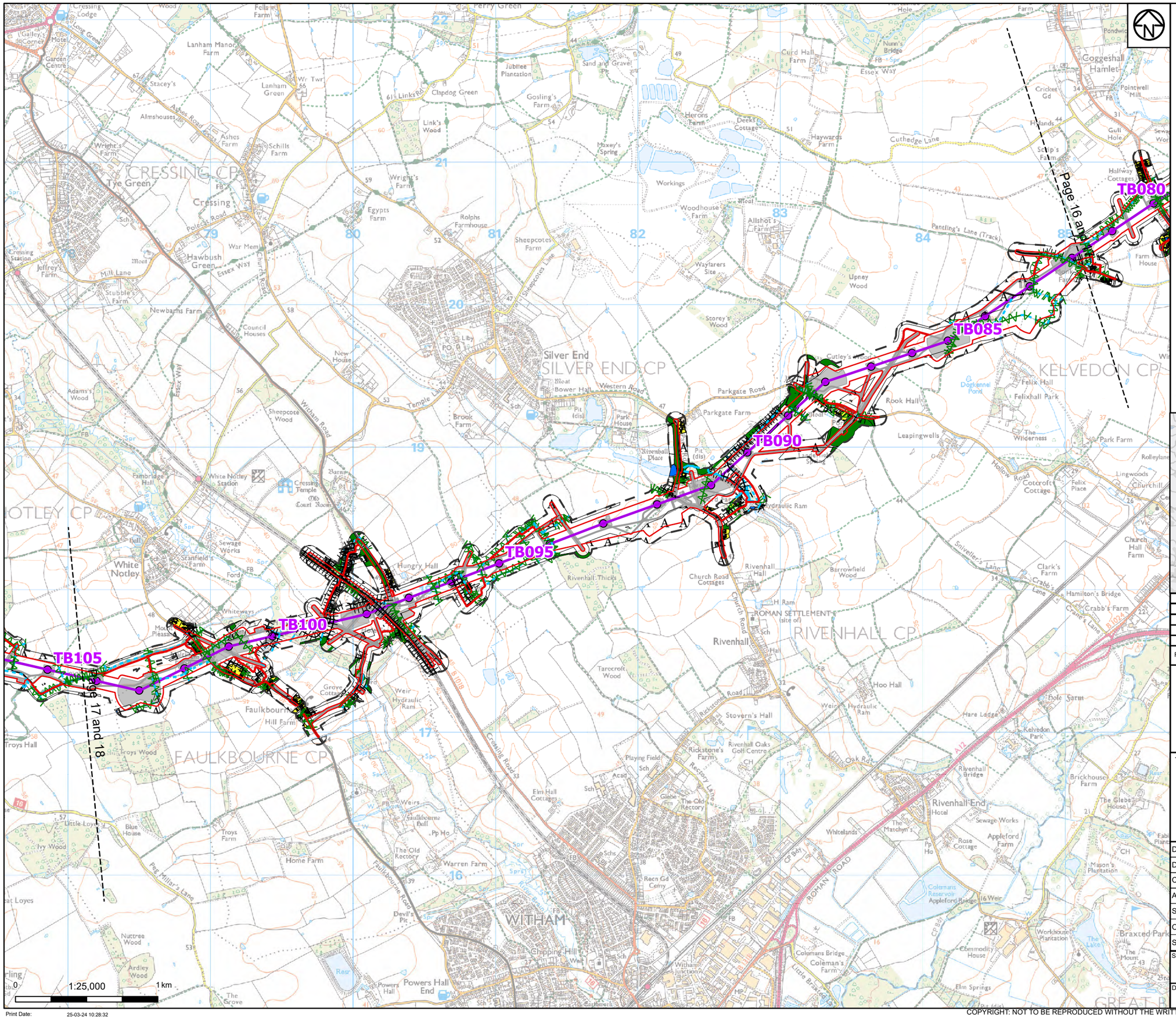

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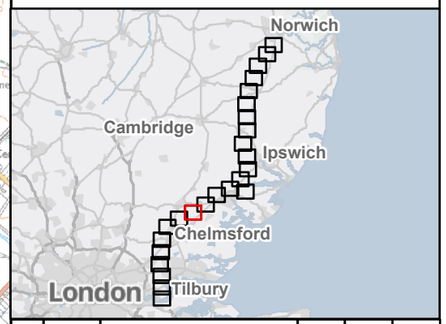

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 17 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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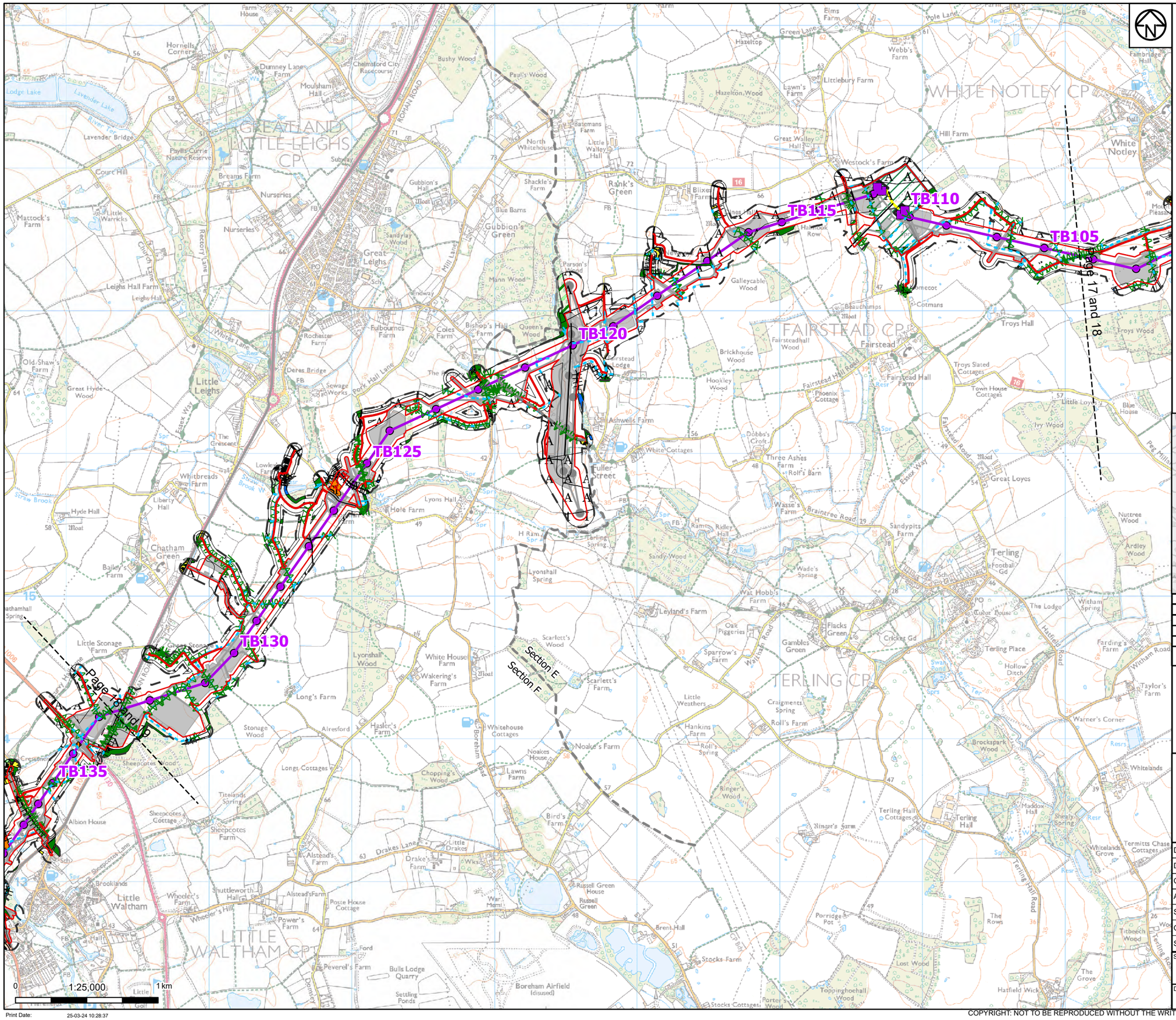

Proposed project design details

- Proposed overhead line alignment
- Proposed low duty gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland mixed semi-natural
- Woodland mixed plantation
- Scrub dense / continuous
- Neutral grassland unimproved
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Other non-ruderal
- Standing water
- Running water
- Artifical - spoil
- Artifcal - mine
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Built up areas - buildings
- Bare ground
- Other habitat

Draft order limits

Project sections

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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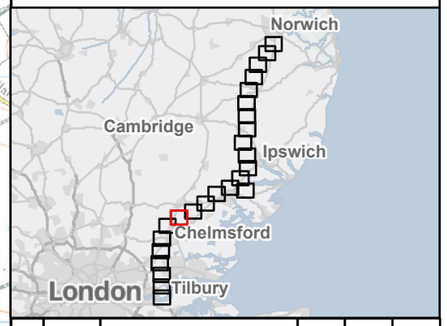

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 18 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

Print Date: 25-03-24 10:28:37

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TB130
TB135
TB140
TB145
TB150
TB155
TB160
Page 18 and 19
Page 19 and 20
PLESHEY CP
MASHBURY CP
CHIGNALL CP
LITTLE WALTHAM CP
BROOMFIELD CP
Great Waltham
Little Waltham
Chignall St James
Springfield
Chelmsford
Broomfield
0 1:25,000 1 km

Legend

- Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland mixed semi-natural
- Woodland mixed plantation
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Other non-ruderal
- Standing water
- Running water
- Artifcal - mine
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Cultivated / disturbed land - emphemeral / short perennial
- Built up areas - buildings
- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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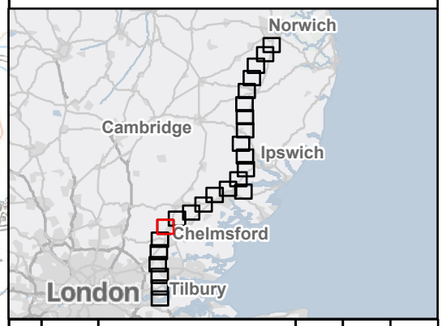

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT: Norwich to Tilbury

Title: A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 19 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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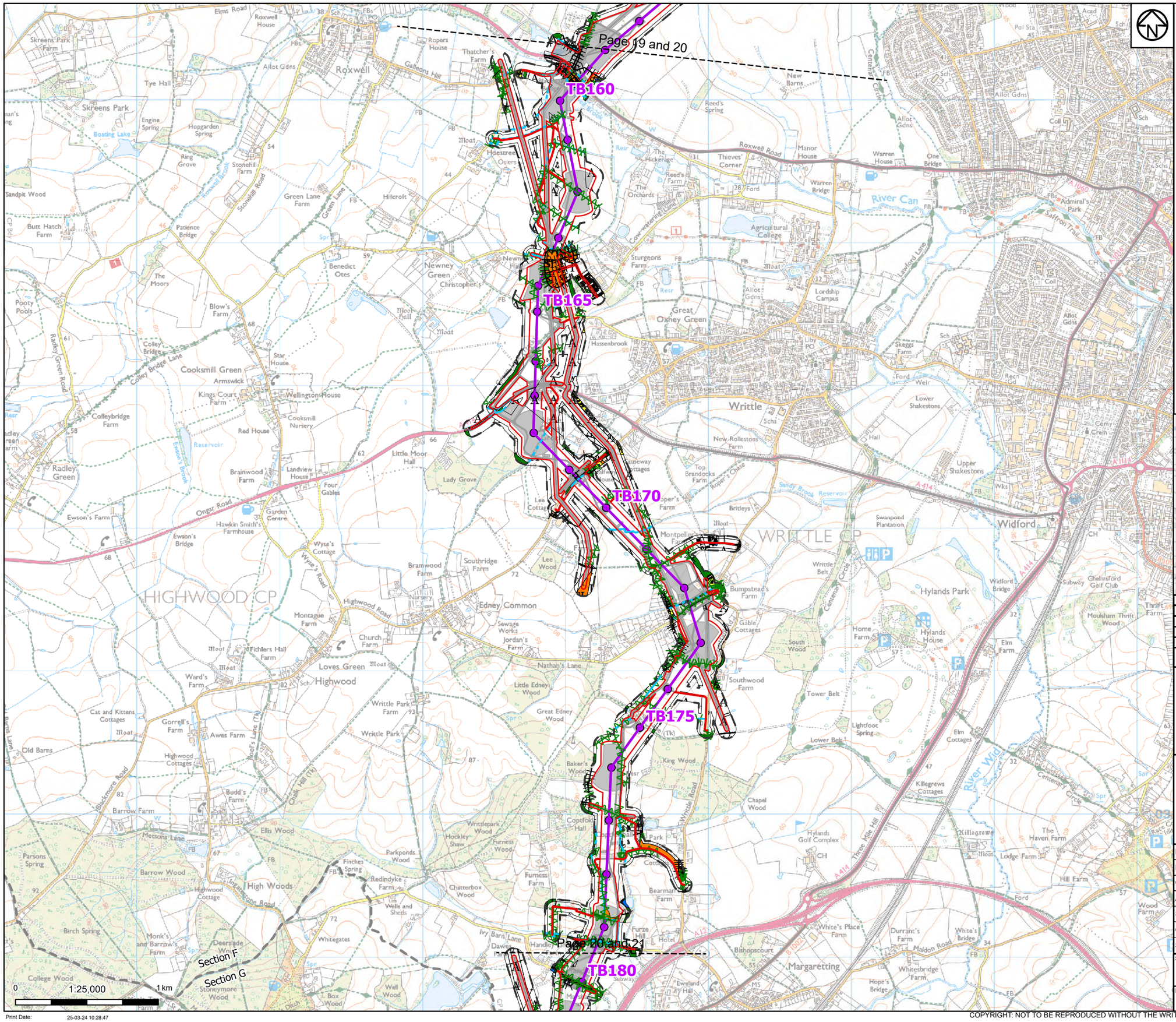

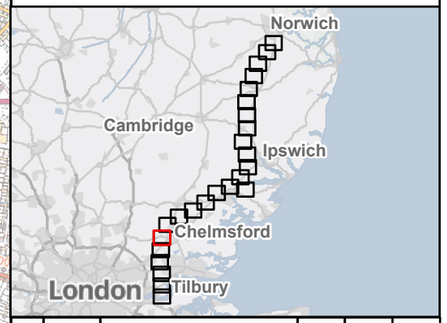

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

50m Study Area
Water
Intact Hedge
Hedge and Trees
Fence
Dry Ditch
Woodland broadleaved semi-natural
Woodland broadleaved plantation
Woodland coniferous plantation
Woodland mixed plantation
Scrub dense / continuous
Neutral grassland unimproved
Neutral grassland semi-improved
Improved grassland
Poor semi-improved
Other tall ruderal
Other non-ruderal
Standing water
Running water
Cultivated / disturbed land - arable
Cultivated / disturbed land - amenity grassland
Built up areas - buildings
Bare ground
Other habitat
Other habitat - hardstanding

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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Rev	Date	Description	Drawn	Check	Approv
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PROJECT:
Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map
Page 20 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092
Revision: A

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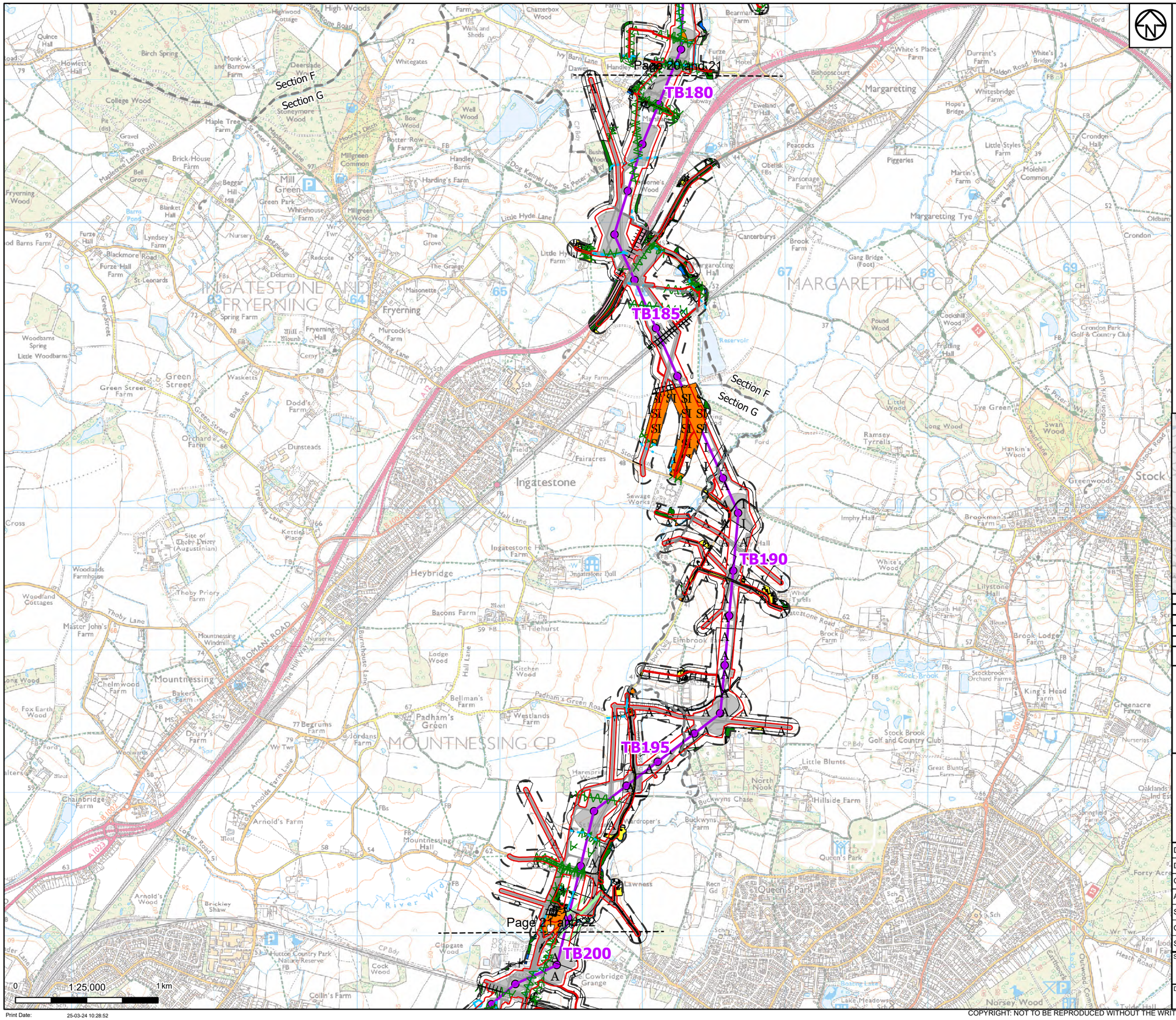

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

50m Study Area
Water
Intact Hedge
Hedge and Trees
Fence
Dry Ditch
Woodland broadleaved semi-natural
Woodland broadleaved plantation
Woodland coniferous plantation
Woodland mixed plantation
Scrub dense / continuous
Neutral grassland unimproved
Neutral grassland semi-improved
Improved grassland
Poor semi-improved
Other tall ruderal
Standing water
Running water
Cultivated / disturbed land - arable
Cultivated / disturbed land - amenity grassland
Built up areas - buildings
Bare ground
Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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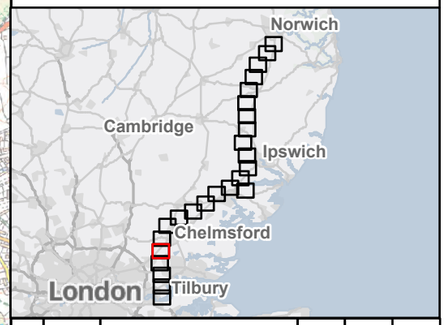

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 21 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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Page 21 and 22

Page 22 and 23

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TB205

TB210

TB215

TB220

0 1:25,000 1 km

Print Date: 25-03-24 10:28:57

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Woodland coniferous plantation
- Draft order limits
- Scrub dense / continuous
- Neutral grassland unimproved
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Standing water
- Running water
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Built up areas - buildings
- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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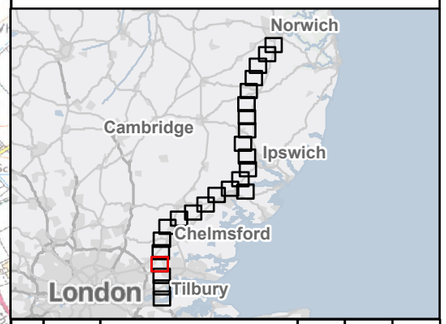

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 22 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

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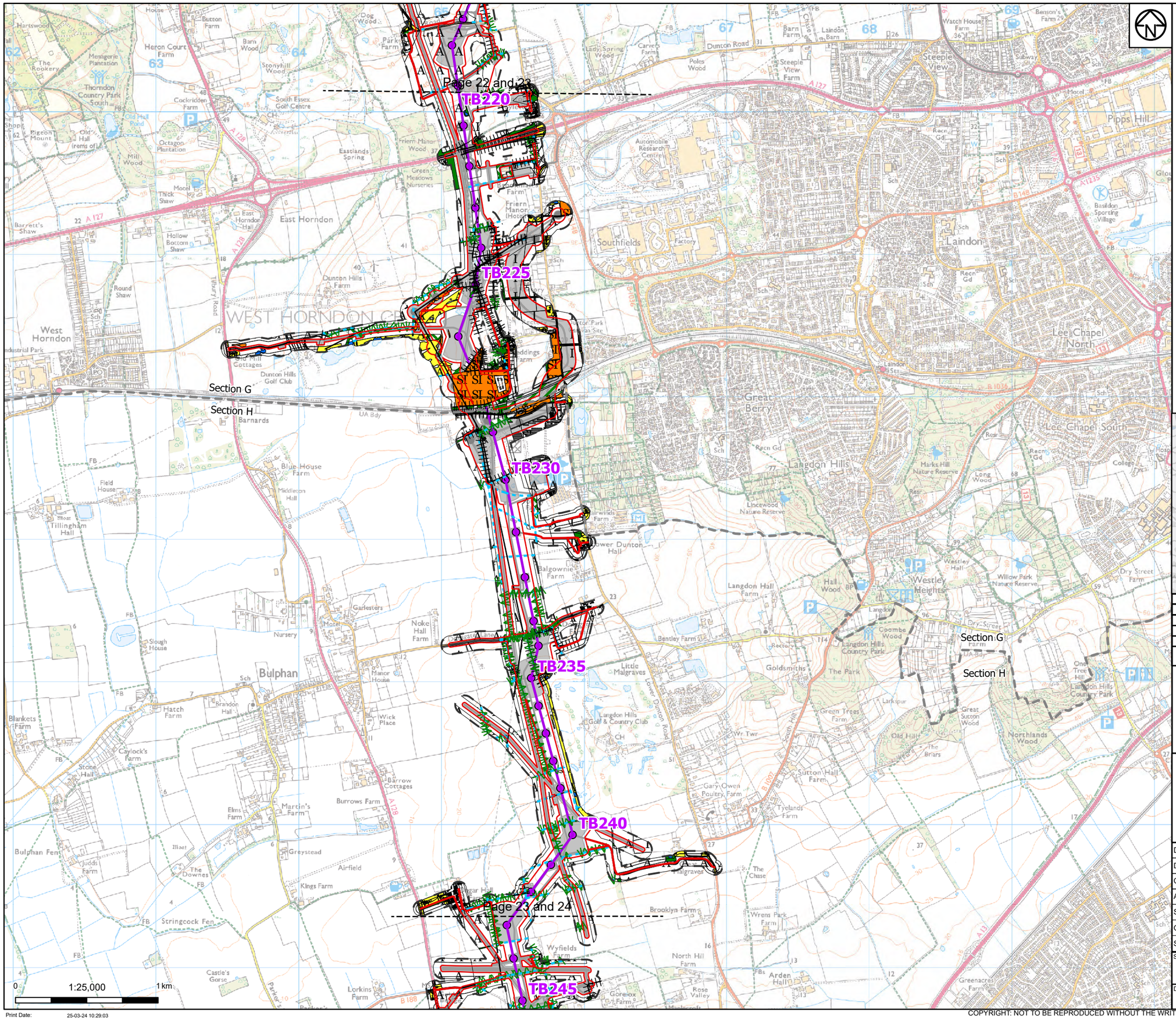

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

50m Study Area
Water
Intact Hedge
Hedge and Trees
Fence
Dry Ditch
Other-Transmission line
Woodland broadleaved semi-natural
Woodland broadleaved plantation
Scrub dense / continuous

Neutral grassland semi-improved
Improved grassland
Poor semi-improved
Other tall ruderal
Standing water
Running water
Cultivated / disturbed land - arable
Cultivated / disturbed land - amenity grassland
Cultivated / disturbed land - emphemeral / short perennial
Built up areas - buildings
Bare ground
Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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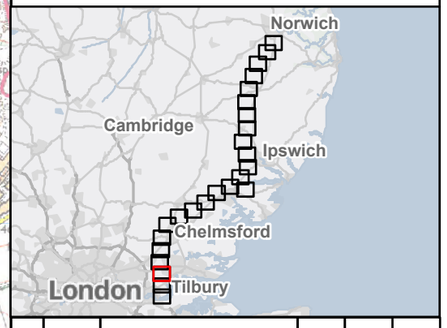

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 23 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

Revision: A

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TB240

TB245

TB250

TB255

TB260

Page 23 and 24

Page 24 and 25

Trenchless Crossing:
Lower Thames Crossing (west of Tarmac)

Trenchless Crossing:
Lower Thames Crossing (Muckingford Road)

THURROCK

Stanford-le-Hope

Chadwell St Mary

Horndon on the Hill

Linford

Mucking

East Tilbury Marshes

Mucking Marshes

0 1:25,000 1 km

Print Date: 25-03-24 10:29:09

Proposed project design details

- Draft order limits
- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Woodland broadleaved plantation
- Scrub dense / continuous
- Acid grassland semi-improved
- Neutral grassland semi-improved
- Improved grassland
- Poor semi-improved
- Other tall ruderal
- Marginal vegetaion
- Standing water
- Running water
- Artifical - spoil
- Artifcal - mine
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Cultivated / disturbed land - emphemeral / short perennial
- Cultivated / disturbed land - introduced shrub
- Built up areas - buildings
- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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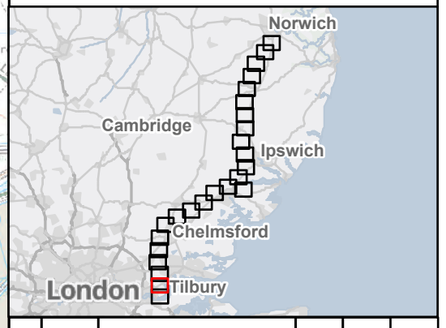

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map
Page 24 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00092

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Page 24 and 25

Trenchless Crossing:
Lower Thames Crossing (Muckingford Road)

Trenchless Crossing:
Tilbury Loop Railway and existing overhead lines (NGET and DNO)

Tilbury Substation

0 1:25,000 1 km

Print Date: 25-03-24 10:29:14

Draft order limits

Proposed project design details

- Proposed underground cable alignment
- Existing substation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 50m Study Area
- Water
- Intact Hedge
- Hedge and Trees
- Fence
- Dry Ditch
- Other-Transmission line
- Woodland broadleaved semi-natural
- Scrub dense / continuous
- Neutral grassland semi-improved
- Improved grassland
- Marsh / marshy grassland
- Poor semi-improved
- Other tall ruderal
- Marginal vegetaion
- Standing water
- Running water
- Artificial - quarry
- Cultivated / disturbed land - arable
- Cultivated / disturbed land - amenity grassland
- Cultivated / disturbed land - introduced shrub
- Built up areas - buildings
- Bare ground
- Other habitat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT:
Norwich to Tilbury

Title:

A 8.1.1 - Ecology and Biodiversity - Phase 1 Habitat Map Page 25 of 25

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number:
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Revision:
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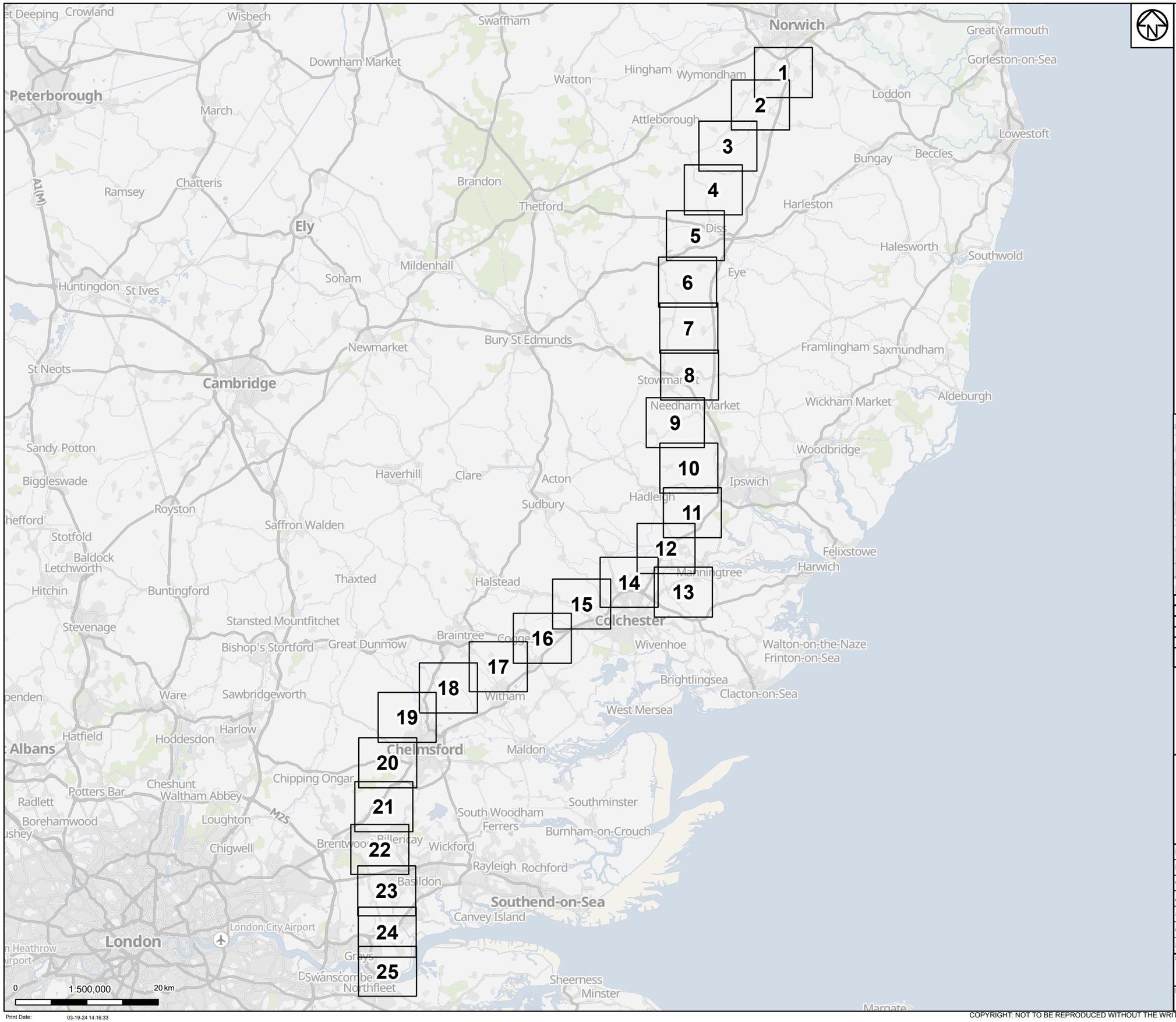
Figure A8.1.2: Protected / notable habitat and plant desk study map



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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map Overview

Designed	H. Smith	Date	April 2024
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Proposed substation extension

Norwich Main Substation

RG001

RG005

RG010

RG015

RG020

Page 1 and 2

CARLETON CP

KESWICK AND INTWOOD CP

CAISTOR ST EDMUND AND BIXLEY CP

SWAINSTHORPE CP

STOKE HOLY CROSS CP

MULBARTON CP

NEWTON FLOTMAN CP

SHOTESHAM CP

SWARDESTON CP

0 1:25,000 1 km

Print Date: 03-19-24 14:16:38

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed full line tension gantry

Proposed pylon position

Existing substation

Proposed substation extension

Other temporary and permanent construction and operational works

Proposed environmental areas

Discipline specific constraints

200m Study Area

2km Study Area

Rivers

Inland River Watercourses

Lake Watercourses

Deciduous woodland

Good quality semi improved grassland

No main habitat but additional habitats present

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 1 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00147

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RG010

RG015

RG020

RG025

RG030

RG035

Page 1 and 2

Page 2 and 3

BRACON ASH CP

WRENINGHAM CP

ASHWELLTHORPE AND FUNDENHALL CP

FLORDON CP

NEWTON FLOTMAN CP

THARSTON AND HAPTON CP

TASBURGH CP

TACOLNESTON CP

SOUTH NORFO

MORNING

Bracon Ash

Wreningham

Toprow

Fundenhall

Forncett St Mary

Hapton

Flordon

Newton Flotman

Saxlingham Thorpe

Tasburgh

Low Tharston

Tharston

Lower Tasburgh

Hillcrest Farm

Meadow Cottage

Shoteshams Park

Library Plantation

Limekiln Plantation

Smockmill Common

Seven Acre Plantation

Whitefield Grove

Gate Lane

Long Lane

Foxhole

Foxhole Farm

Windy Lane

Ivy Farm

Gransville

Hall Farm

Mill Farm

Lodge Farm

Sewage Works

Newton Copse

Newton Greenways

Greenway Plantation

Dairy Farm

The Shrubbery

Brick Kiln Lane

Brick Kiln Farm

Policeman's Wood

Primrose Farm

The Rookery

Oak

Church Nurs

Wreningham Hall

Lodge Farm

Bracon Lodge

Mergate Farm

Sewage Ppg Sta

Mergate Hall

Marsh Green

Hill Farm

Hethel Bridge

Hethel

Bush Close

Moat House

Bracon Hall

Street Plantation

Church Plantation

Bond's Green

Church Farm

Well Plantation

Corporation Farm

Ash Plantation

Penny's Green

Fir Grove

High House Farm

Wymondham Road

Hethel Road

Crane's Road

Old Rectory Farm

Old Rectory Lane (Track)

Bridge House

War Meml

Church Farm

The Poplars

Hall

Nursery

Mill Lane

Mill Side

Hill House

Upper Grove

Gable End

Lang Lane

New Crane's Farm

Flordon Hall

Whitehouse Farm

Orchard Farm

Ash Plantn

Newton Flotman

Playing Field

Church Farm

RG035

RG040

RG045

RG050

RG055

Page 2 and 3

Page 3 and 4

0 1:25,000 1 km

Print Date: 03-19-24 14:16:46

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

200m Study Area
2km Study Area
Rivers
Inland River Watercourses
Coastal and floodplain grazing marsh
Deciduous woodland
Lowland calcareous grassland
Lowland fens
Lowland meadows
No main habitat but additional habitats present

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 3 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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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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RG055

Page 3 and 4

RG060

RG065

RG070

RG075

Page 4 and 5

WINFARTHING CP

SHELFANGER CP

BRESSINGHAM CP

GISSING CP

BURSTON AND SHIMPLING CP

0 1:25,000 1 km

Print Date: 03-19-24 14:16:50

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

200m Study Area
2km Study Area
Rivers
Inland River Watercourses
Lake Watercourses
Coastal and floodplain grazing marsh
Deciduous woodland
Good quality semi improved grassland
Lowland meadows
No main habitat but additional habitats present
Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 4 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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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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Waveney Valley Overhead Line

RG075

RG080

RG085

RG090

RG095

RG100

Page 4 and 5

Page 5 and 6

Section A

Section B

0 1:25,000 1 km

Print Date: 03-19-24 14:16:55

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

200m Study Area
2km Study Area
A moss (Tortula schimperi)
Quaking Grass
Bluebell
Hoary Plantain
Marsh Speedwell

Rivers
Inland River Watercourses
Lake Watercourses
Coastal and floodplain grazing marsh
Deciduous woodland
Good quality semi improved grassland
Lowland fens
Lowland heathland
No main habitat but additional habitats present
Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 5 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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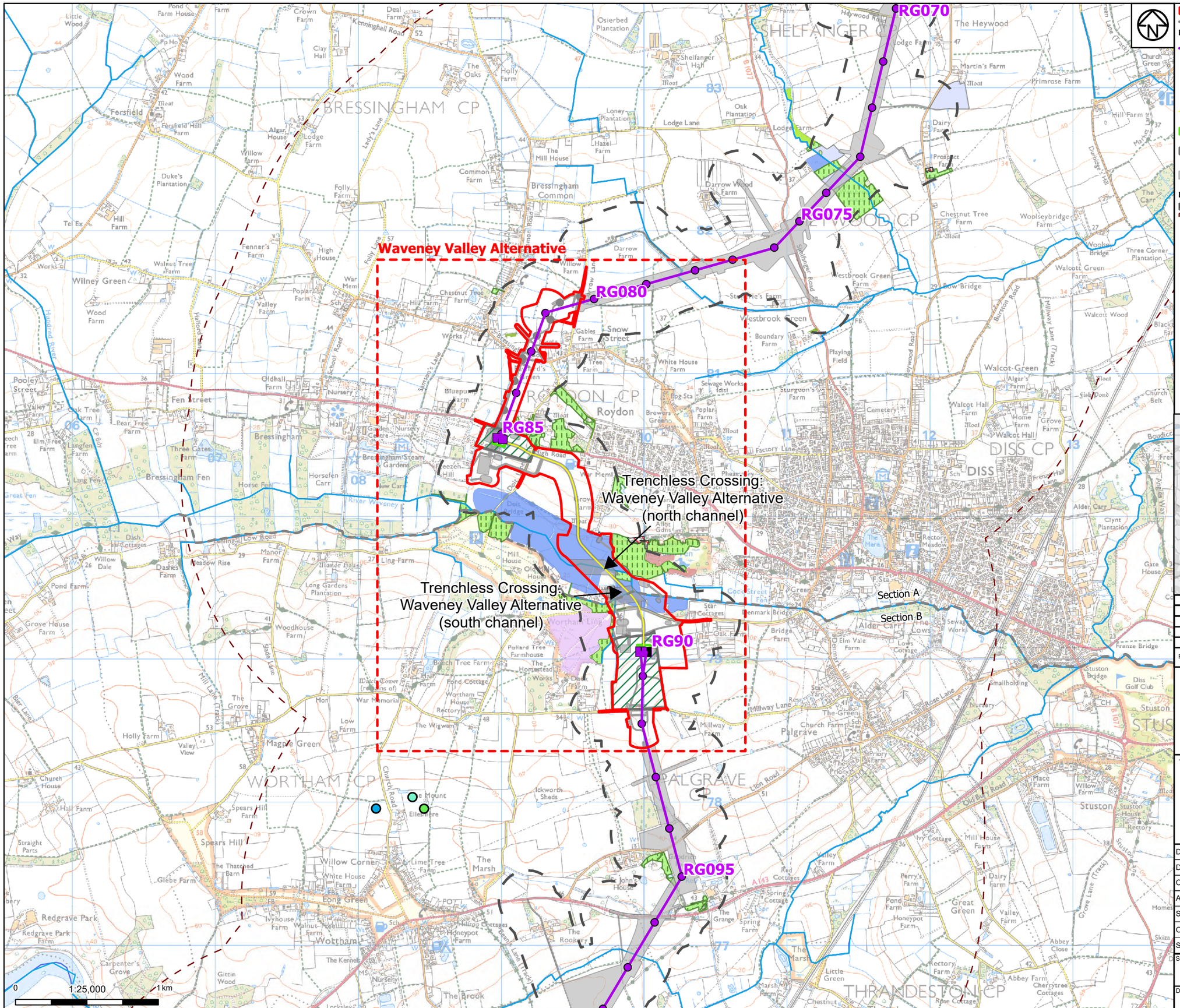
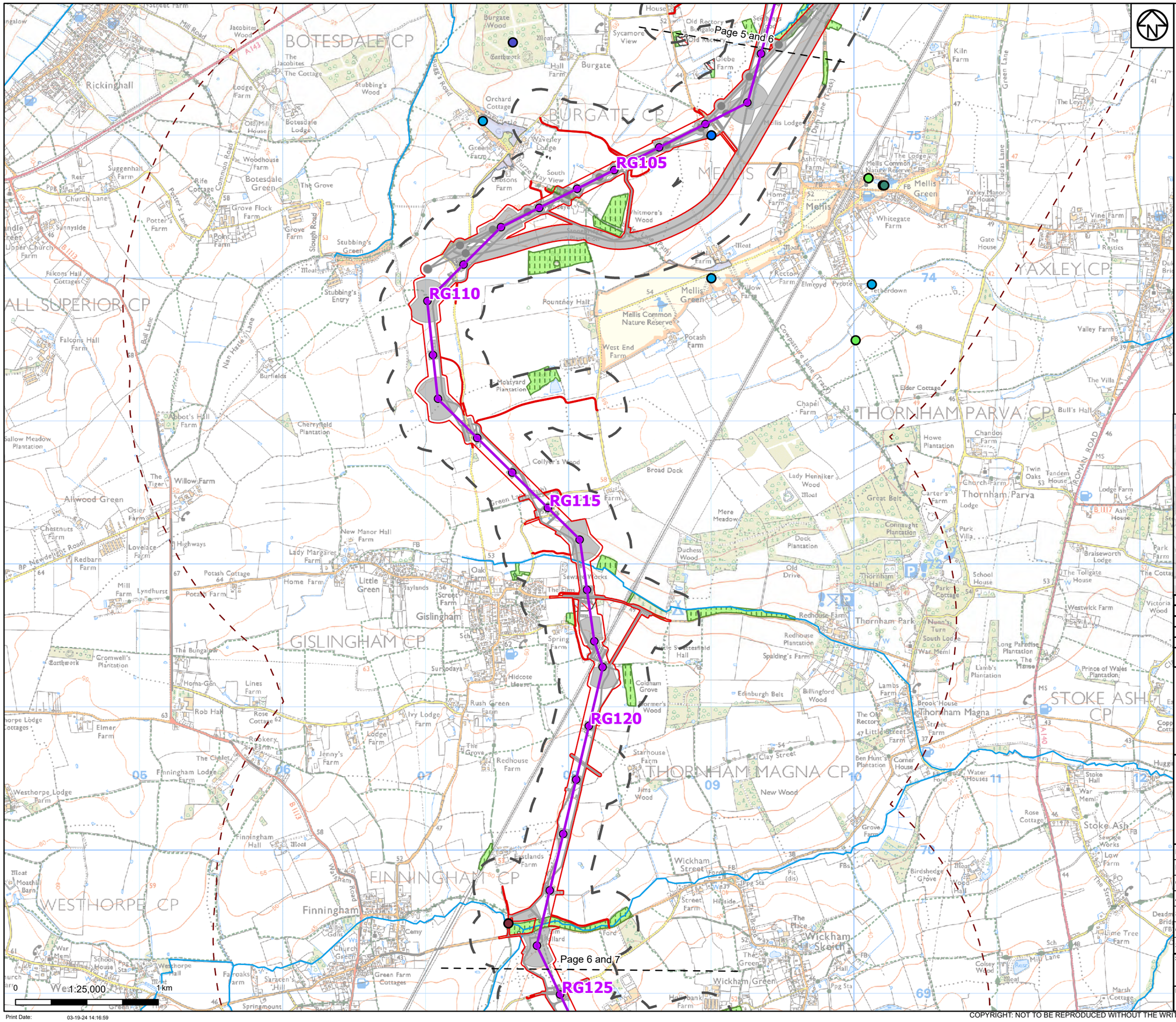

RG070
RG075
RG080
RG85
RG90
RG095
Waveney Valley Alternative
Trenchless Crossing:
Waveney Valley Alternative
(north channel)
Trenchless Crossing:
Waveney Valley Alternative
(south channel)
Section A
Section B
BRESSINGHAM CP
SHELFANGER CP
ROYDON CP
DISS CP
PALGRAVE CP
WORTHAM CP
THRANDESTON CP
Roydon
Diss
Palgrave
Wortham
Stuston
Wilney Green
Westbrook Green
Walcot Green
Bressingham Common
Snow Street
Bressingham Fen
Fen Street
Pooley Street
Spears Hill
Willow Corner
Long Green
Redgrave Park
Magpie Green
Great Green
Lodge Lane
Millway Lane
Roydon Road
Burston Road
Halford Lane
Folly Lane
Common Road
Kenninghall Road
Heywood Road
Boyton End Road
Lion Road
Old Bury Road
Grove Lane (Track)
Mill Lane (Track)
Church Road
Cock Street
Denmark Bridge
Factory Lane
Rectory Meadow
Abbey Close
Abbey Farm
Cherrytree Cottages
Rose Cottage
Rectory Farm
Little Green
Chestnut Farm
Marsh Farm
Ickworth Sheds
Ellesmere
The Mount
Bressingham Steam Gardens
Diss Golf Club
Frenze Bridge
Bow Bridge
Woolseybridge Farm
Three Corner Plantation
Walcot Wood
Primrose Farm
Martin's Farm
Dairy Farm
Prospect Farm
Chestnut Tree Farm
Darrow Wood Farm
Oak Plantation
Osierbed Plantation
Loney Plantation
Hazel Farm
Holly Farm
Oaks
Shelfanger Hall
Moat
Lodge Farm
Hill Farm
Fersfield
Fersfield Hall Farm
Wood Farm
Algar House
Willow Farm
Duke's Plantation
Tel Ex
Hill Farm
Fenner's Farm
High House
Walnut Tree Farm
Valley Farm
Poplar Farm
Chestnut Tree Farm
Darrow Farm
Willow Farm
Gables Farm
Snow Street
White House Farm
Boundary Farm
Playing Field
Sewage Works (disl)
Sturgeon's Farm
Brewers Green
Poplar Farm
Cemetery
Walcot Hall Farm
Home Farm
Grove Farm
Walcot Hall
Algar's Farm
Oldhall Farm
Nursery
Bluepud Farm
Hall
Garden Centre
Three Gates Farm
Langfen Farm
Elm Tree Farm
Oak Tree Farm
Rear Tree Farm
Valley Farm
Lang Fen
Horse Fen
Horsefen Carr
Low Carr
Dash Cottages
Willow Dale
Meadow Rise
Manor Farm
Manor House
Ling Farm
Long Gardens Plantation
Pond Farm
Grove House Farm
Woodhouse Farm
Slade Lane
Mill Lane (Track)
The Grove
Holly Farm
Valley View
Low Farm
Church House
Hall Farm
Spears Hill Farm
Straight Parts
The Thatched Barn
Glebe Farm
White House Farm
Lime Tree Farm
Ivyhouse Farm
Walnut Tree Farm
Honeypot Farm
Wortham
The Kennels
Nursery
Carpenter's Grove
Gittin Wood
The Brook
Locksleys
Church Farm
Priory Farm
Mill House Farm
Ivy Cottage
Perry's Farm
Pond Farm
Honeypot Farm
Dairy Farm
Valley Farm
Great Green
Spring Cottage
Spring Farm
The Grange
The Rookery
Red Cottages
Johns House
Alder Carr
Clynt Plantation
Elm Vale Farm
Lows Cottage
The Cows
Sewage Works
Bridge Farm
Oak Farm
Star Cottages
Pollard Tree Farmhouse
The Homestead
Beech Tree Farm
Milk Farm
Pond Cottage
Wortham House
Rectory
The Wigwam
Mon War Memorial
Watch Tower (remains of)
Smallholding
Nursery
Diss Golf Club
Stuston Bridge
Stuston House
Stuston Rectory
Place Farm
Willow Farm
Ivy Cottage
Mill House Farm
Dairy Farm
Valley Farm
Grove Lane (Track)



Draft order limits
Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 200m Study Area
- 2km Study Area
- A moss (Tortula schimperi)
- Quaking Grass
- Bluebell
- Field Scabious
- Sulphur Clover
- Marsh Speedwell
- Rivers
- Inland River Watercourses
- Lake Watercourses
- Deciduous woodland
- Good quality semi improved grassland
- No main habitat but additional habitats present

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 6 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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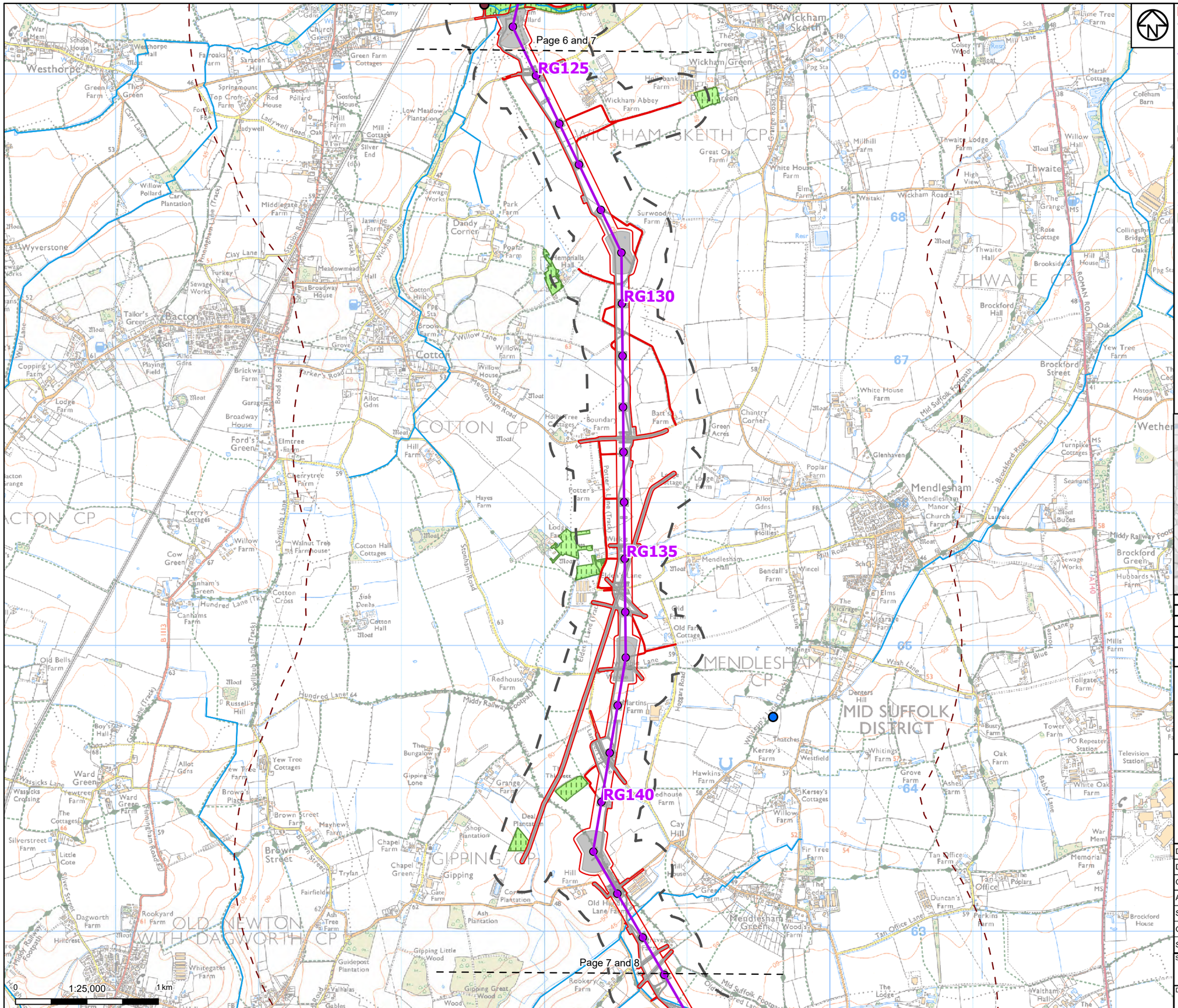
Page 6 and 7
RG125
RG130
RG135
RG140
Page 7 and 8
WICKHAM SKEITH CP
THWAITE CP
COTTON CP
MENDLESHAM CP
GIPPING CP
OLD NEWTON WITH DAGWORTH CP
MID SUFFOLK DISTRICT
Westhorpe
Wyverstone
Bacton
Cotton
Wickham Skeith
Wickham Green
Thwaite
Mendlesham
Brockford Street
Brockford Green
Wetheringsett
Gipping
Brown Street
Ward Green
Kerry's Cottages
Cow Green
Cotton Cross
Cotton Hall Cottages
Redhouse Farm
Martins Farm
Hawkins Farm
Kersey's Farm
Kersey's Cottages
Cay Hill
Mendlesham Green
Mendlesham Manor
Wickham Abbey Farm
Surwood Farm
Great Oak Farm
Millhill Farm
Thwaite Lodge Farm
Thwaite Hall
Brockford Hall
Dandy Corner
Hemplalls Hall
Park Farm
Middlegate Farm
Meadowmead
Broadway House
Tailor's Green
Copping's Farm
Lodge Farm
Brickwall Farm
Ford's Green
Elmtree Farm
Cherrytree Farm
Willow Farm
Brook Farm
Boundary Farm
Batt's Farm
Potter's Farm
Hayes Farm
Hill Farm
Chapel Farm
Chapel Green
Gate Farm
Fairfield
Tryfan
Rookyard Farm
Dagworth Farm
Hillcrest
Whitegates Farm
Guidepost Plantation
Gipping Great Wood
Gipping Little Wood
Valhalas
Gables
Old Hill Farm
Lane Farm
Ash Plantation
Copse Plantation
Shop Plantation
Deal Plantation
Grange Farm
Redhouse Farm
Old Bells Farm
Russell's Hill
Boy's Hall
Ward Green Farm
Yew Tree Farm
Yew Tree Cottages
Browns Place
Brown Street Farm
Mayhews Farm
Silverstreet Farm
Little Cote
The Cottages
Yewtree Farm
Wassicks Crossing
Wassicks Lane
Allot Gdns
Playing Field
Lodge Farm
Copping's Farm
Wall Lane
Carr Plantation
Willow Pollard
Ladywell
Ladywell Road
Springmount
Top Croft Farm
Fairoaks Farm
Saracen's Hill
Green Farm
The Green
Church Green
Green Farm Cottages
Gosford House
Mill Farm
Mill Cottage
Silver End
Low Meadow Plantation
Sewage Works
Jasmine Farm
Poplar Farm
Broadway House
Turkey Hall
Clay Lane
Cotton Hills
Willow Lane
Willow House
Elm Grove
Parker's Road
Broad Road
Mendlesham Road
Stonham Road
Swilltub Lane (Track)
Hundred Lane
Middy Railway Footpath
Elders Land (Track)
Hobbles Lane
Wash Lane
Whitegate's Hill (Track)
Grange Road
Wickham Road
Waitaki
Elm Farm
White House Farm
Rose Cottage
The Grange
Brookside
Hill House
Collingsbridge
Oak
Roman Road
Mid Suffolk Footpath
Brockford Hall
Yew Tree Farm
Alston House
Turnpike Cottages
Seamans
Glenhaven
Poplar Farm
Chantry Corner
Green Acres
Holly Tree Cottages
Lodge Cottage
The Hollies
Mendlesham Hall
Bendall's Farm
Wincel
Old Farm Cottage
The Vicarage
Elms Farm
Malings
Denters Hill
Thatches
Whitings Farm
Grove Farm
Ashes Farm
Oak Farm
Busty Farm
Tower Farm
PO Repeater Station
Television Station
White Oak Farm
Tollgate Farm
Mills' Farm
Fir Tree Farm
Tan Office Farm
Tan Office
The Poplars
Memorial Farm
Duncan's Farm
Perkins Farm
Brockford Green
Hubbards Farm
Sewage Works
Middy Railway Footpath
Old Bells Farm
Cow Green
Canham's Green
Canhams Farm
Hundred Lane (Track)
Cotton Cross
Fish Ponds
Cotton Hall Cottages
Walnut Tree Farmhouse
Willow Farm
Swilltub Lane (Track)
Stonham Road
Redhouse Farm
Martins Farm
Middy Railway Footpath
Hobbles Lane
Whitegate's Hill (Track)
Thatches
Kersey's Farm
Hawkins Farm
Grange Farm
Redhouse Farm
Cay Hill
Willow Farm
Kersey's Cottages
Fir Tree Farm
Tan Office Farm
Tan Office
The Poplars
Memorial Farm
Duncan's Farm
Perkins Farm
Brockford Green
Hubbards Farm
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Wood's Farm
Bendall's Farm
Wincel
Old Farm Cottage
The Vicarage
Elms Farm
Malings
Denters Hill
Whitings Farm
Grove Farm
Ashes Farm
Oak Farm
Busty Farm
Tower Farm
PO Repeater Station
Television Station
White Oak Farm
Tollgate Farm
Mills' Farm
Baby Lane
Mid Suffolk Footpath
Old Newton Lane
Gipping Great Wood
Rookery Farm
The Lodge
Waltham Hall
Mendlesham Hall
Mendlesham Manor
Church Farm
The Laurels
Moat Buses
Middy Railway Footpath
Brockford Green
Hubbards Farm
Sewage Works
Mills' Farm
Tollgate Farm
Busty Farm
Tower Farm
PO Repeater Station
Television Station
White Oak Farm
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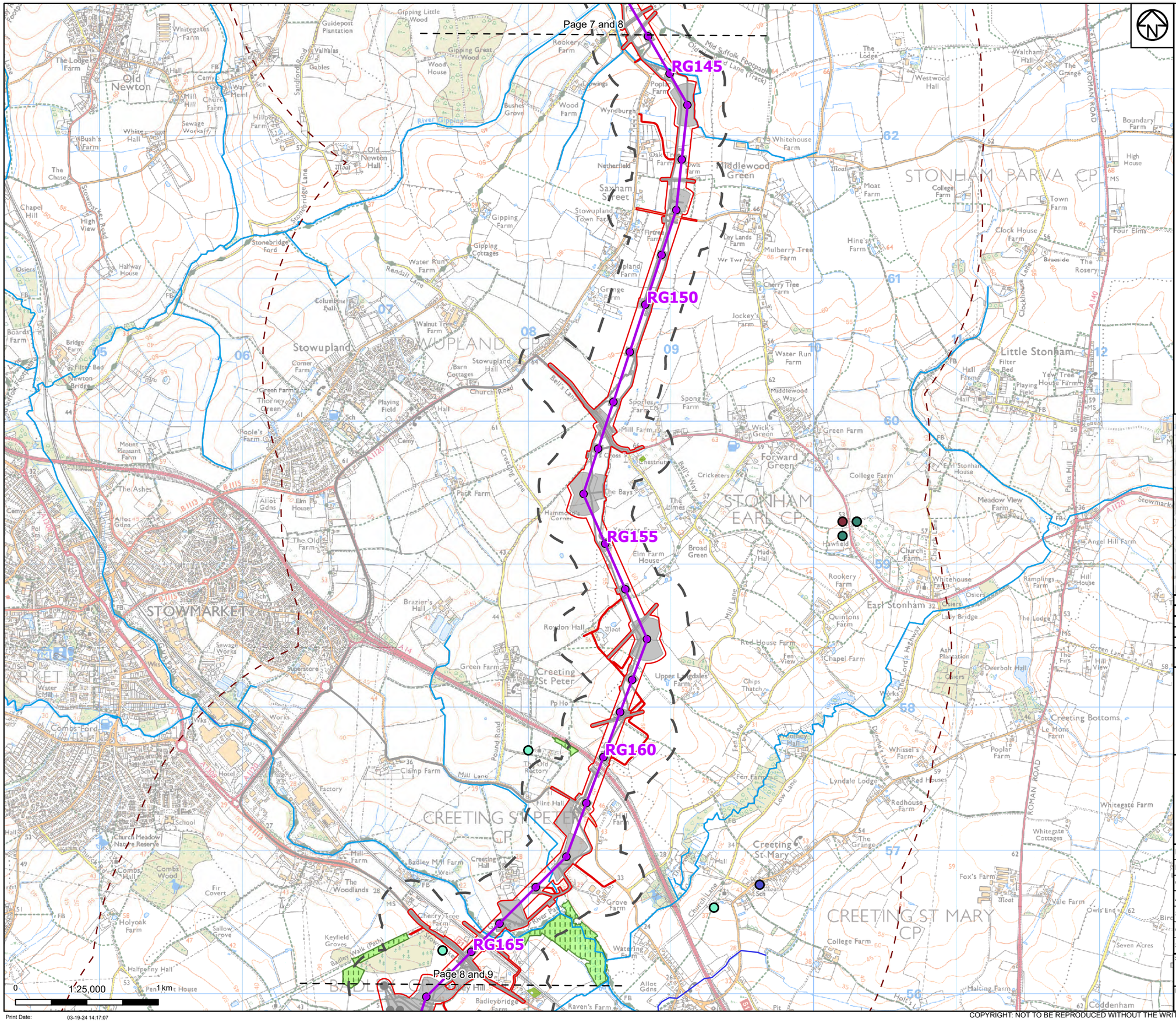
Old Farm Cottage
Bendall's Farm
Wincel



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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 8 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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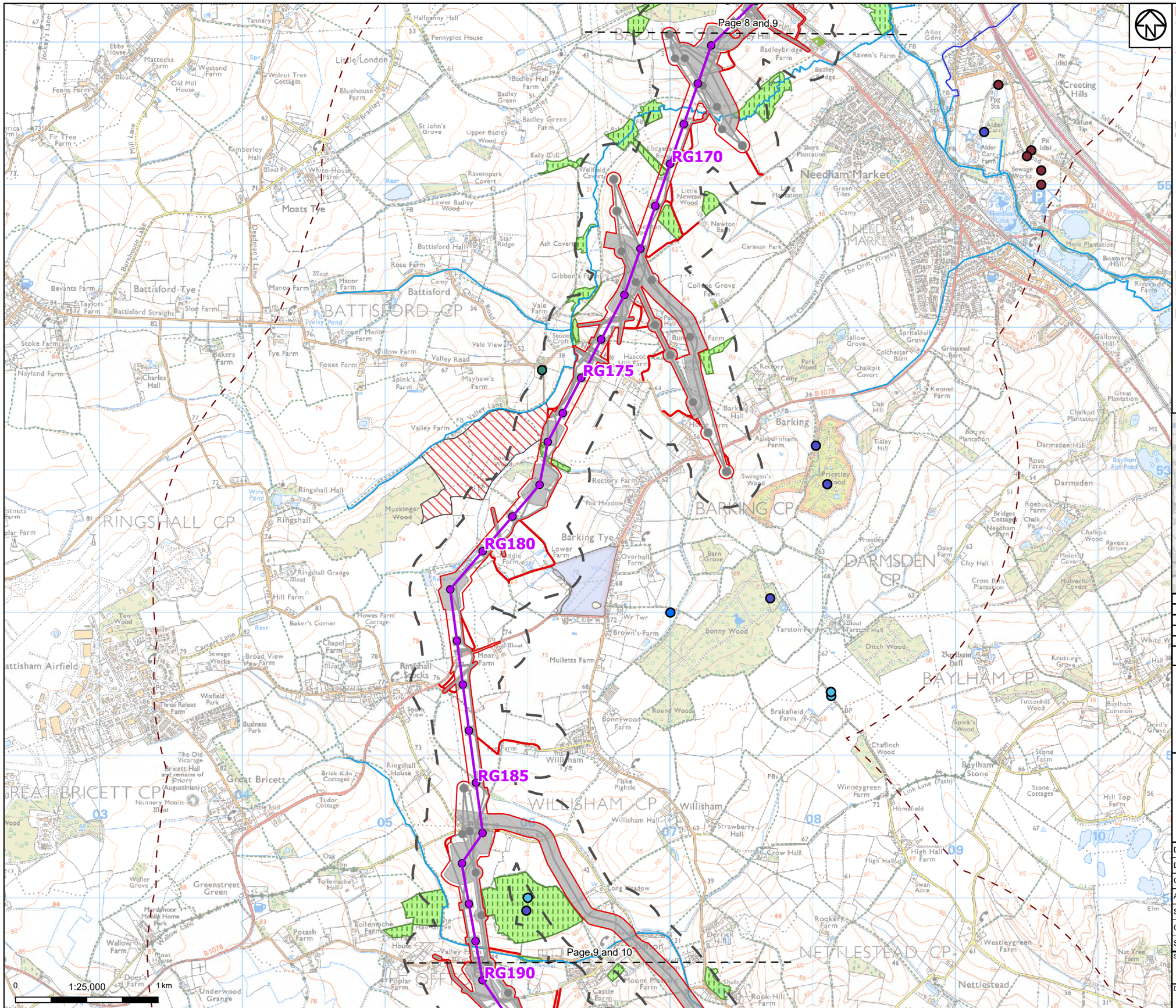

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Discipline specific constraints

200m Study Area

2km Study Area

A moss (Tortula schimperi)

Quaking Grass

Bluebell

Field Scabious

Common Cow-wheat

Hoary Plantain

Sulphur Clover

Rivers

Inland River Watercourses

Lake Watercourses

Deciduous woodland

Good quality semi improved grassland

No main habitat but additional habitats present

Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 9 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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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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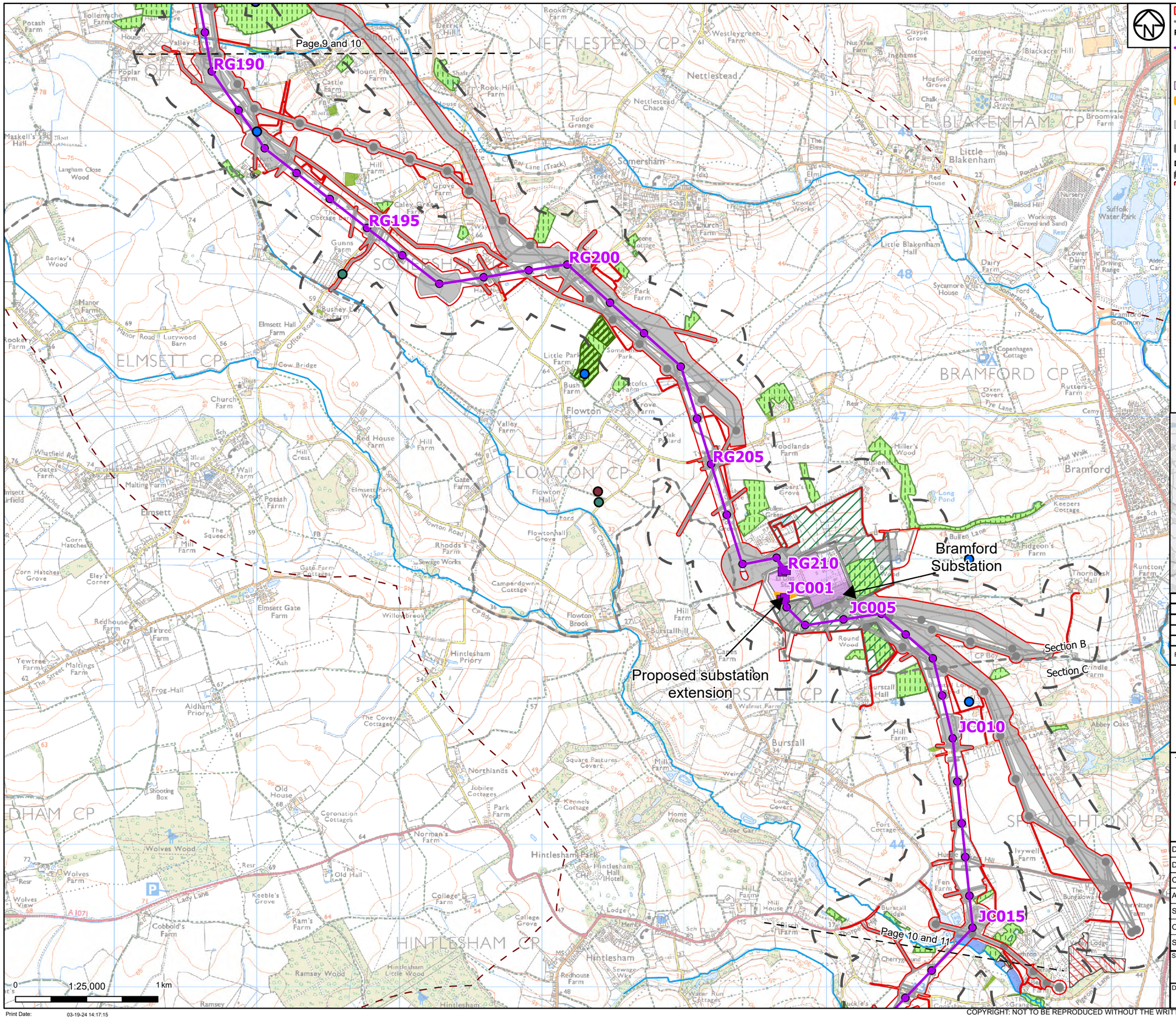

Draft order limits
Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed low duty gantry
- Proposed pylon position
- Existing substation
- Proposed substation extension
- Other temporary and permanent construction and operational works
- Proposed environmental areas

Discipline specific constraints

- 200m Study Area
- 2km Study Area
- A moss (Tortula schimperi)
- Bluebell
- Field Scabious
- Sulphur Clover
- Rivers
- Inland River Watercourses
- Coastal and floodplain grazing marsh
- Deciduous woodland
- No main habitat but additional habitats present
- Traditional orchard
- Ancient and Semi-Natural Woodland

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
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Designed	H. Smith	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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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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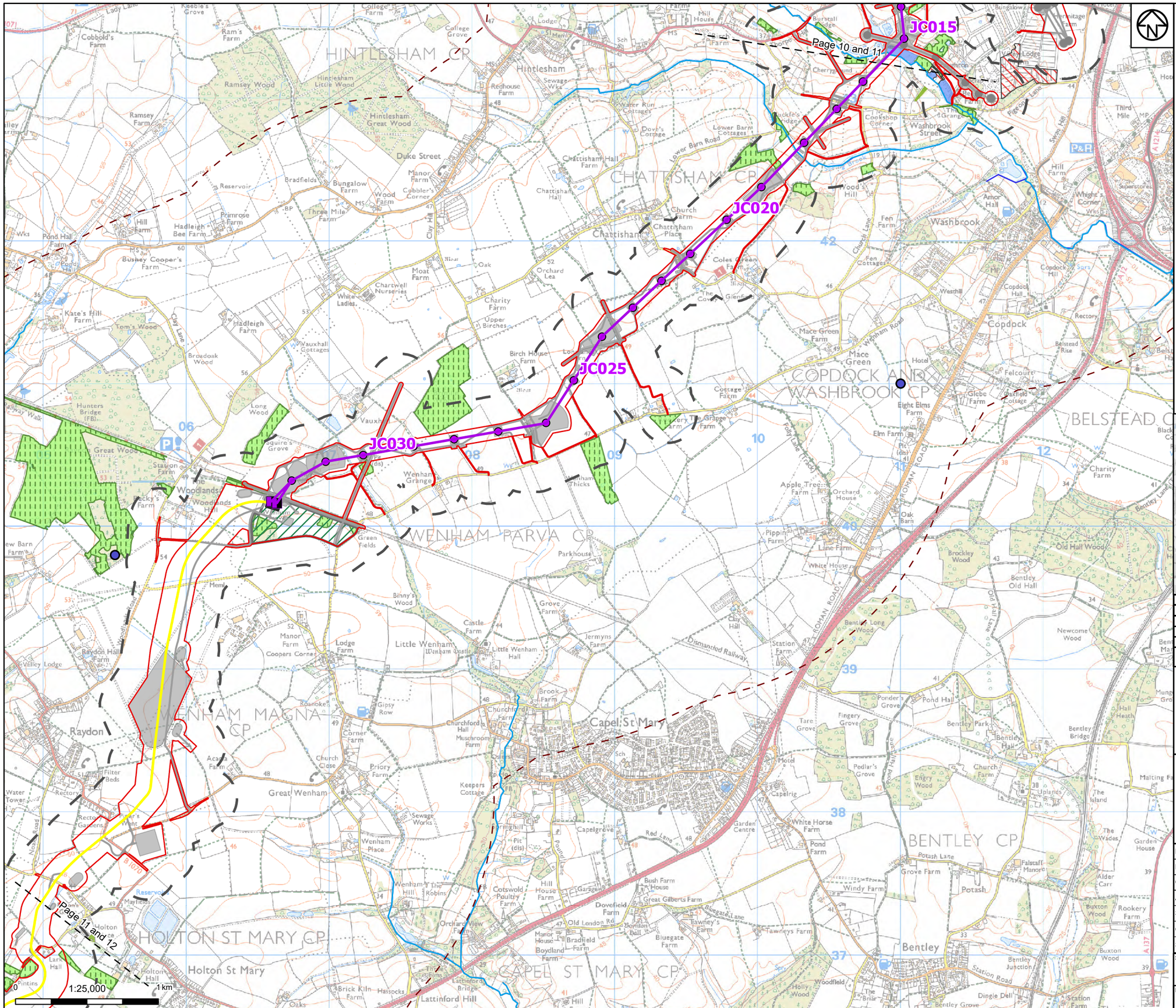

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Draft order limits
Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Other temporary and permanent construction and operational works
- Proposed environmental areas

Discipline specific constraints

- 200m Study Area
- 2km Study Area
- Bluebell
- Rivers
- Inland River Watercourses
- Coastal and floodplain grazing marsh
- Deciduous woodland
- Good quality semi improved grassland
- No main habitat but additional habitats present
- Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
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Designed	H. Smith	Date	April 2024
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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-EGN-ZZ-DR-ZZ-00147

Revision: A

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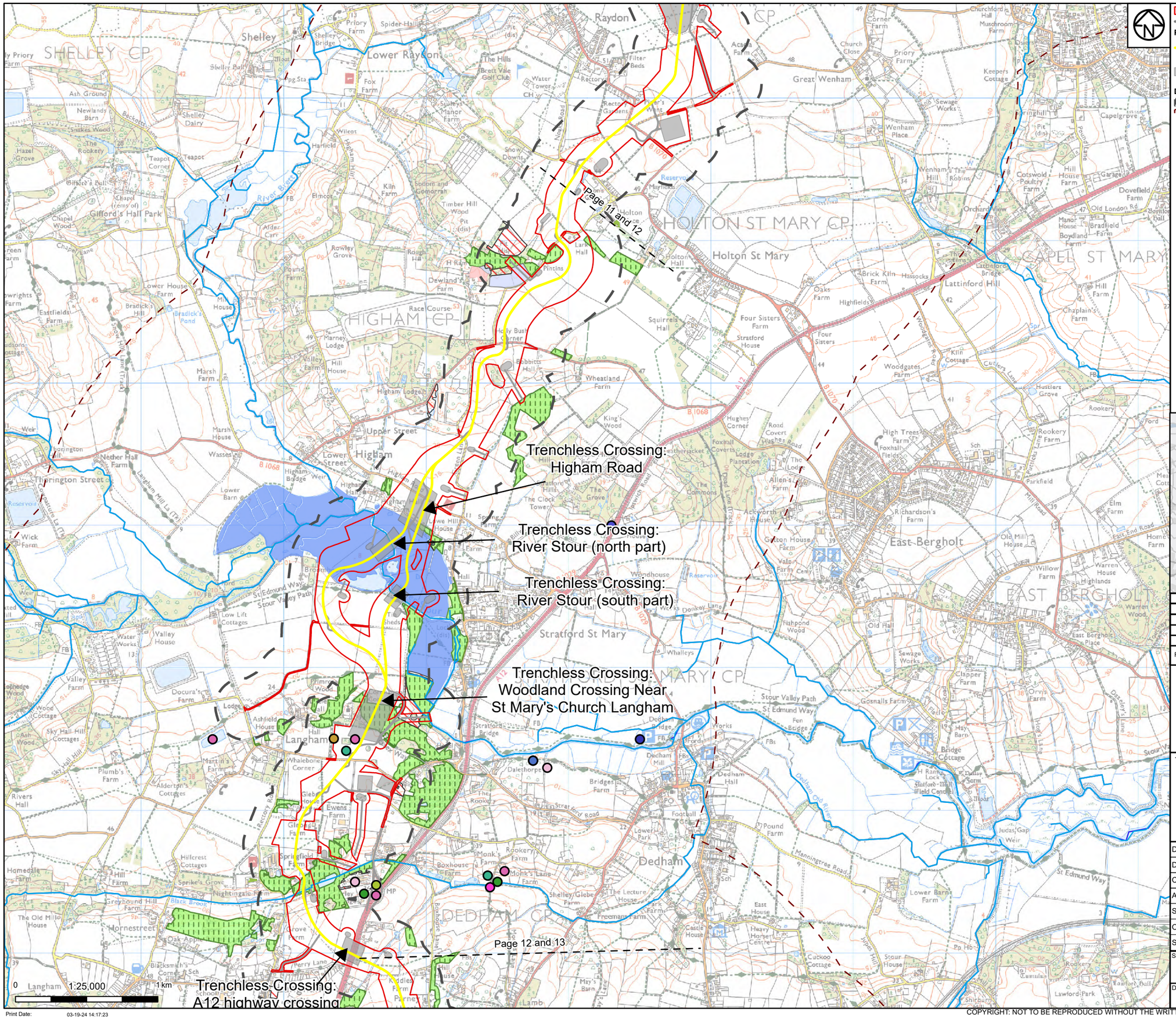

Draft order limits
Project sections

Proposed project design details

Proposed underground cable alignment
Other temporary and permanent construction and operational works

Discipline specific constraints

200m Study Area
2km Study Area
Italian Alder
Butterfly-bush
Evergreen Oak
Rhododendron
False Acacia
Alexanders
Lesser Calamint
Large Leaved Lime
Clustered Clover
Bluebell
Rivers
Inland River Watercourses
Lake Watercourses
Coastal and floodplain grazing marsh
Deciduous woodland
Good quality semi improved grassland
Lowland dry acid grassland
No main habitat but additional habitats present
Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
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Designed	H. Smith	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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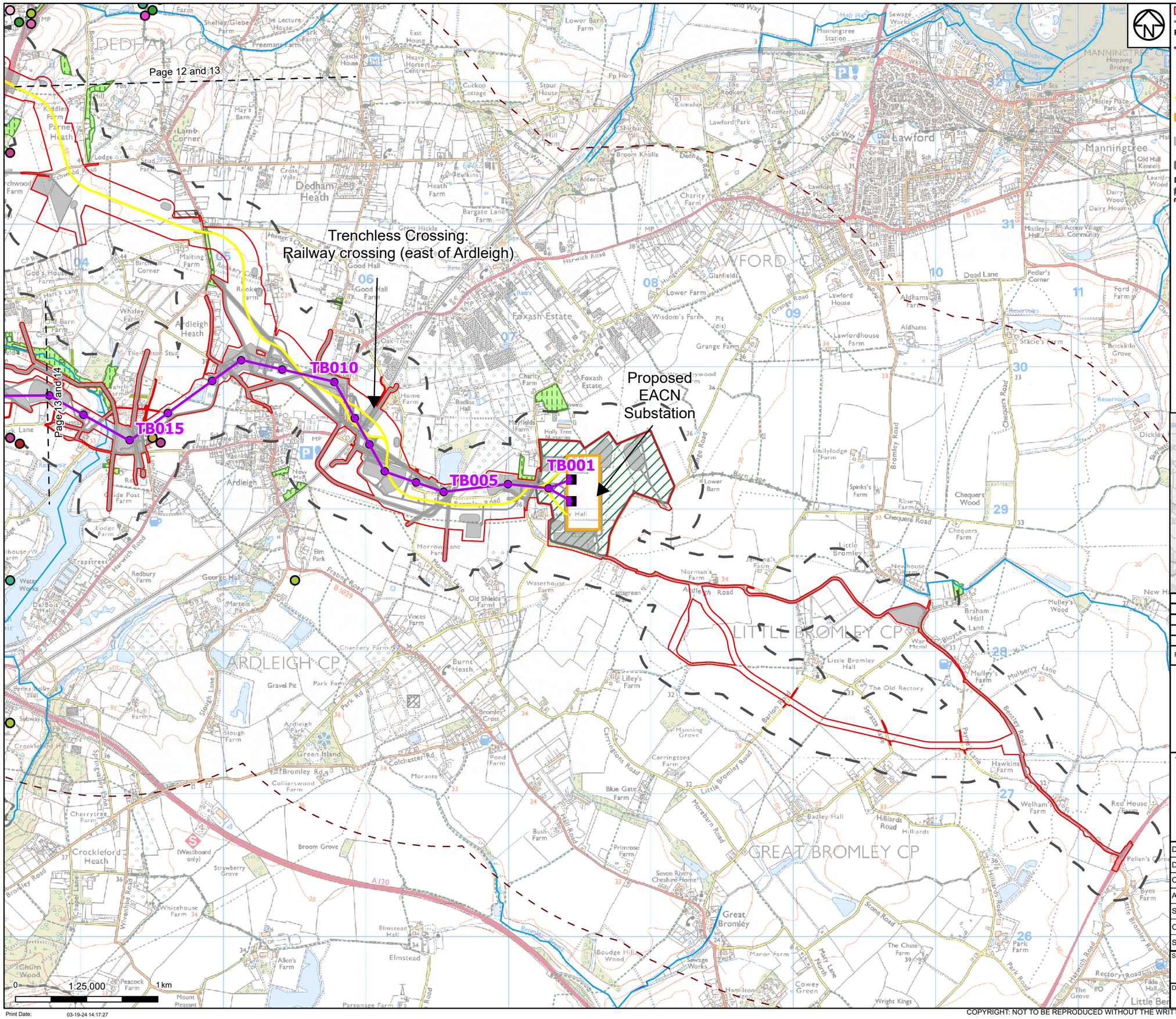

Draft order limits
Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed EACN substation
- Other temporary and permanent construction and operational works
- Proposed environmental areas

Discipline specific constraints

- 200m Study Area
- 2km Study Area
- Butterfly-bush
- Russian Vine
- Turkey Oak
- Evergreen Oak
- Rhododendron
- Alexanders
- Lesser Calamint
- Large Leaved Lime
- Clustered Clover
- Rivers
- Inland River Watercourses
- Lake Watercourses
- Tidal River Watercourses
- Deciduous woodland
- No main habitat but additional habitats present
- Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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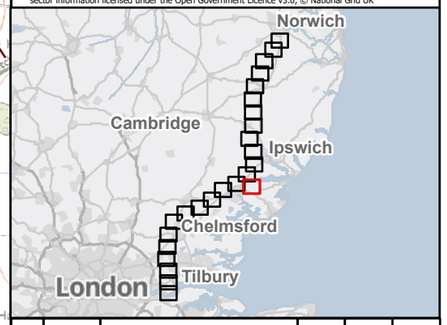

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PROJECT:
nationalgrid Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 13 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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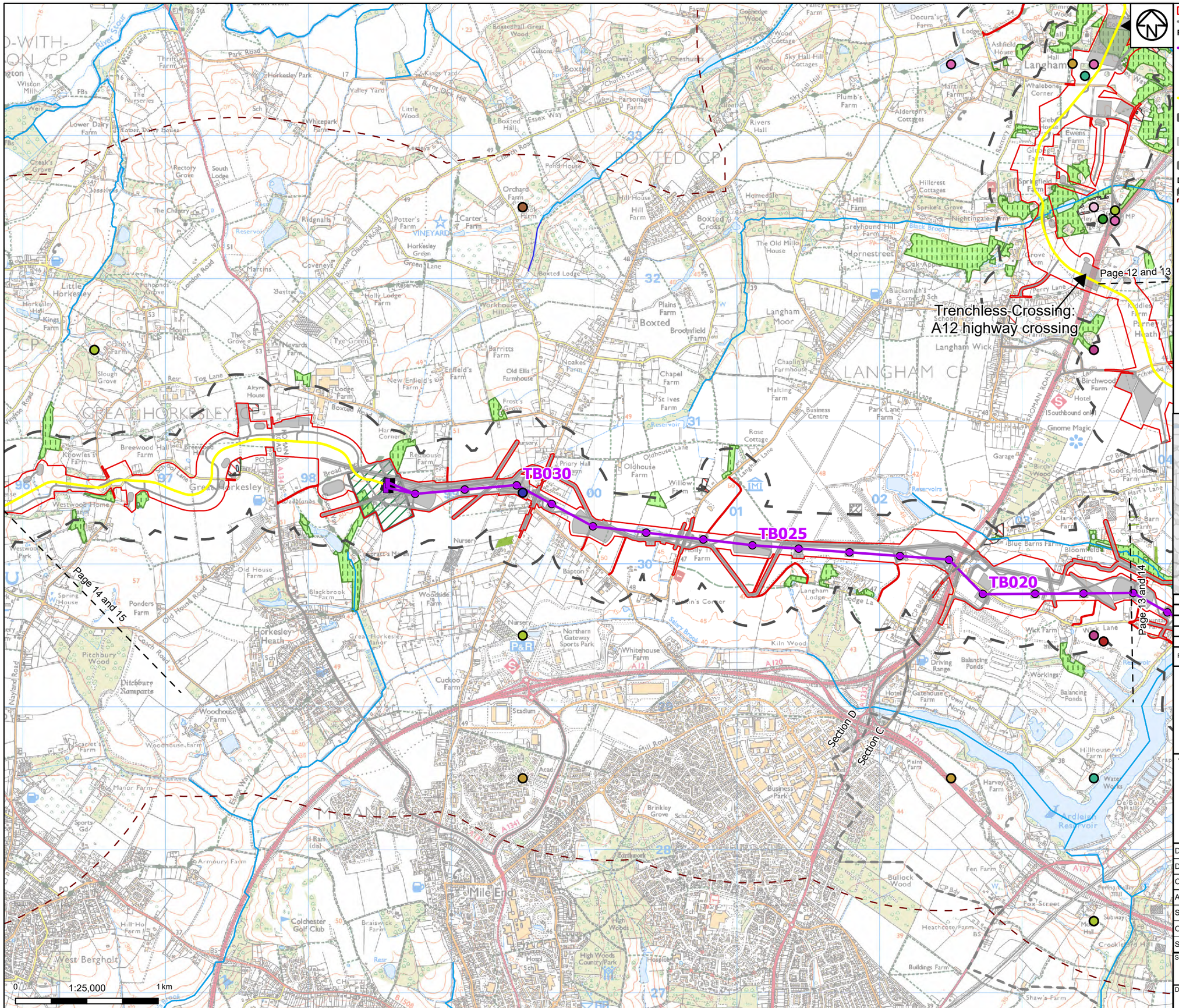

Draft order limits
Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Other temporary and permanent construction and operational works
- Proposed environmental areas

Discipline specific constraints

- 200m Study Area
- 2km Study Area
- Italian Alder
- Butterfly-bush
- Russian Vine
- Turkey Oak
- Evergreen Oak
- Rhododendron
- Japanese Rose
- Alexanders
- Lesser Calamint
- Large Leaved Lime
- Rivers
- Inland River Watercourses
- Lake Watercourses
- Coastal and floodplain grazing marsh
- Deciduous woodland
- No main habitat but additional habitats present
- Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 14 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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TB035
TB040
TB045
TB050
TB055
TB060
Page 14 and 15
Page 15 and 16
FORDHAM CP
WEST BERGHOLT CP
ALDHAM CP
EIGHT ASH GREEN CP
0 1:25,000 1 km

Draft order limits
Project sections

Proposed project design details
- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Other temporary and permanent construction and operational works
- Proposed environmental areas

Discipline specific constraints
- 200m Study Area
- 2km Study Area
- Butterfly-bush
- Evergreen Oak
- False Acacia
- Alexanders
- Lesser Calamint
- Rivers
- Inland River Watercourses
- Lake Watercourses
- Coastal and floodplain grazing marsh
- Deciduous woodland
- No main habitat but additional habitats present
- Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 15 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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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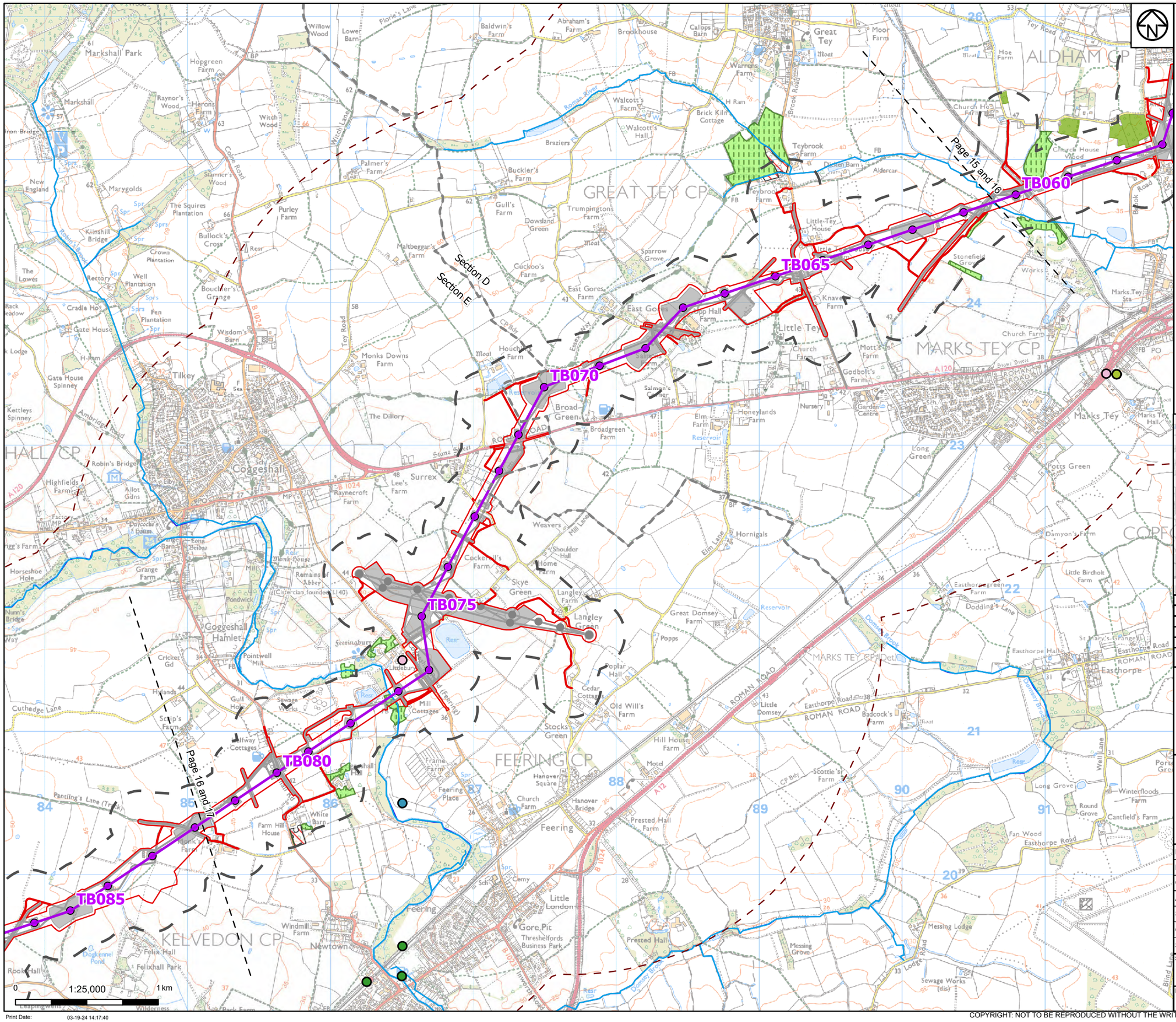

Draft order limits
Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 200m Study Area
- 2km Study Area
- Italian Alder
- Butterfly-bush
- Goat's-rue
- Evergreen Oak
- Alexanders
- Large Leaved Lime
- Rivers
- Inland River Watercourses
- Lake Watercourses
- Deciduous woodland
- No main habitat but additional habitats present
- Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map Page 16 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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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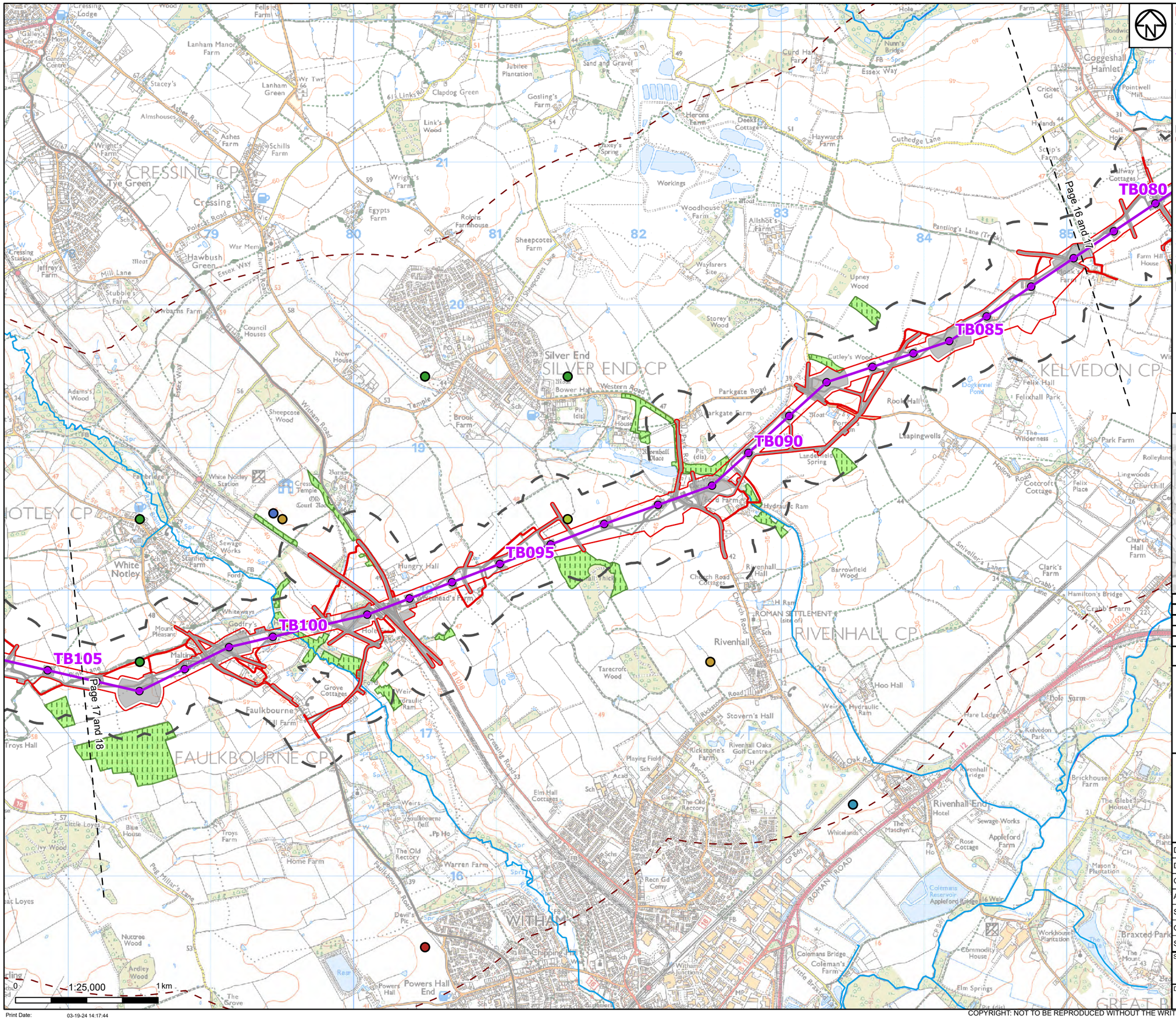

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map Page 17 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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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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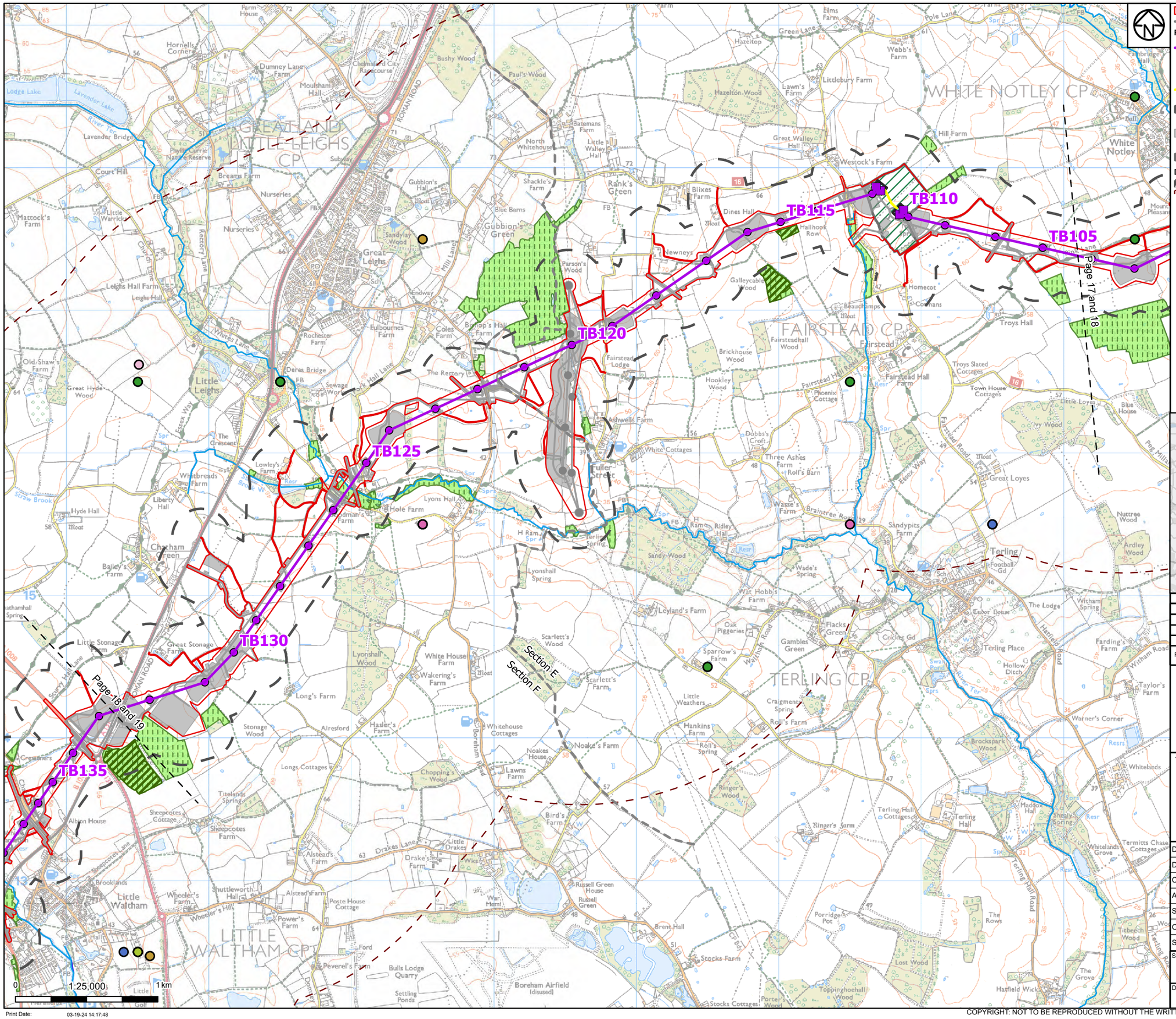

Draft order limits
Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed low duty gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Other temporary and permanent construction and operational works
- Proposed environmental areas

Discipline specific constraints

- 200m Study Area
- 2km Study Area

- Butterfly-bush
- Evergreen Oak
- False Acacia
- Alexanders
- Lesser Calamint
- Large Leaved Lime
- Rivers
- Inland River Watercourses
- Lake Watercourses
- Deciduous woodland
- Ancient and Semi-Natural Woodland

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 18 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-00147

Revision: A

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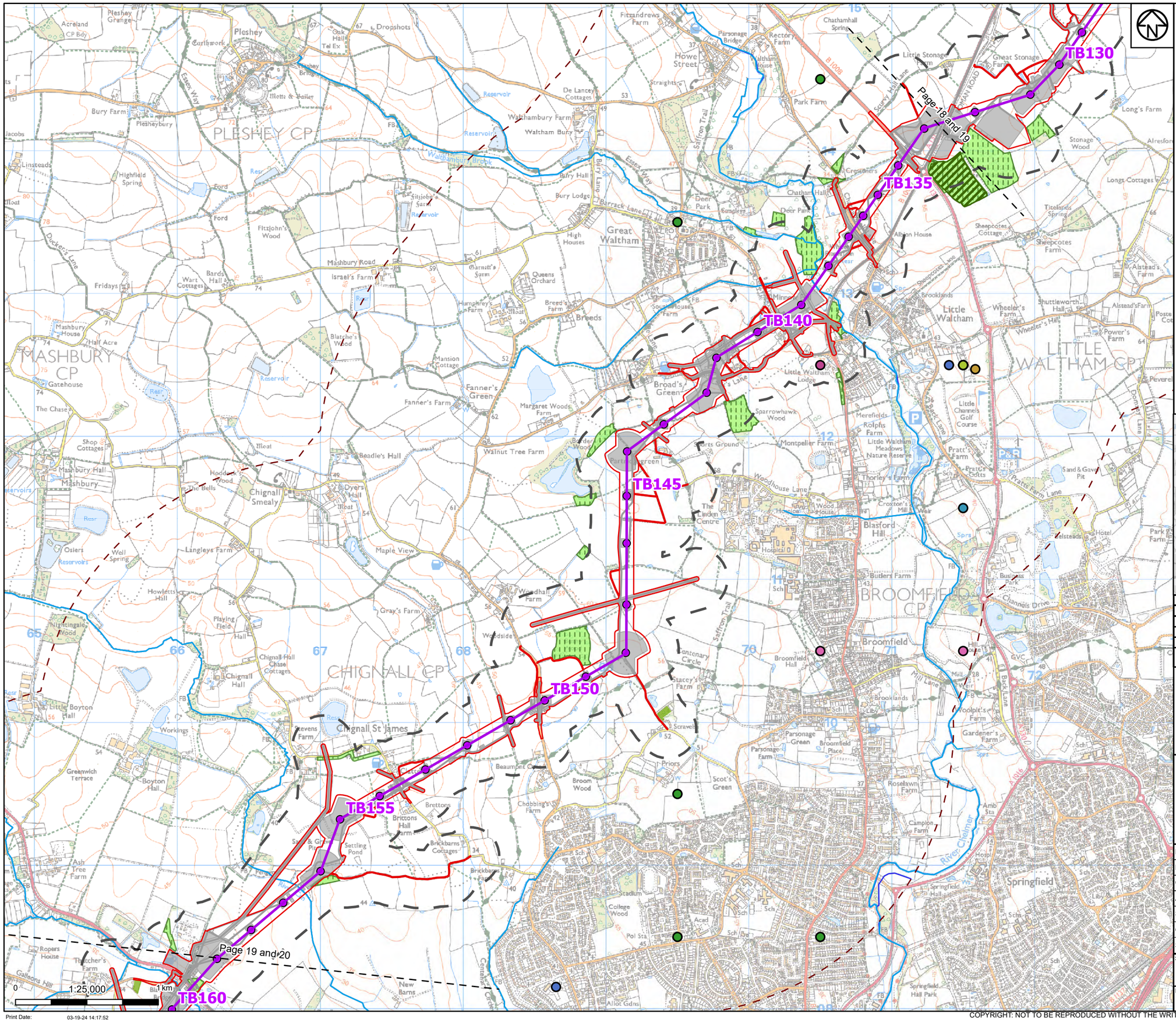

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

200m Study Area
2km Study Area
Butterfly-bush
Goat's-rue
Turkey Oak
Evergreen Oak
False Acacia
Alexanders
Lesser Calamint
Rivers
Inland River Watercourses
Lake Watercourses
Deciduous woodland
Traditional orchard
Ancient and Semi-Natural Woodland

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 19 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-00147

Revision: A

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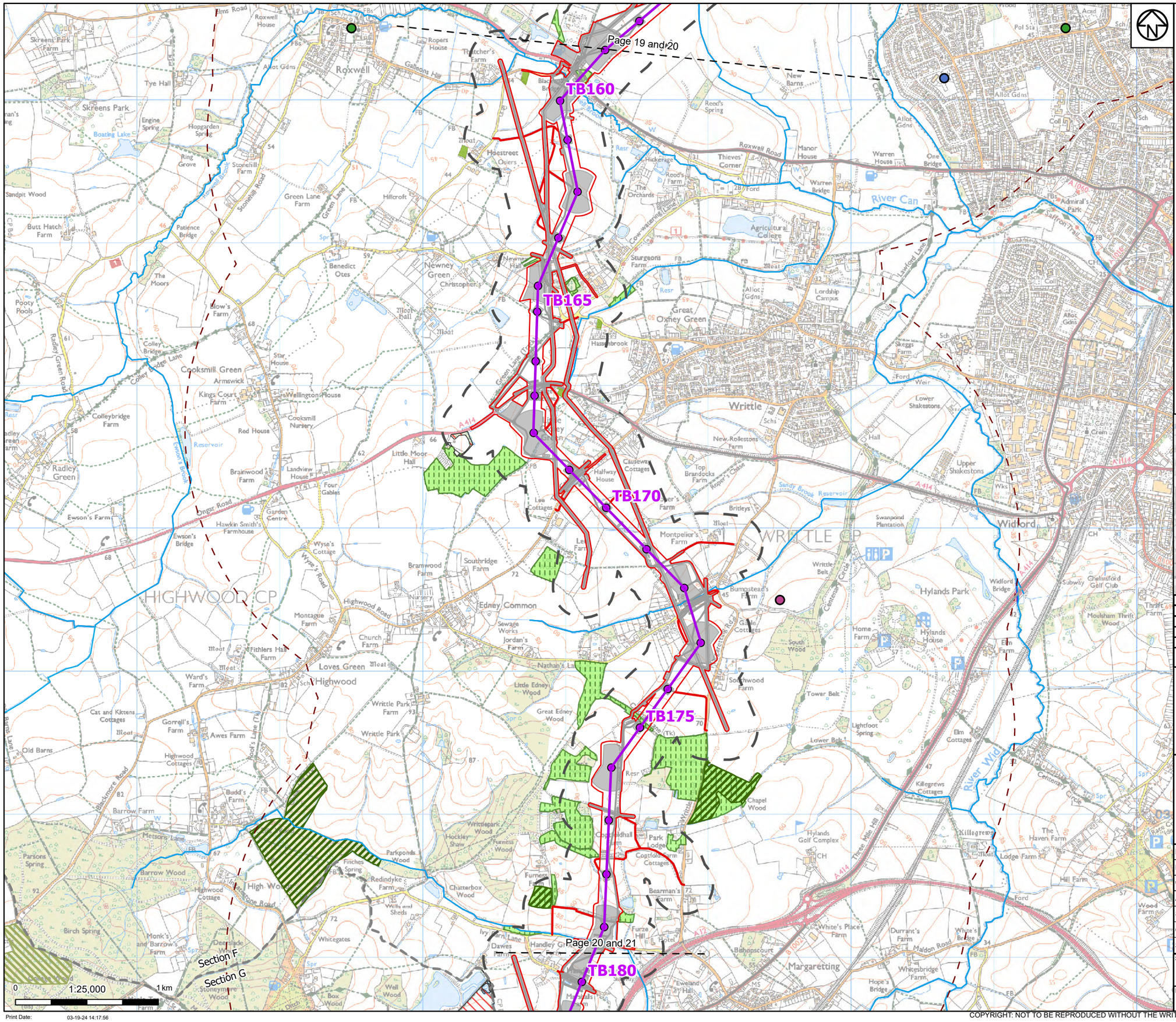

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

200m Study Area
2km Study Area
Butterfly-bush
Turkey Oak
False Acacia
Rivers
Inland River Watercourses
Lake Watercourses
Deciduous woodland
No main habitat but additional habitats present
Traditional orchard
Ancient and Semi-Natural Woodland
Ancient Replanted Woodland

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 20 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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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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Revision: A

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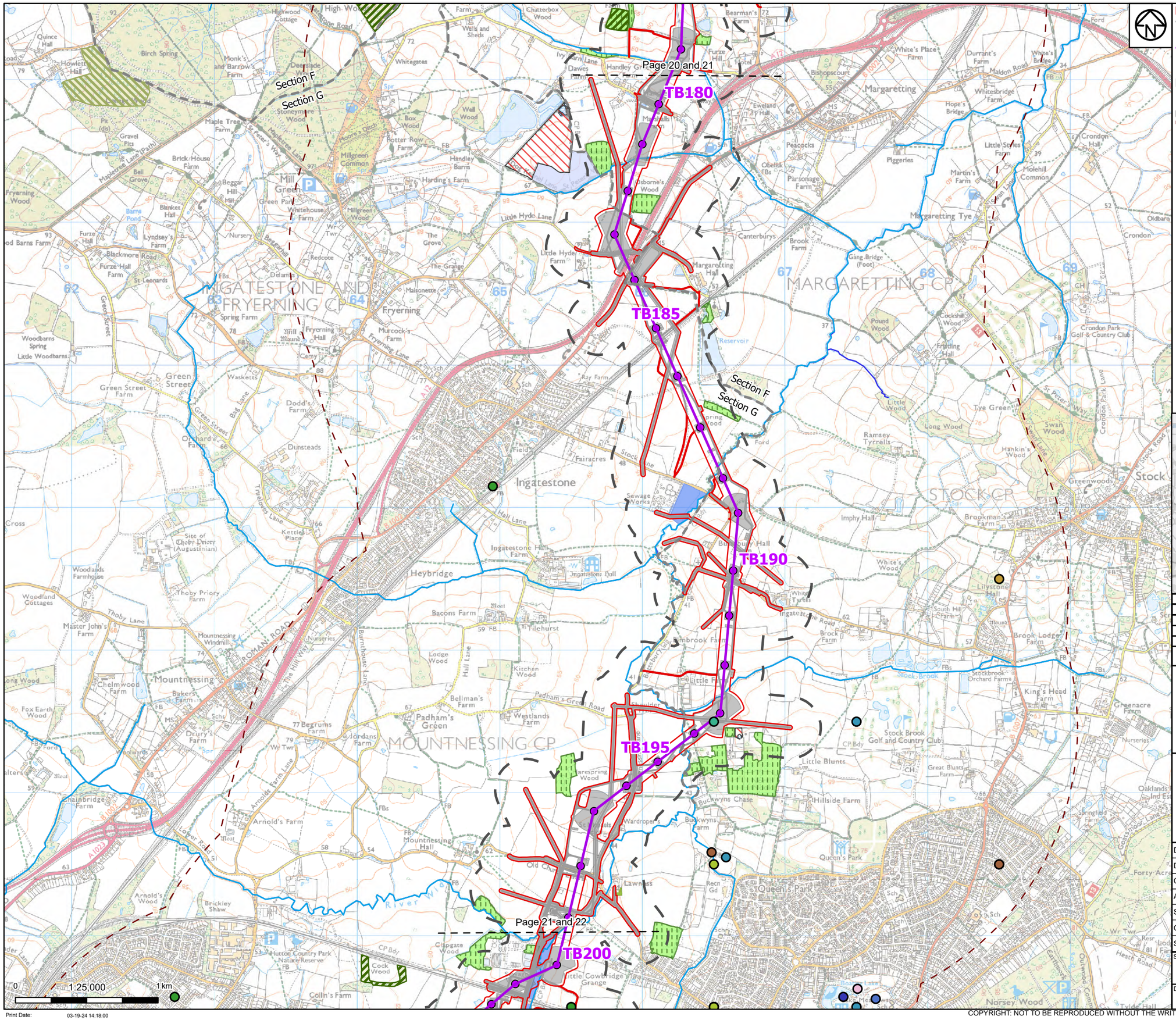

Draft order limits
Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 200m Study Area
- 2km Study Area
- Italian Alder
- Butterfly-bush
- Goat's-rue
- Evergreen Oak
- Rhododendron
- False Acacia
- Japanese Rose
- Alexanders
- Large Leaved Lime
- Rivers
- Inland River Watercourses
- Lake Watercourses
- Coastal and floodplain grazing marsh
- Deciduous woodland
- Good quality semi improved grassland
- No main habitat but additional habitats present
- Traditional orchard
- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 21 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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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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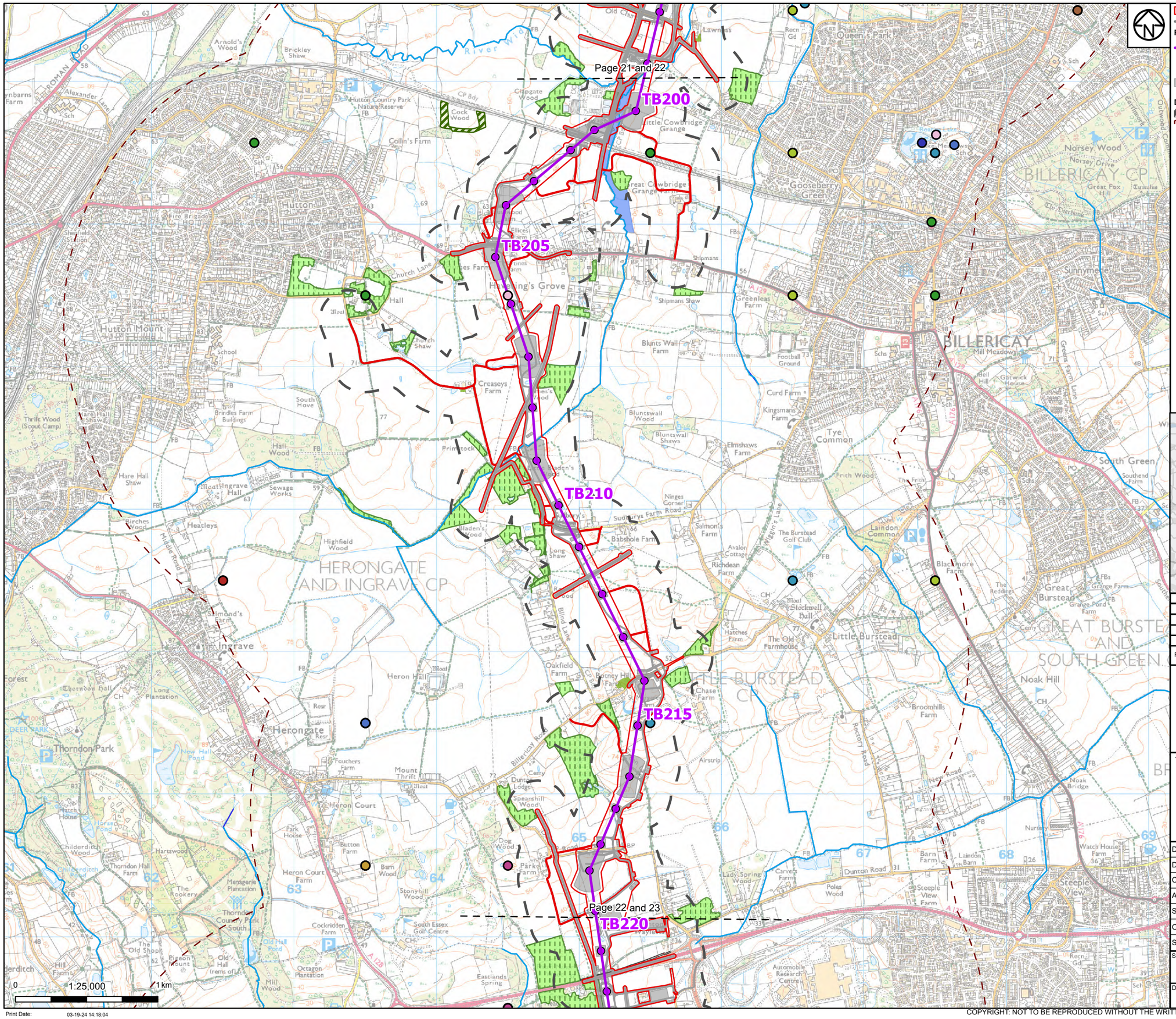

Print Date: 03-19-24 14:18:04

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

200m Study Area
2km Study Area
Italian Alder
Butterfly-bush
Russian Vine
Goat's-rue
Turkey Oak
Evergreen Oak
False Acacia
Japanese Rose
Alexanders
Large Leaved Lime
Rivers
Inland River Watercourses
Lake Watercourses
Coastal and floodplain grazing marsh
Deciduous woodland
No main habitat but additional habitats present
Traditional orchard
Ancient and Semi-Natural Woodland

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 22 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-00147
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TB220

TB225

TB230

TB235

TB240

TB245

Section G

Section H

0 1:25,000 1 km

Print Date: 03-19-24 14:18:08

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

200m Study Area
2km Study Area
Butterfly-bush
Russian Vine
Goat's-rue
Turkey Oak
Evergreen Oak
Rhododendron
False Acacia
Japanese Rose
Alexanders
Rivers
Inland River Watercourses
Lake Watercourses
Deciduous woodland
Lowland meadows
No main habitat but additional habitats present
Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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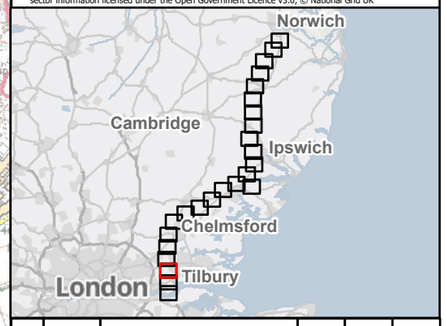

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map Page 23 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-00147

Revision: A

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TB240

TB245

TB250

TB255

TB260

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Page 24 and 25

Trenchless Crossing:
Lower Thames Crossing (west of Tarmac)

Trenchless Crossing:
Lower Thames Crossing (Muckingford Road)

THURROCK

Stanford-le-Hope

Horndon on the Hill

Chadwell St Mary

Little Thurrock

Orsett

Linford

Mucking Marshes

East Tilbury Marshes

East Tilbury

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed pylon position
Proposed underground cable alignment
Proposed cable sealing end compound
Other temporary and permanent construction and operational works
Proposed environmental areas

Discipline specific constraints

200m Study Area
2km Study Area

Italian Alder
Butterfly-bush
Russian Vine
Goat's-rue
Turkey Oak
Evergreen Oak
False Acacia
Japanese Rose
Alexanders
Lesser Calamint
Large Leaved Lime
Clustered Clover

Rivers
Inland River Watercourses
Lake Watercourses
Tidal River Watercourses
Deciduous woodland
No main habitat but additional habitats present
Traditional orchard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map
Page 24 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-00147
Revision: A

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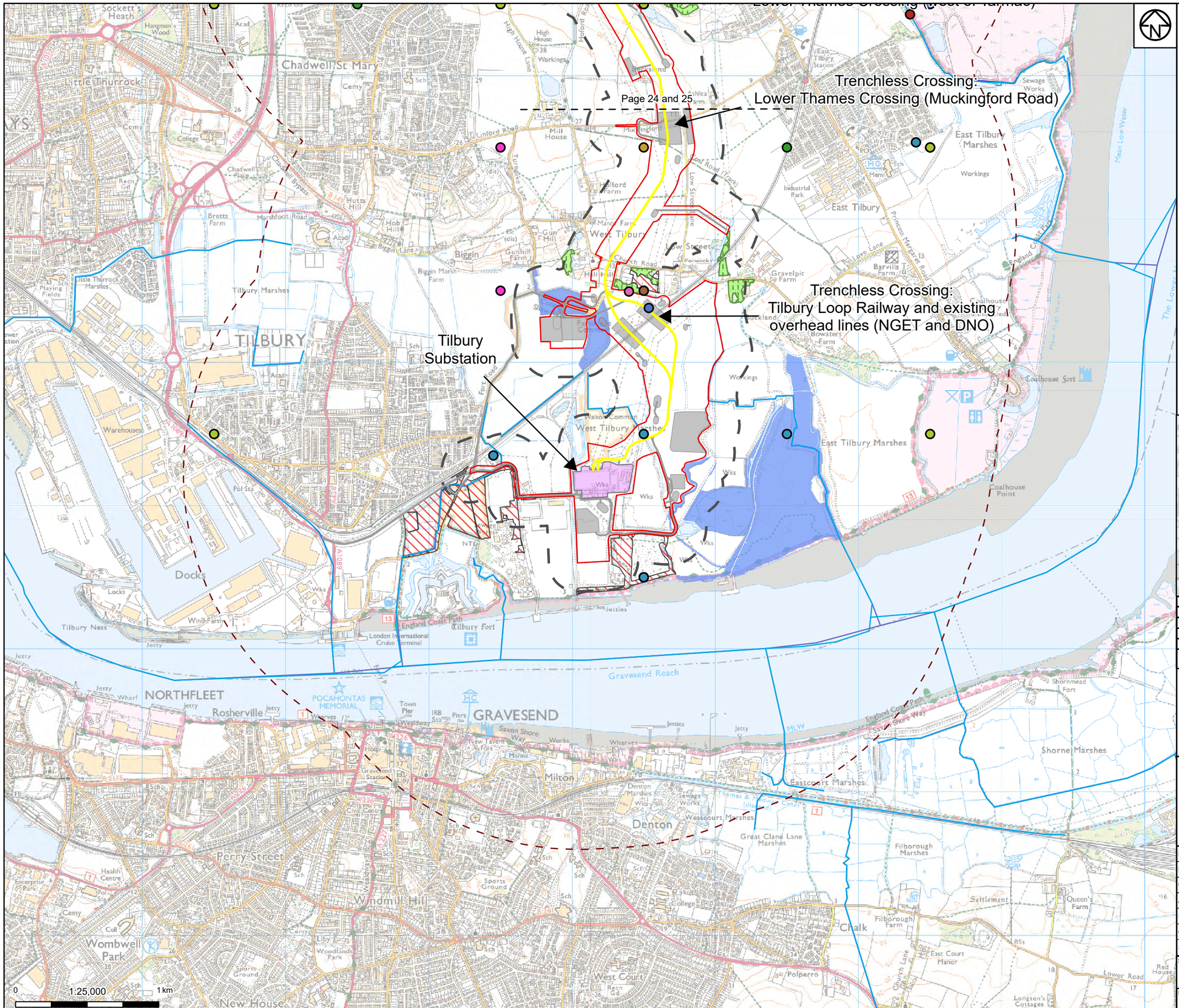

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.2 - Ecology and Biodiversity - Protected/Notable Habitat and Plant Desk Study Map Page 25 of 25

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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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Figure A8.1.3: NVC survey locations and Hedgerow Assessment locations

Pages

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11

Peterborough
Wisbech
Crowland
Deeping
Swaffham
Norwich
Great Yarmouth
Gorleston-on-Sea
Downham Market
Watton
Hingham
Wymondham
Loddon
March
Attleborough
Lowestoft
Bungay
Beccles
Ramsey
Chatteris
Brandon
Thetford
Harleston
Ely
Diss
Halesworth
Southwold
Mildenhall
Soham
Eye
Huntingdon
St Ives
Bury St Edmunds
Framlingham
Saxmundham
Newmarket
St Neots
Cambridge
Stowmarket
Needham Market
Wickham Market
Aldeburgh
Sandy
Potton
Woodbridge
Biggleswade
Haverhill
Clare
Acton
Ipswich
Hadleigh
Royston
Sudbury
Saffron Walden
Stotfold
Felixstowe
Harwich
Baldock
Letchworth
Thaxted
Halstead
Manningtree
Hitchin
Buntingford
Stevenage
Stansted Mountfitchet
Colchester
Braintree
Coggeshall
Bishop's Stortford
Great Dunmow
Wivenhoe
Walton-on-the-Naze
Frinton-on-Sea
Ware
Sawbridgeworth
Witham
Brightlingsea
Clacton-on-Sea
West Mersea
Hatfield
Hoddesdon
Harlow
Albans
Chelmsford
Maldon
Chipping Ongar
Cheshunt
Potters Bar
Waltham Abbey
Radlett
Borehamwood
Loughton
Southminster
South Woodham Ferrers
Burnham-on-Crouch
Chigwell
Brentwood
Wickford
Rayleigh
Rochford
Basildon
Southend-on-Sea
Canvey Island
London City Airport
London
Heathrow
Grays
Swanscombe
Northfleet
Sheerness
Minster
Margate
M25
A1(M)

0 1:500,000 20 km

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PROJECT:
Norwich to Tilbury

Title:
Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations Overview

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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-00171
Revision: A

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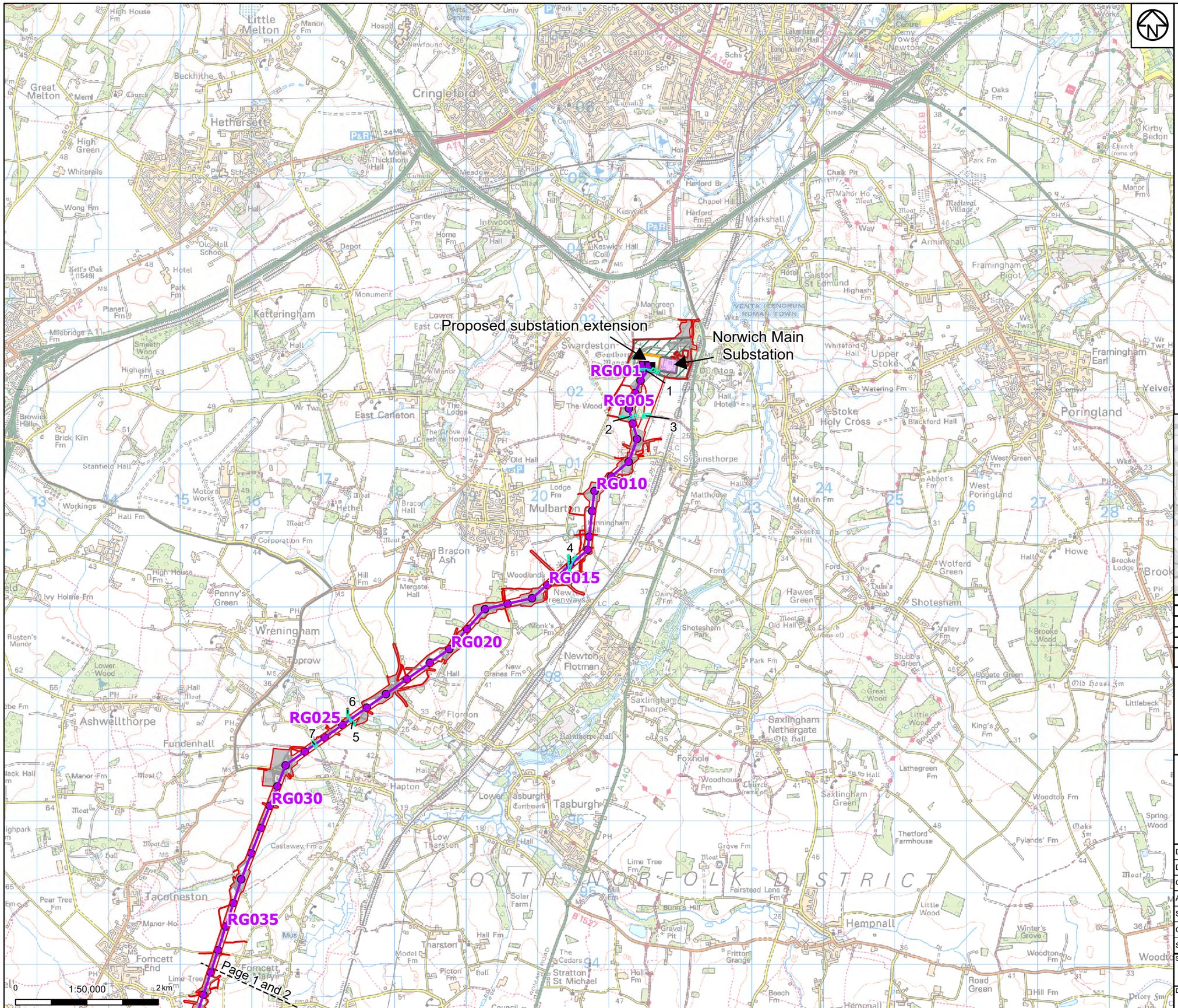

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed full line tension gantry

Proposed pylon position

Existing substation

Proposed substation extension

Proposed environmental areas

Discipline specific constraints

National Vegetation Classification locations

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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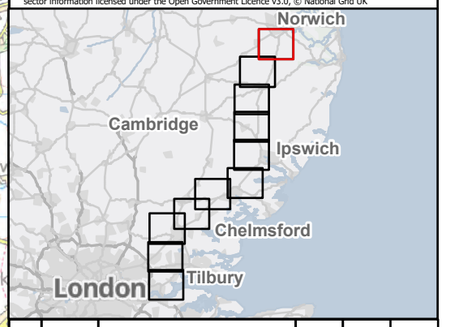

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
Page 1 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	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-00171

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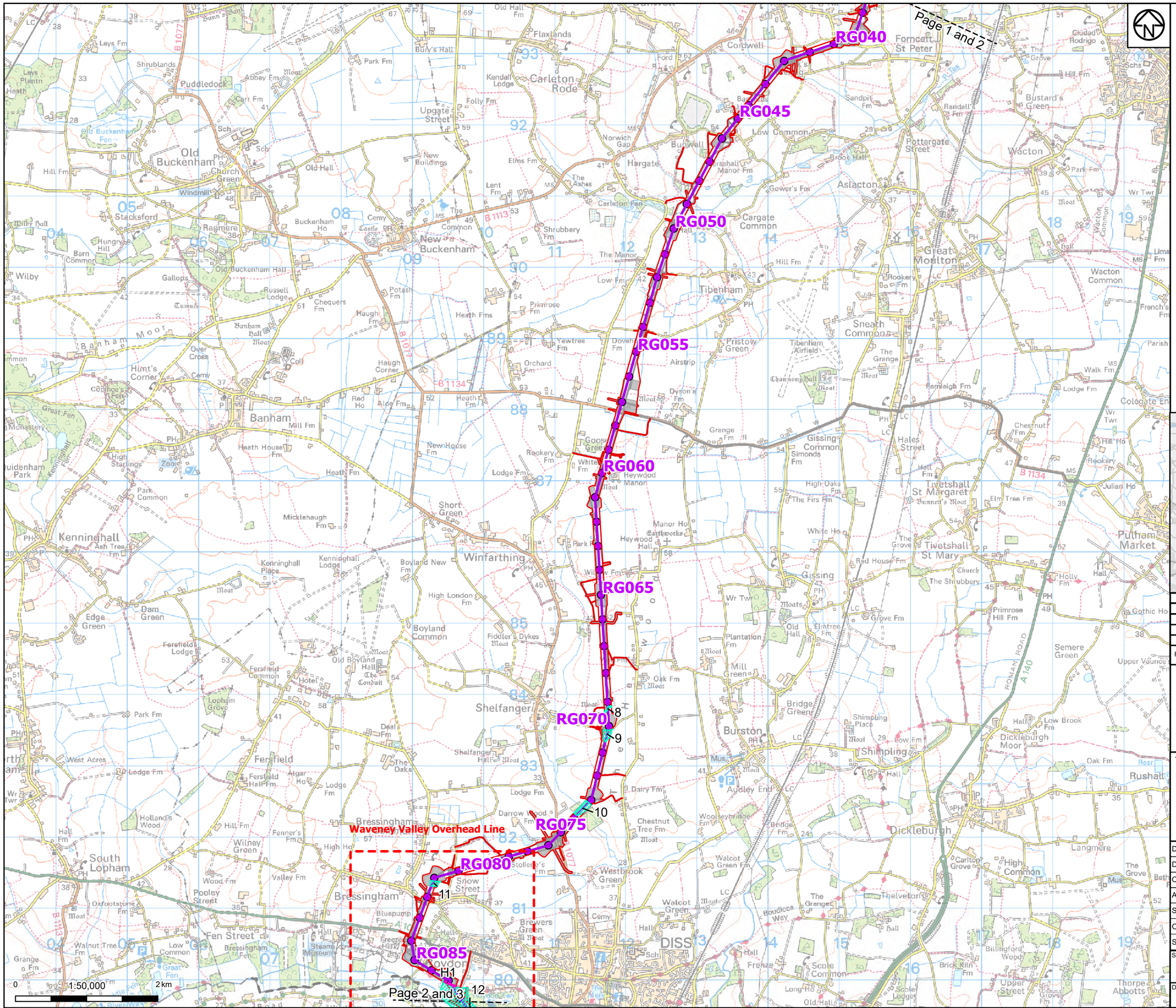

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Discipline specific constraints

National Vegetation Classification locations

Hedgerow assessment

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
Page 2 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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H1 12
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RG095
RG100
H5 H4
RG105
RG110
RG115
14
RG120
RG125
RG130
Page 3 and 4

0 1:50,000 2 km

Print Date: 25-03-24 15:51:50

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position

Discipline specific constraints

- National Vegetation Classification locations
- Hedgerow assessment

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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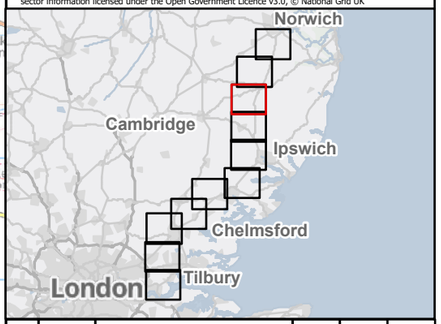

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
Page 3 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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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-00171

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RG060
RG065
RG070
RG075
RG080
RG85
RG90
RG095
RG100
RG105
RG110
8
9
10
11
12
13
Waveney Valley Alternative
Trenchless Crossing:
Waveney Valley Alternative
(north channel)
Trenchless Crossing:
Waveney Valley Alternative
(south channel)
Section A
Section B
0
1:50,000
2 km
Print Date: 25-03-24 15:49:45

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed low duty gantry
Proposed pylon position
Proposed underground cable alignment
Proposed cable sealing end compound
Proposed environmental areas
Other temporary and permanent construction and operational works

Discipline specific constraints

Hedgerow assessment
National Vegetation Classification locations

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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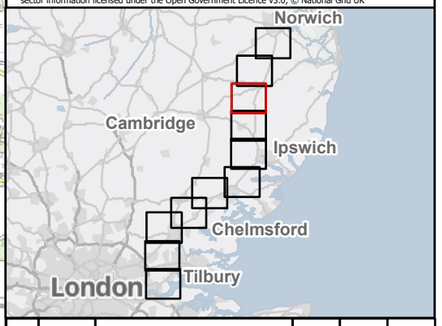

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PROJECT:
Norwich to Tilbury

Title:
Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations Page 3a of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Page 3 and 4

RG135

RG140

RG145

RG150

RG155

RG160

RG165

RG170

RG175

RG180

H6

H7

H8

H9

15

16

17

MID SUFFOLK DISTRICT

STOWMARKET

Needham Market

Stowupland

Mendlesham

Haughley

Wetherden

Old Newton

Battisford

Combs

Creeting St Mary

Creeting St Peter

Coddenham

Crowfield

Mickfield

Stonham Aspal

Little Stonham

Forward Green

Darmsden

Hemingstone

Gosbeck

Wetherup Street

Page 4 and 5

0 1:50,000 2 km

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Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Discipline specific constraints

National Vegetation Classification locations

Hedgerow assessment

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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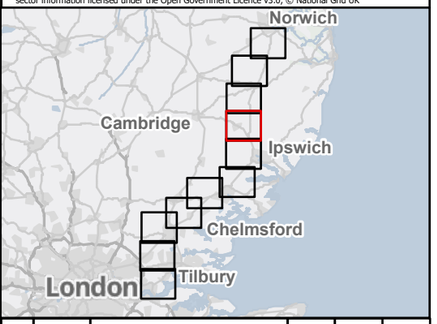

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
Page 4 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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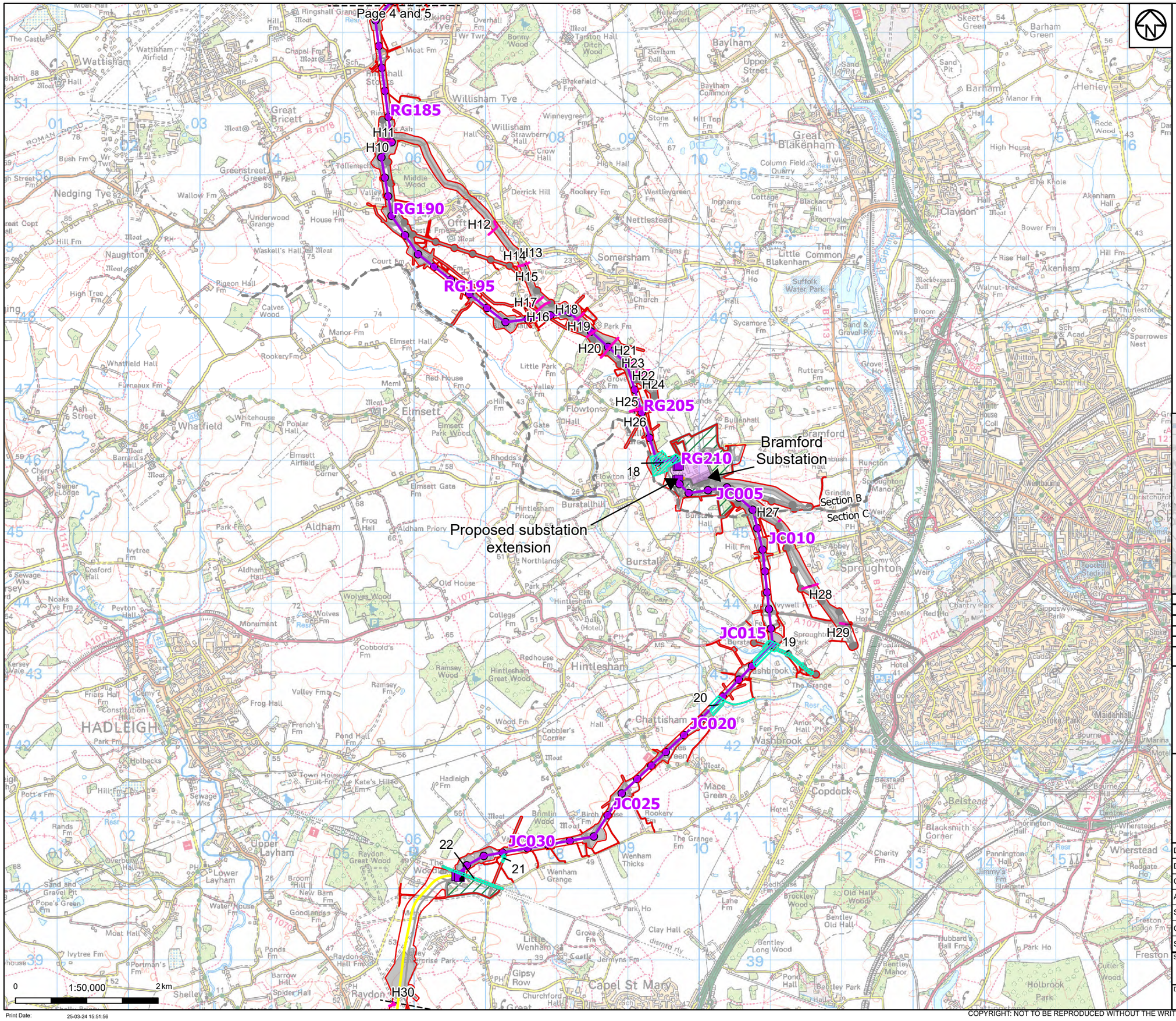

Draft order limits

Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed low duty gantry
- Proposed pylon position
- Proposed underground cable alignment
- Existing substation
- Proposed substation extension
- Proposed cable sealing end compound
- Proposed environmental areas

Discipline specific constraints

- National Vegetation Classification locations
- Hedgerow assessment

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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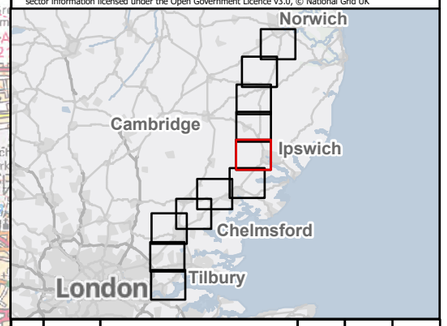

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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
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Designed	H. Smith	Date	April 2024
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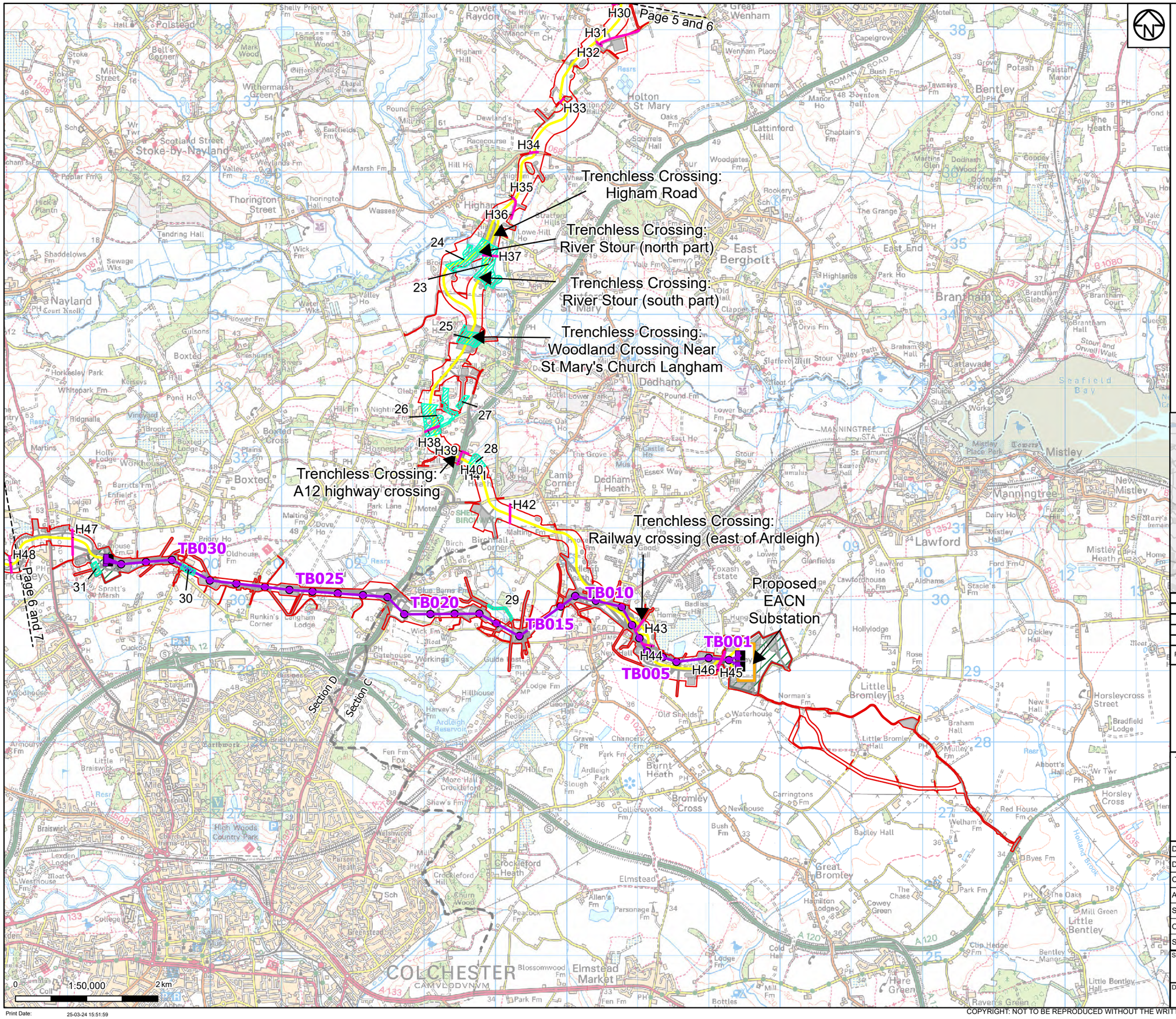

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed full line tension gantry

Proposed pylon position

Proposed underground cable alignment

Proposed EACN substation

Proposed cable sealing end compound

Proposed environmental areas

Discipline specific constraints

National Vegetation Classification locations

Hedgerow assessment

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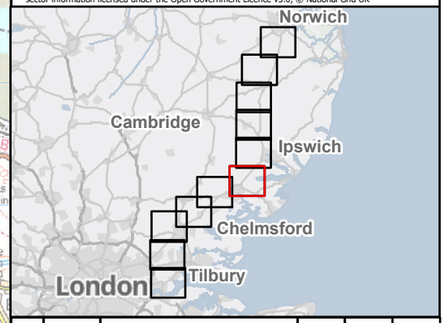

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PROJECT:
Norwich to Tilbury

Title:
Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
Page 6 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Scale:	1:50,000	Datum:	AOD
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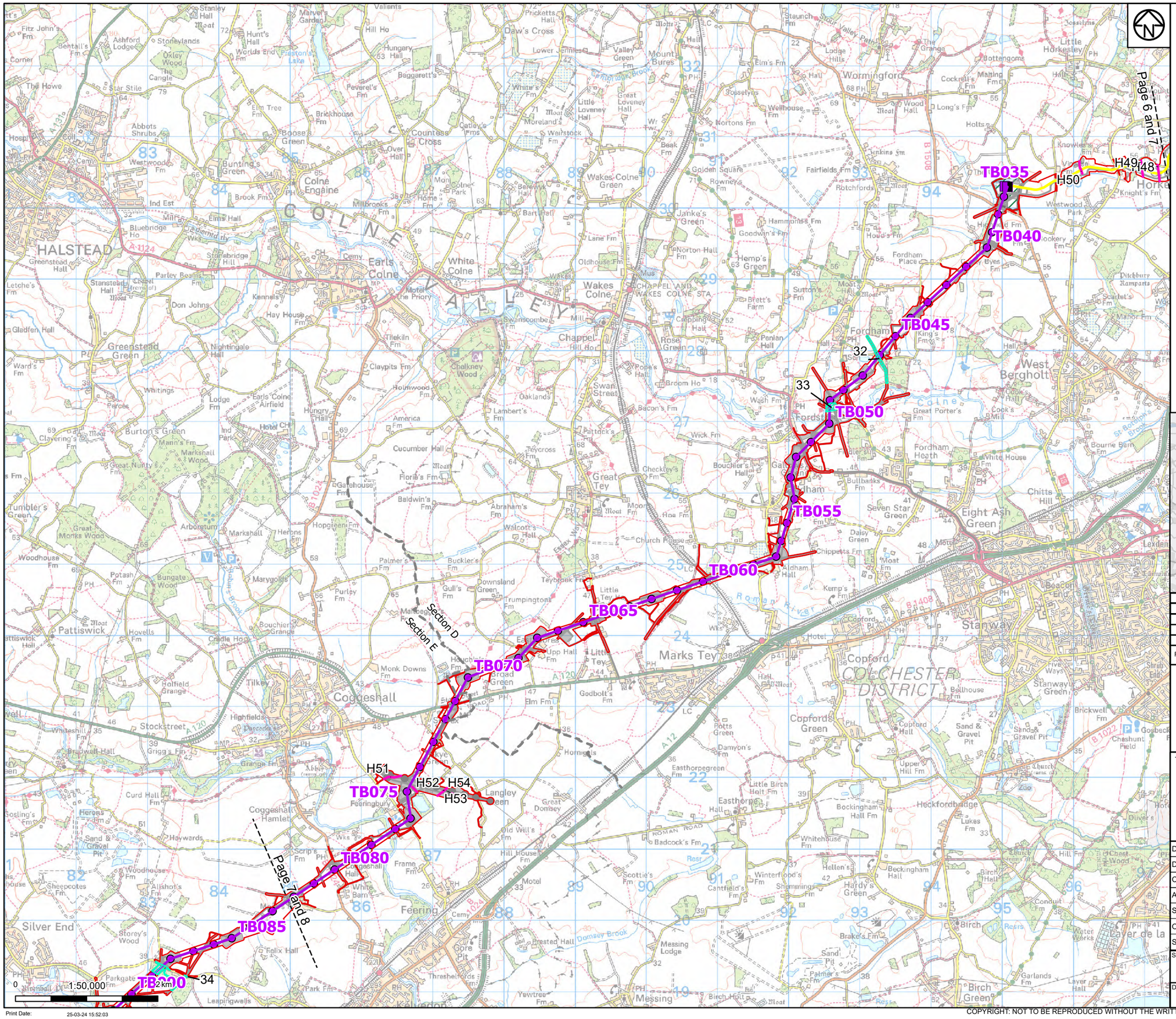

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed full line tension gantry

Proposed pylon position

Proposed underground cable alignment

Proposed cable sealing end compound

Proposed environmental areas

Discipline specific constraints

National Vegetation Classification locations

Hedgerow assessment

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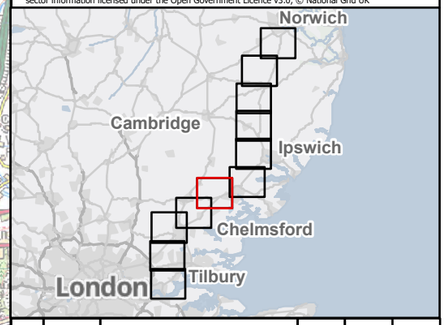

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Norwich to Tilbury

Title:

Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
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Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Original Size:	A3	Grid:	OS
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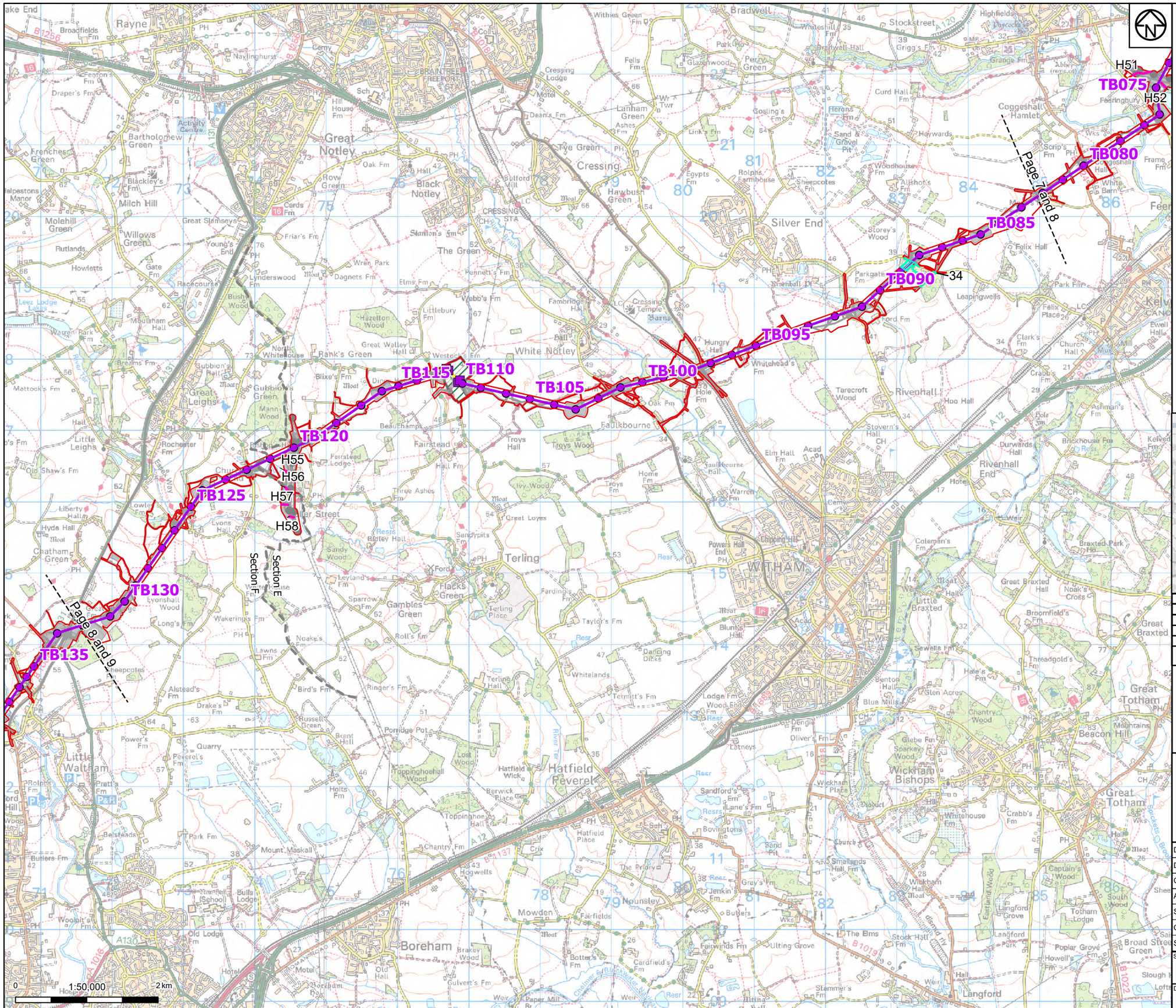

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Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed low duty gantry

Proposed pylon position

Proposed underground cable alignment

Proposed cable sealing end compound

Proposed environmental areas

Discipline specific constraints

National Vegetation Classification locations

Hedgerow assessment

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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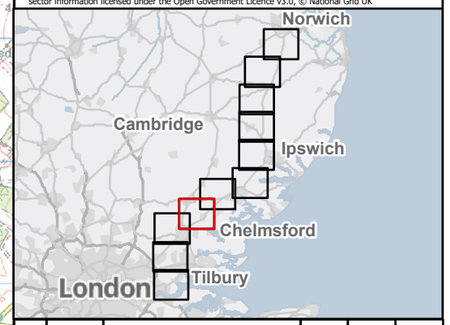

Rev	Date	Description	Drawn	Check	Approv
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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
Page 8 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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Original Size:	A3	Grid:	OS
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Suitability Description: Accepted as Concept Stage

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Revision: A

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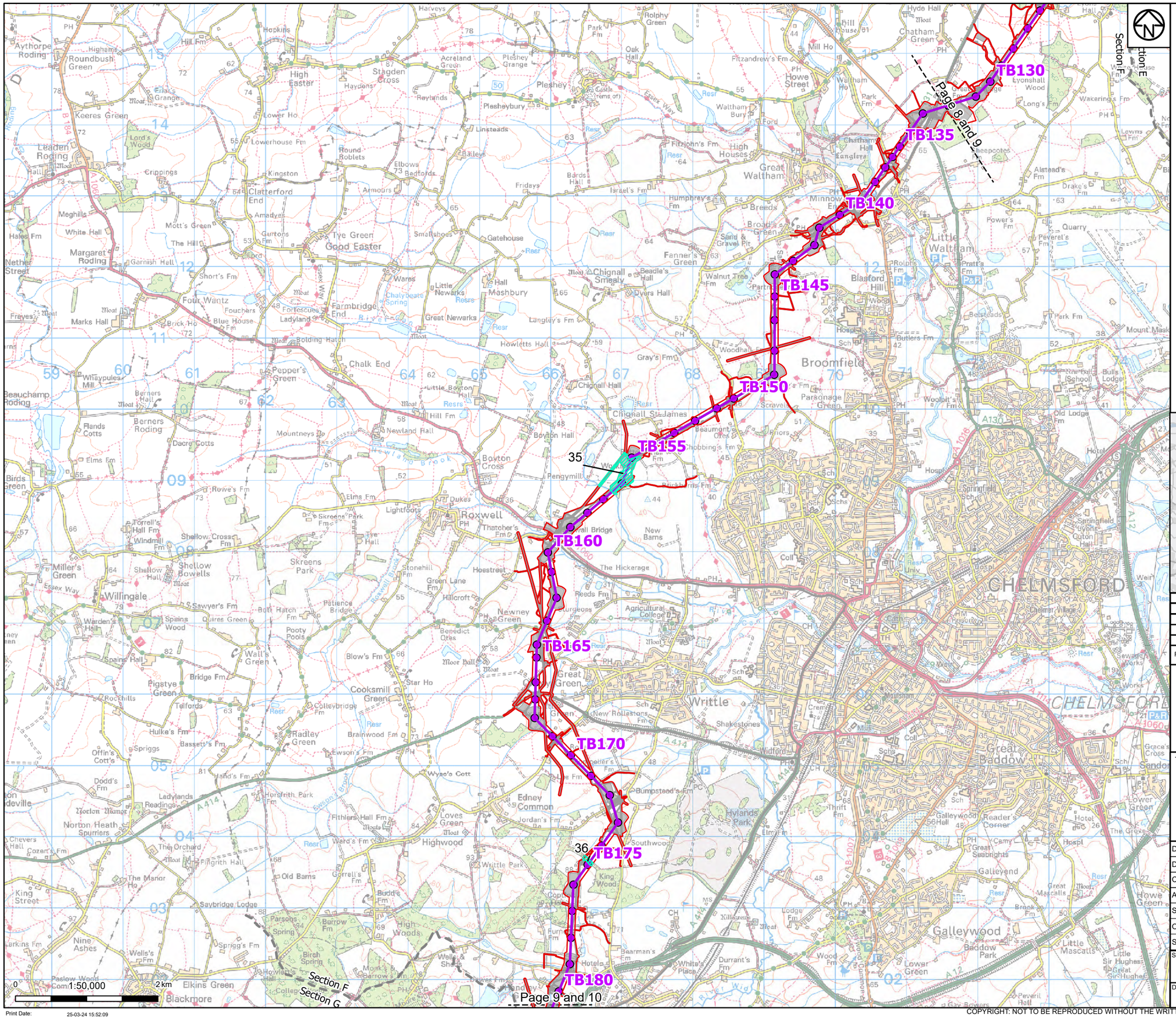

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Discipline specific constraints

National Vegetation Classification locations

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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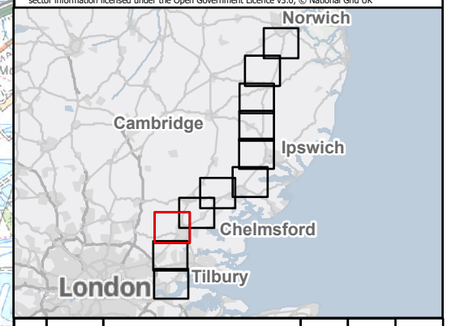

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
Page 9 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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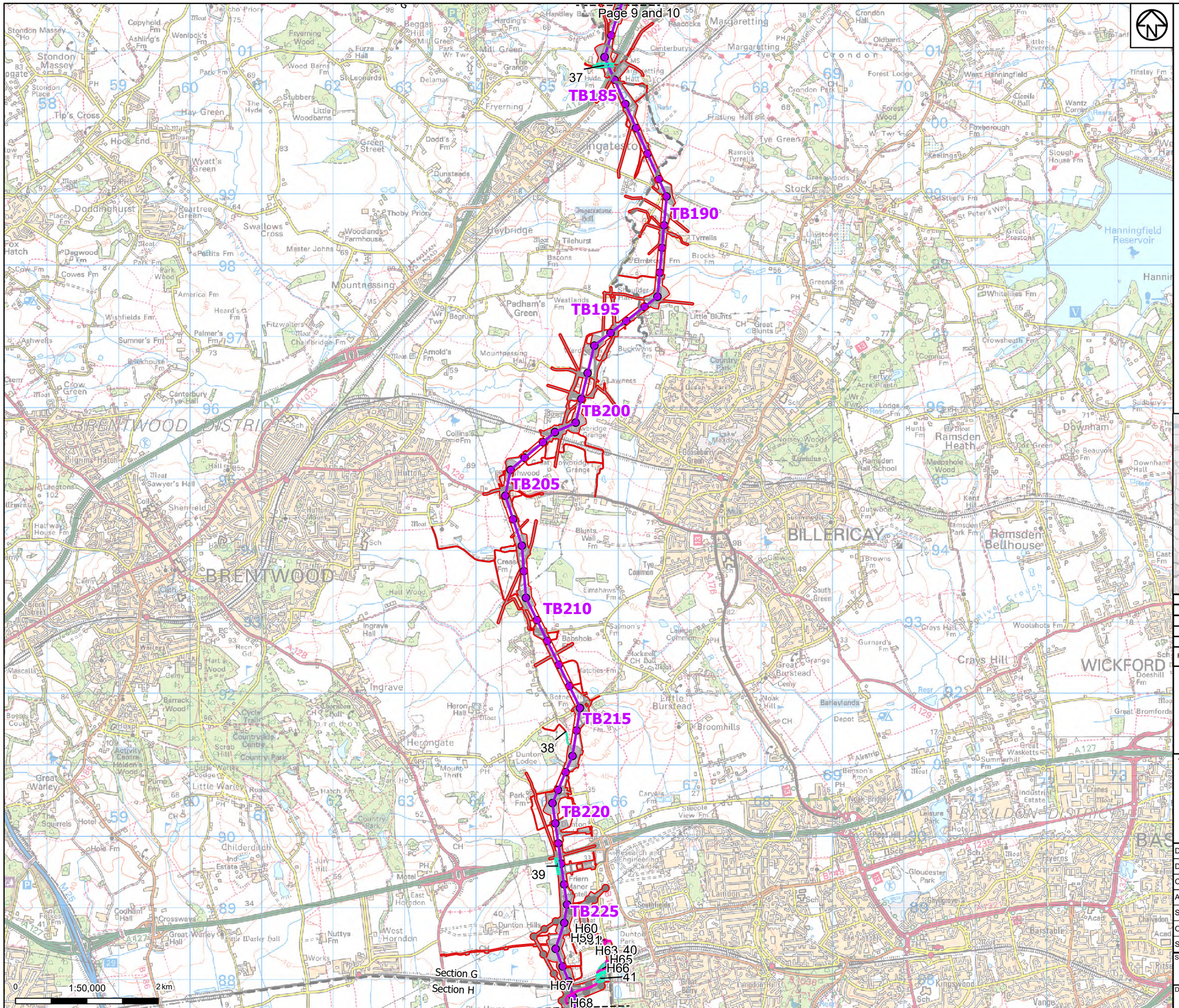

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Discipline specific constraints

National Vegetation Classification locations

Hedgerow assessment

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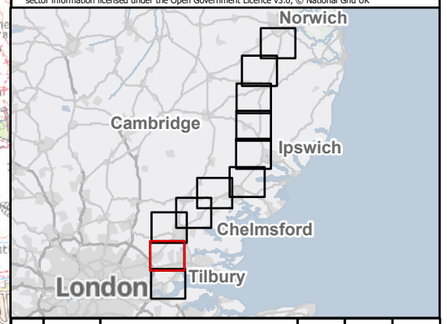

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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
Page 10 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Suitability Code:	A2	Project Number:	10059280

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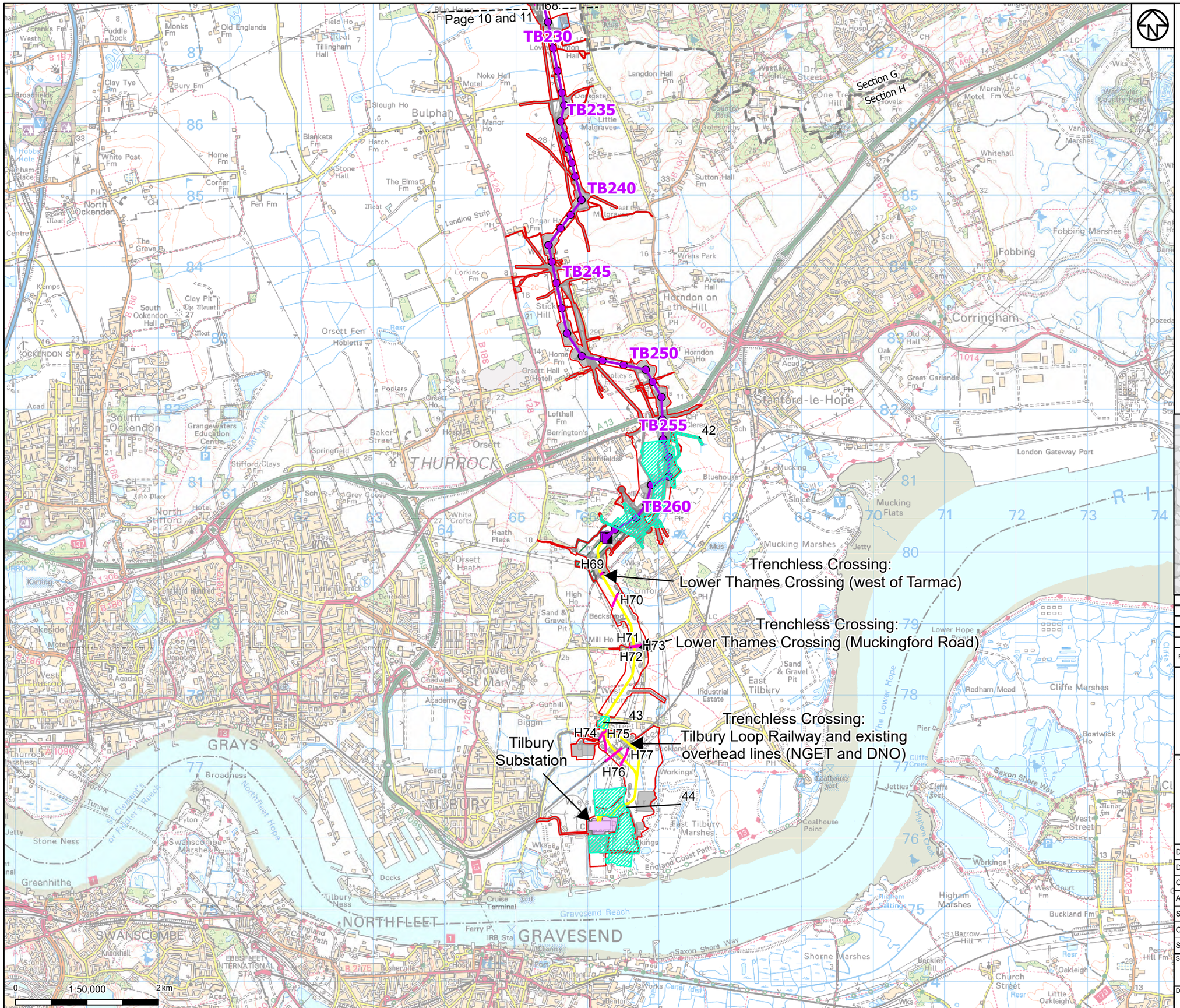

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed full line tension gantry

Proposed pylon position

Proposed underground cable alignment

Existing substation

Proposed cable sealing end compound

Proposed environmental areas

Discipline specific constraints

National Vegetation Classification locations

Hedgerow assessment

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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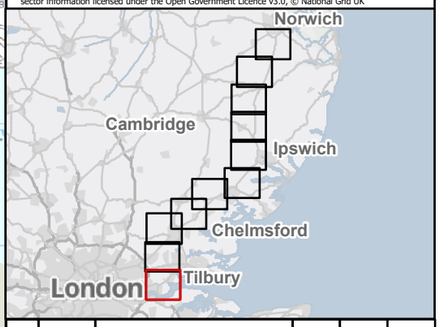

Rev	Date	Description	Drawn	Check	Approv
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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.1.3 – Ecology and Biodiversity - NVC survey locations and Hedgerow Assessment locations
Page 11 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Annex B: NVC Survey types for each location

Survey Location ID	Woodland NVC	Grassland NVC	Wetland NVC
1	YES	NO	NO
2	YES	NO	NO
3	YES	NO	NO
4	NO	YES	NO
5	YES	YES	NO
6	NO	YES	NO
7	YES	NO	NO
8	YES	NO	NO
9	NO	YES	NO
10	NO	YES	NO
11	NO	YES	NO
12	YES	YES	NO
13	YES	YES	NO
14	YES	YES	NO
15	NO	YES	NO
16	NO	YES	NO
17	YES	NO	NO
18	YES	YES	NO

Survey Location ID	Woodland NVC	Grassland NVC	Wetland NVC
19	NO	YES	NO
20	NO	YES	NO
21	YES	NO	NO
22	YES	NO	NO
23	NO	YES	YES
24	NO	YES	YES
25	YES	NO	NO
26	YES	YES	NO
27	NO	YES	NO
28	NO	YES	NO
29	YES	NO	NO
30	NO	YES	NO
31	YES	NO	NO
32	NO	YES	NO
33	YES	NO	NO
34	YES	NO	NO
35	NO	YES	NO
36	YES	NO	NO
37	YES	NO	NO
38	NO	YES	NO

Survey Location ID	Woodland NVC	Grassland NVC	Wetland NVC
39	YES	NO	NO
40	YES	YES	NO
41	YES	YES	NO
42	NO	YES	NO
43	NO	YES	NO
44	NO	YES	NO

Annex C: Protected/Notable plant species highlighted in the desk study.

Common Name	Taxon Name	Designated Status
Fungi		
Sandy Stilt Puffball	*Battarrea phalloides*	Section 41 WCA Schedule 8
Protected/Notable Plants		
Annual Beard-grass	*Polypogon monspeliensis*	Nationally Scarce
Autumn Squill	*Scilla autumnalis*	Nationally Scarce
Black Poplar	*Populus nigra subsp. betulifolia*	Essex Bap
Bloody Cranes's-bill	*Geranium sanguineum*	England Red Listed: Near Threatened
Bluebell	*Hyacinthoides non-scripta*	WCA Schedule 8 (sale only) England Red Listed: Least Concern
Carline Thistle	*Carlina vulgaris*	England Red Listed: Near Threatened
Chicory	*Cichorium intybus*	England Red Listed: Vulnerable
Chives	*Allium schoenoprasum*	Nationally Scarce
Clustered Clover	*Trifolium glomeratum*	Nationally Scarce
Common Cow-wheat	*Melampyrum pratense*	England Red Listed: Near Threatened
Common Cudweed	*Filago vulgaris*	England Red Listed: Near Threatened
Common Eyebright	*Euphrasia nemorosa*	England Red Listed: Near Threatened
Common Rock-rose	*Helianthemum nummularium*	England Red Listed: Near Threatened
Common Sea-lavender	*Limonium vulgare*	England Red Listed: Near Threatened
Common Valerian	*Valeriana officinalis*	England Red Listed: Near Threatened
Corn Marigold	*Glebionis segetum*	England Red Listed: Vulnerable
Corn Mint	*Mentha arvensis*	England Red Listed: Near Threatened
Corn Spurrey	*Spergula arvensis*	England Red Listed: Vulnerable
Cornflower	*Centaurea cyanus*	Section 41
Cross-leaved Heath	*Erica tetralix*	England Red Listed: Near Threatened
Crosswort	*Cruciata laevipes*	

Common Name	Taxon Name	Designated Status
Curved Hard-grass	*Parapholis incurva*	Nationally Scarce
Devil's-bit Scabious	*Succisa pratensis*	England Red Listed: Near Threatened
Dittander	*Lepidium latifolium*	Nationally Scarce
Dwarf Spurge	*Euphorbia exigua*	England Red Listed: Vulnerable
Dyer's Greenweed	*Genista tinctoria*	England Red Listed: Vulnerable
Early Meadow-grass	*Poa infirma*	Nationally Scarce
Elecampane	*Inula helenium*	England Red Listed: Near Threatened
Field Gromwell	*Lithospermum arvense*	England Red Listed: Endangered
Field Pepperwort	*Lepidium campestre*	England Red Listed: Near Threatened
Field Scabious	*Knautia arvensis*	England Red Listed: Near Threatened
Four-leaved Allseed	*Polycarpon tetraphyllum*	Nationally Rare
Frogbit	*Hydrocharis morsus-ranae*	England Red Listed: Vulnerable
Goldenrod	*Solidago virgaurea*	England Red Listed: Near Threatened
Golden-samphire	*Inula crithmoides*	Nationally Scarce
Green-winged Orchid	*Anacamptis morio*	England Red Listed: Vulnerable
Harebell	*Campanula rotundifolia*	England Red Listed: Near Threatened
Heath Dog-violet	*Viola canina*	England Red Listed: Vulnerable
Heath Speedwell	*Veronica officinalis*	England Red Listed: Near Threatened
Heather	*Calluna vulgaris*	England Red Listed: Near Threatened
Hoary Plantain	*Plantago media*	England Red Listed: Near Threatened
Hound's-tongue	*Cynoglossum officinale*	England Red Listed: Near Threatened
Jersey Cudweed	*Gnaphalium luteoalbum*	WCA Schedule 8
Large Leaved Lime	*Tilia platyphyllos*	Nationally Scarce
Lesser Calamint	*Clinopodium calamintha*	Nationally Scarce
Lesser Spearwort	*Ranunculus flammula*	England Red Listed: Vulnerable
Lizard Orchid	*Himantoglossum hircinum*	Nationally Scarce WCA Schedule 8
Long-headed Clover	*Trifolium incarnatum subsp. molinerii*	Nationally Rare
Loose Silky-bent	*Apera spica-venti*	England Red Listed: Near Threatened
Marsh Pennywort	*Hydrocotyle vulgaris*	England Red Listed: Near Threatened

Common Name	Taxon Name	Designated Status
Marsh Speedwell	*Veronica scutellata*	England Red Listed: Near Threatened
Marsh-mallow	*Althaea officinalis*	Nationally Scarce England Red Listed: Near Threatened
Mat-grass	*Nardus stricta*	England Red Listed: Near Threatened
Oak-leaved Goosefoot	*Chenopodium glaucum*	Nationally Scarce England Red Listed: Vulnerable
Quaking Grass	*Briza media*	England Red Listed: Near Threatened
Ragged-Robin	*Silene flos-cuculi*	England Red Listed: Near Threatened
Rye Brome	*Bromus secalinus*	Nationally Scarce England Red Listed: Near Threatened
Saltmarsh Goosefoot	*Chenopodium chenopodioides*	Nationally Scarce
Sand Soft-brome	*Bromus hordeaceus subsp. thominei*	Nationally Scarce
Sea Barley	*Hordeum marinum*	Nationally Scarce England Red Listed: Vulnerable Section 41
Sea Clover	*Trifolium squamosum*	Nationally Scarce
Sea-buckthorn	*Hippophae rhamnoides*	Nationally Scarce
Shepherd's Cress	*Teesdalia nudicaulis*	England Red Listed: Near Threatened
Slender Bird's-foot-trefoil	*Lotus angustissimus*	Nationally Scarce England Red Listed: Near Threatened
Slender Tare	*Vicia parviflora*	Nationally Scarce England Red Listed: Vulnerable
Small Cudweed	*Filago minima*	England Red Listed: Near Threatened
Smooth Cat's-ear	*Hypochaeris glabra*	England Red Listed: Vulnerable
Spiny Restharrow	*Ononis spinosa*	England Red Listed: Near Threatened
Stiff Saltmarsh-grass	*Puccinellia rupestris*	Nationally Scarce
Stinking Chamomile	*Anthemis cotula*	England Red Listed: Vulnerable
Stinking Hellebore	*Helleborus foetidus*	Nationally Scarce
Suffocated Clover	*Trifolium suffocatum*	Nationally Scarce
Sulphur Clover	*Trifolium ochroleucon*	Nationally Scarce England Red Listed: Vulnerable

Common Name	Taxon Name	Designated Status
Tormentil	*Potentilla erecta*	England Red Listed: Near Threatened
Tower Mustard	*Arabis glabra*	Nationally Scarce England Red Listed: Endangered Section 41
Treacle-mustard	*Erysimum cheiranthoides*	England Red Listed: Near Threatened
Weasel's-snout	*Misopates orontium*	England Red Listed: Vulnerable
Welsh Poppy	*Meconopsis cambrica*	Nationally Scarce
White Horehound	*Marrubium vulgare*	Nationally Scarce
White Mullein	*Verbascum lychnitis*	Nationally Scarce
Wild Clary	*Salvia verbenaca*	England Red Listed: Near Threatened
Wild Pansy	*Viola tricolor*	England Red Listed: Near Threatened
Wild Strawberry	*Fragaria vesca*	England Red Listed: Near Threatened
Woad	*Isatis tinctoria*	Nationally Scarce
Wood-sorrel	*Oxalis acetosella*	England Red Listed: Near Threatened
Yellow Vetchling	*Lathyrus aphaca*	Nationally Scarce England Red Listed: Vulnerable
Bryophytes		
N/A	*Tortula schimperi*	Nationally Rare
Invasive Species		
Canadian Waterweed	*Elodea canadensis*	Wildlife and Countryside Act Schedule 9
Giant Knotweed	*Fallopia sachalinensis*	Wildlife and Countryside Act Schedule 9
Giant-rhubarb	*Gunnera tinctoria*	Wildlife and Countryside Act Schedule 9
Giant Hogweed	*Heracleum mantegazzianum*	Wildlife and Countryside Act Schedule 9
Japanese Knotweed	*Fallopia japonica*	Wildlife and Countryside Act Schedule 9
New Zealand Pigmyweed	*Crassula helmsii*	Wildlife and Countryside Act Schedule 9
Rhododendron	*Rhododendron ponticum*	Wildlife and Countryside Act Schedule 9
Three-cornered Garlic	*Allium triquetrum*	Wildlife and Countryside Act Schedule 9
Alexanders	*Smyrnium olusatrum*	Other Invasive Species
American Skunk-cabbage	*Lysichiton americanus*	Other Invasive Species
Butterfly-bush	*Buddleja davidii*	Other Invasive Species

Common Name	Taxon Name	Designated Status
Canadian Goldenrod	*Solidago canadensis*	Other Invasive Species
Common Cord-grass	*Spartina anglica*	Other Invasive Species
Evergreen Oak	*Quercus ilex*	Other Invasive Species
False acacia	*Robinia pseudoacacia*	Other Invasive Species
Fringed Water-lily	*Nymphoides peltata*	Other Invasive Species
Giant Butterbur	*Petasites japonicus*	Other Invasive Species
Goat's-rue	*Galega officinalis*	Other Invasive Species
Indian Balsam	*Impatiens glandulifera*	Other Invasive Species
Italian Alder	*Alnus cordata*	Other Invasive Species
Japanese Rose	*Rosa rugosa*	Other Invasive Species
Least Duckweed	*Lemna minuta*	Other Invasive Species
Lesser Bulrush	*Typha angustifolia*	Other Invasive Species
Nuttall's Waterweed	*Elodea nuttallii*	Other Invasive Species
Pale Galingale	*Cyperus eragrostis*	Other Invasive Species
Russian vine	*Fallopia baldschuanica*	Other Invasive Species
Spanish Bluebell	*Hyacinthoides hispanica*	Other Invasive Species
Turkey Oak	*Quercus cerris*	Other Invasive Species
Winter Heliotrope	*Petasites fragrans*	Other Invasive Species

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Appendix 8.2: Terrestrial Invertebrate Report

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The Great Grid Upgrade

Norwich to Tilbury

Norwich to Tilbury

Preliminary Environmental Information Report - Volume III

Appendix 8.2: Terrestrial Invertebrate Report

April 2024

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Annex A: Figures

1. Introduction

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1. Introduction

1.1 Project Background

1.1.1 This report has been produced as an appendix to Chapter 8: Ecology and Biodiversity in Volume I, for the Norwich to Tilbury Project (referred to as 'the Project').

1.1.2 The Project (formerly known as East Anglia Green Energy Enablement ((GREEN)) would facilitate the transfer of power from the East Anglia region to the rest of the National Electricity Transmission System (NETS) thereby enabling connection of offshore wind generation, nuclear power generation and interconnectors which are expected into East Anglia by 2035.

1.1.3 As described in Chapter 1: Introduction in Volume I, the Project has been broken down into eight sections based largely on local authority boundaries. The eight sections are described below and referred to throughout this report:

- 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
- Section G: Brentwood Borough Council and Basildon Borough Council (including part of Chelmsford City Council)
- Section H: Thurrock Council

1.1.4 Further details of the Project are included within Chapter 4: Project Description in Volume I.

1.2 Ecological Background

1.2.1 The east of England is regarded as rich in invertebrates owing to its comparatively warm and dry climate. The substrates throughout most of East Anglia are free-draining and so contribute to the area being noted for its rich assemblages of early successional invertebrates, particularly those associated with sandy and free draining habitats such as 'bare sand and chalk', a feature that is noted as being abundant with ground-nesting bees and wasps, surface running beetles and other groups associated with early successional fauna.

1.2.2 The southern extent of the route (Section H) also passes through areas of post-industrial land in the form of redundant quarry workings and landfill sites. These south Essex sites (located in Section H) are regarded as some of the richest invertebrate sites in England owing in part, to their geographical location, being in the south-east of

England the climate envelope promotes rich and varied invertebrate assemblages that include or can include long lists of scarce and threatened invertebrates.

1.2.3 The south Essex area also possesses the scarce Thames Terrace grassland. These grasslands are formed on a ridge of sands and gravels and formerly ran from Grays eastwards to the Langdon Hills. They were characterised by drought-tolerant flowering plants and grasses. The habitat is nutrient-poor and includes patchy bare ground and areas of tall swards of perennial flowering plants. The habitat would have supported a rich fauna of invertebrates including the Species of Principal Importance (SPI) shrill carder-bee (*Bombus sylvarum*). This fauna is now found on relict areas of Thames Terrace grasslands and the post-industrial brownfield habitats that have replaced them.

1.2.4 As the Project passes through this range of habitats and land uses there is potential for it to affect or partly affect sites where scarce or threatened invertebrates and rich invertebrate assemblages may be present. Owing to this being an invertebrate-rich region, an invertebrate ecologist has been engaged to assess the potential value of locations, in terms of the presence of scarce or threatened species and rich assemblages that may be affected and where they may be affected provide technical input to how these effects could be mitigated.

1.3 Brief and Objectives

1.3.1 The brief is to assess the Project and whether it affects areas of potentially important habitat or features of value to terrestrial invertebrates. Where the Project does affect a habitat or feature thought to be of potential value to terrestrial invertebrates example Ancient Woodland, post-industrial land or species-rich grassland, an assessment of its likely affect will be made and where this effect is deemed significant, such as the permanent and extensive loss of a key invertebrate feature, subsequent surveys will be undertaken. This on-site recording of invertebrates is undertaken to provide the necessary data that can then be used to evaluate the effects on the key invertebrate species and assemblages that currently utilise the key feature and develop appropriate mitigation measures.

1.3.2 The aim of the survey work is to obtain baseline data for the Project. This will be achieved by undertaking the following:

- A detailed desk study
- Targeted field surveys to establish the presence of terrestrial invertebrates

1.3.3 The objectives of the study were to:

- Use the baseline dataset to determine the importance of the survey area for terrestrial invertebrates
- Outline requirements for further survey work to inform detailed mitigation design

2. Relevant Legislation and Policy

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2. Relevant Legislation and Policy

2.1 Legal Compliance

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 and policy is provided below.

2.1.2 In England there are three European Protected Species (EPS) that are protected under the Conservation of Habitats and Species Regulations 2017, as amended (HMSO, 2019). These are:

- Large blue butterfly (*Phengaris arion*)
- Fisher's estuarine moth (*Gortyna borelii lunata*)
- Little whirlpool ramshorn snail (*Anisus vorticulus*)

2.1.3 This means that under the Regulations a licence is required to damage or destroy places where these invertebrates live (whether for breeding or resting and even when the species is not present). Under these Regulations these species are also protected from deliberate killing, injuring or capture (including their eggs) and possessing, controlling, or transporting a specimen (whether it is alive or dead).

2.1.4 These three species and several other invertebrate species are covered by the Wildlife and Countryside Act (WCA) 1981, as amended, (HMSO, 1981). Under the Act it is an offence to kill, injure or take; possess or control them (alive or dead), damage or destroy a structure or place used for shelter or protection; disturb them in a place of shelter or protection an obstruct access to a place used for shelter or protection.

2.1.5 There is a longer list of invertebrate species with protections under the Bern Convention Appendix III that imposes regulations on their exploitation, this includes stag beetle (Lucanus cervus).

2.1.6 The Natural Environment and Rural Communities (NERC) Act 2006 (HMSO, 2006) 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. Over 400 invertebrate species are included on the s41 list and so identified as Species of Principal Importance (SPI).

2.2 Planning Policy

2.2.1 Chapter 8: Ecology and Biodiversity in Volume I provides further details of relevant planning policy.

3. Methodology

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3. Methodology

3.1 Overview

3.1.1 To prepare this assessment a range of resources and methods are utilised including biological data searches, aerial photograph scoping, GIS data and citations relating to County/Local Wildlife Sites and Sites of Special Scientific Interest (SSSI) and on-site recording of invertebrates.

3.1.2 To gather the sufficient data a full season of survey will be required with sites being visited between April 2024 and September 2024 and each will receive three visits to assess the invertebrate resources. Where a single feature is to be affected that may only be of value to a particular species such as the white-letter hairstreak butterfly (*Satyrium w-album*; a SPI) then two visits will be undertaken.

3.2 Desk Study

3.2.1 A desk study was conducted in September 2023 with details updated as necessary in January 2024 following a design change, to identify records for invertebrates within the draft Order Limits and a 2 km search area from the boundary of the draft Order Limits over the past 10 years in accordance with standard practice. Records were obtained from the Local Environmental Record Centres (LERCs):

- Norfolk Biodiversity Information Service (NBIS)
- Suffolk Biodiversity Information Service (SBIS)
- Essex Field Club (EFC)

3.2.2 The record centres also provided information on non-statutory designated sites within 2 km of the draft Order Limits. These were County Wildlife Sites (CWS) and Local Wildlife Sites (LWS). Non-statutory designated sites were reviewed for any mention of invertebrates in their designation citation.

3.2.3 A search for Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites and National Nature Reserves (NNR) within 2 km of the draft Order Limits, where designation was due to habitats of potential value to invertebrates, was conducted using The Multi-Agency Geographic Information for the Countryside (MAGIC) and the Joint Nature Conservation Committee (JNCC) website.

3.2.4 A further search of national statutory designated sites (Sites of Special Scientific Interest (SSSI) including the Tilbury Area of Interest (SSSI extension)) within 2 km was conducted using MAGIC, where invertebrates are the qualifying interest. MAGIC was also used to identify Ancient Woodland inventory sites within 2 km of the draft Order Limits.

3.2.5 For the proposed Tilbury Area of Interest (SSSI extension), supplementary resources will be used from other developments, including the Lower Thames Crossing (LTC) terrestrial invertebrate survey data collected in 2018-2019 (National Highways, 2022) and the Tilbury2 survey data collected in 2017 (Telfer, 2017).

3.2.6 Google Earth and Google Street View were also used to identify landscape and local features of potential value to invertebrates including key areas of semi-natural habitat, complex mosaics of features (such as scrub and grass matrix) or specific features (such as veteran tree clusters) that may be directly affected by the Project.

3.3 Survey Methodology

Scoping

3.3.1 The results of the data search have determined whether further surveys may be required and their focus particularly with respect to specific survey timings.

3.3.2 All agricultural land including improved pasture and arable will be excluded from further survey. A set of mitigations and compensations will be provided in the impact assessment for these landscapes to ensure no net loss to biodiversity. These interventions will aim to increase the invertebrate biodiversity value of these agriculturally improved landscapes following the construction effects.

3.3.3 Most hedgerows (including those with trees) will not be subject to detailed survey owing to the large number of crossing points within the draft Order Limits. Targeted surveys will be undertaken where data searches note information on SPI hedgerow/woodland edge species such as brown hairstreak (Thecla betulae) and/or white-letter hairstreak butterflies.

3.3.4 Following review of the desk study information and analysis of the species data in relation to terrestrial invertebrates, areas within the draft Order Limits that were thought to offer potential to terrestrial invertebrates have been subject to a preliminary site assessment. This is to ascertain what features are present, their potential value and whether further detailed survey is required to place value on the site and its features.

3.3.5 Sites that were put forward for scoping were those that have the potential to be directly affected by the Project that have records of SPI present or near to their boundary, have records of nationally significant species present or near to their boundary, or have habitats and/or features of potential value to invertebrates (as identified from desk study sources).

3.3.6 Sites to be scoped for detailed survey have been walked, with all relevant areas accessed and an evaluation made regarding their various characteristics including topography, structural complexity, juxtapositions and frequency of features, extent of bare ground and flowering plant composition. Photographs have been taken.

Targeted Surveys

3.3.7 The methods used for the site surveys are those recommended in the Natural England guidance document Surveying Terrestrial and Freshwater Invertebrates for Conservation Evaluation (Drake et al., 2007) and for the proposed SSSI (pSSSI) extension, also the Survey Standards for Essex (Harvey, 2014).

3.3.8 The following methods will be used in targeted surveys:

- Sweep netting - to provide the main proportion of the survey element as it is the most efficient method for cataloguing a site's invertebrate resource. Sweep netting involves the use of a long-handled sweep net being swept over vegetation such as stands of grasses or flowers, or along scrub fringes to gather invertebrate material

- Spot sampling - to be employed to collect large, conspicuous invertebrates such as bees and wasps from flowering plants, and to supplement the sweep samples. Spot sampling is often the most effective method for recording species from high-fidelity niches
- Vacuum sampling - tussocky vegetation and short turf will be suction-sampled for surface-running invertebrates such as ground beetles and heteropteran bugs
- Pitfall traps - where used they will form a grid or transect line across key areas of habitats such as early successional vegetation
- Beating - scrub fringes will be beaten with a stick to dislodge invertebrates on branches and leaves. These invertebrates will be collected from a white sheet placed beneath the sample location

3.3.9 Not all the methods listed above will be used at each site, the most appropriate methods will be selected dependent upon the target species and the habitats/features present.

3.3.10 Where there are conflicts with other fauna such as those with legal protection, principally great crested newt (Triturus cristatus), some methods such as pitfall trapping may not be used.

3.3.11 Where there are potential conflicts with the members of the public, pitfall traps may also not be used owing to the high probability of vandalism and loss of equipment.

Survey Effort

3.3.12 Each site that is subject to targeted surveys will be sampled using standardised sampling protocols. In this way, each site will be sampled in a similar way and each site can then, if required, be compared with one another.

- Sweep netting – 60 minutes
- Spot sampling – 20 minutes
- Vacuum sampling – 5 minutes
- Beating (if relevant) – 10 minutes

3.3.13 Where sites are large (more than 10 ha) then sampling times will be doubled for all methods other than vacuum sampling and beating.

3.3.14 Where sites are small (less than 2 ha) sweep netting will be reduced accordingly. The revised time will be noted in the site-specific survey reporting.

3.3.15 Each site will be sampled as a single unit, and not divided into four sampling locations or periods, as with Common Standards Monitoring (CSM). This is thought to provide greater flexibility in sampling across each site and providing a more holistic survey over CSM that usually targets a single feature type.

3.3.16 Species specific surveys will consist of at least two visits during optimal survey periods and weather conditions. For elusive species such as the stag beetle a further third visit may be required.

Sampling Groups

3.3.17 The terrestrial invertebrate groups to be sampled will be those relevant to the resources present on each site and applicable to subsequent analysis in Pantheon (Webb *et al.,* 2018). For clarity, these groups are:

- Diptera (true flies) (acalyptratae) and others used in Patheon analysis
- Aculeate hymenoptera (ants, bees and stinging wasps)
- Coleoptera (beetles)
- Heteroptera (true bugs)
- Orthoptera (grasshoppers, crickets and bush-crickets)
- Lepidoptera (day-flying) (butterflies and moths)
- Araneae (where relevant) (true spiders)

Identification

3.3.18 Where possible, species will be identified 'in the field' as field records. However, most material will require collection, sorting, and subsequent microscopic examination.

3.3.19 Notable finds are likely to be retained as reference specimens, but common and local species will not be retained.

Analysis and Valuation

3.3.20 Each site will be analysed using Pantheon and the relevant tables included in the final reporting. Both 'Resources' and 'Specific Assemblage Type' (SAT) tables will be included and discussed where appropriate.

3.3.21 There are several locations near Tilbury that have been identified as potential SSSI (pSSSI) sites, in line with the advice of the Invertebrate Standards for Essex, the Species Quality Index (SQI) approach will also be utilised as this will assist with placing geographical value on each site. These being a score of:

- 5 .00 = 'good'
- 7.50 = 'excellent'
- >10.00 = 'almost certainly of national significance' (Harvey, 2014)

3.3.22 The national status values used will follow the recommended national statuses listed on Pantheon (Webb *et al.,* 2018) and at the time of calculation.

3.3.23 The valuation of each site will consider a range of sources including lists of notable species, the Resource and SAT tables (particularly the 'favourable condition' statuses nestled in the SAT table) and, for the pSSSI, the Invertebrate Standards for Essex SQI valuation.

3.4 Dates of Survey and Personnel

3.4.1 On-site scoping for targeted surveys was undertaken in February to March 2024. Detailed survey will commence by mid-April 2024. Dependent upon the site's individual

characteristics and geographical location, survey will continue until August or September 2024.

3.4.2 The total number of visits depends upon the potential value of the site and identified features of potential importance. Most sites will be visited three times during the survey season (April through to August/September). Sites where there is a single feature of value that is only optimal during a short time, and sites where there is a single SPI species that requires searching for, such as white-letter hairstreak or stag beetle will only require two visits.

3.4.3 The on-site scoping was undertaken by experienced invertebrate ecologists.

3.4.4 The further surveys will be undertaken by a range of invertebrate ecologists to provide the specialist knowledge required with the one experienced invertebrate ecologist overseeing the work and undertaking surveys where appropriate. Each lead invertebrate ecologist will be supported by another invertebrate ecologist; therefore, each site visit will have two invertebrate surveyors.

3.5 Notes and Limitations

3.5.1 As noted above, sampling methods may be modified or not used where there are additional constraints such as the presence of great crested newts or high levels of disturbance from public access.

3.5.2 Every effort will be made to visit each site during optimal or near optimal conditions; however, where the long-term weather patterns are of persistent cloud or low temperatures then visits will have to take place during these periods as re-scheduling large numbers of visits will not be possible. Where visits take place during suboptimal conditions, these will be caveated, and assumptions made where results are considered non-representative of the sites or features being sampled.

3.5.3 Land access restrictions may result in some land parcels not being surveyed on the ground and survey data may therefore be incomplete. Every effort will be made to obtain access.

4. Results

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4. Results

4.1 Overview

4.1.1 The onsite scoping surveys identified in section 3.3 were undertaken between February and March 2024. However, this data has not been analysed and so only data gathered between September 2022 and September 2023 has been included within this report. Therefore, results below presents the results of the desk study only. Desk study results are also presented on Figure A8.2.1: Terrestrial Invertebrate Survey Sites and Desk Study Records, in Annex A. Further desk-based data and survey results obtained beyond September 2023 will be reported within the ES.

4.2 Desk Study Results

4.2.1 The desk study revealed 39 locations that are directly affected by the draft Order Limits that may be of value to invertebrates, as illustrated on Figure A8.2.1: Terrestrial Invertebrate Survey Sites and Desk Study Records, in Annex A. These plots were selected due the presence of potentially valuable habitats for invertebrate assemblages that will be directly affected during construction operations, such as haul roads, and underground cabling

4.2.2 Table A8.2.1 provides detail to the desktop scoping noting each Project section, the key habitats, or features of potential value to terrestrial invertebrates and some of the key species that have been considered during the on-site scoping and potentially considered for further surveys. The desk study has revealed two habitat types that may be the affected at a landscape scale. These are tree-associated landscapes and post-industrial landscapes.

4.2.3 The tree-associated landscapes include sites that are significantly wooded and have deadwood resources. The corresponding fauna associated with these habitats contain species that are scarce owing to high fidelities to very specific features such as heartwood rot or subterranean rotting timbers such as the SPI stag beetle which is most numerous in Project Sections B and C to the west of Ipswich and south to Stratford St Mary. There is a suite of tree-associated butterflies noted along the Project. These are the SPI butterflies, the white admiral (*Limenitis camilla*) and white-letter hairstreak. Project Section D supports significant woodland, and it is likely that these woodlands support associated invertebrates of conservation value. Saproxylic flies were not noted in the data search, but it is highly likely that the tree-associated landscapes will be of value to this group of invertebrates.

4.2.4 The post-industrial landscapes are largely restricted to Section H with small areas in Project Section G. The resource is significant and likely to produce a significant list of scarce and threatened invertebrates. The fauna associated with such landscapes is diverse and includes a wide range of ground-nesting bees and wasps and bumblebees including the SPI shrill carder bee and brown-banded carder bee (*B. humilis*). The SPI grizzled skipper butterfly (*Pyrgus malvae*) has also been recorded in Project Section G.

Table A8.2.1 - Potential Invertebrate Survey Areas by Project Section

Project Section	Number of Potential Survey Plots	Habitat/features present	Notable Species: SPI or important species/assemblages
A	4	Woodlands. Floodplain grazing marsh; lowland fen.	White-letter hairstreak butterfly; stag beetle; Ground-nesting bees and wasps; saproxylics.
B	15	Good quality grassland; woodland, deadwood features; scrub fringes.	White-letter hairstreak butterfly; white admiral; small heath butterfly (*Coenonympha pamphilus*), butterfly; saproxylic beetles.
C	6	Scrub and grass matrix; woodland, deadwood features.	White-letter hairstreak butterfly; stag beetle; white admiral butterfly; saproxylic beetles.
D	2	Woodland; deadwood features.	Stag beetle; other saproxylic beetles.
E	2	Grass and scrub matrix; woodland;	*Podagrica fuscipes* (a beetle); *Arianta arbustorum* (a snail).
F	4	Disturbed ground; grass and scrub matrix; woodland.	Small heath butterfly.
G	2	Grass and scrub	Small heath butterfly; grizzled skipper butterfly; wall butterfly; white-letter hairstreak butterfly; *Xysticus acerbus* (a spider).
H	4	Open mosaics	Scarce bumblebees; early successional assemblages including ground nesting bees and wasps; beetles, ground bugs.

4.3 Survey Results

4.3.1 Surveys will be conducted through the 2024 survey season, and full results of these surveys will be incorporated within the ES.

4.4 Incidental Findings

4.4.1 During the habitat surveys to inform the Project there have been three incidental records of protected/notable terrestrial invertebrate species. All records were of small heath butterfly, a relatively common grassland species noted as being a species of principle importance (I1, I2). Full details of incidental records are presented in Annex B.

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Annex A: Figures

Figure A8.2.1: Terrestrial Invertebrate Survey Sites and Desk Study Records

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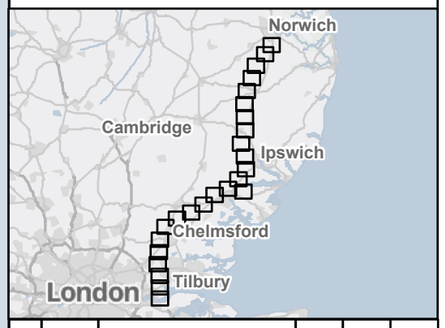

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT:
Norwich to Tilbury

Title:
Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records Overview

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:500,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Proposed substation extension

Norwich Main Substation

RG001

RG005

RG010

RG015

RG020

Page 1 and 2

0 1:25,000 1 km

Print Date: 03-19-24 14:22:54

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Existing substation
- Proposed substation extension
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Moths
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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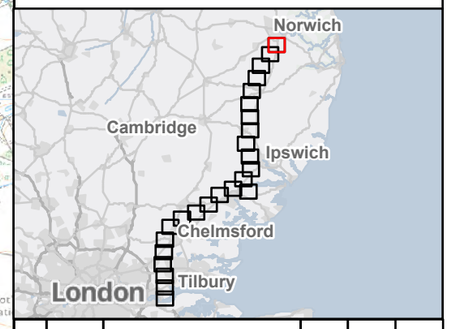

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 1 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00148

Revision: A

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RG010
RG015
RG020
RG025
RG030
RG035
Page 1 and 2
Page 2 and 3
BRACON ASH CP
WRENINGHAM CP
ASHWELLTHORPE AND FUNDENHALL CP
FLORDON CP
NEWTON FLOTMAN CP
TASBURGH CP
THARSTON AND HAPTON CP
TACOLNESTON CP
SOUTH NORFO
MORNING
Bracon Ash
Wreningham
Toprow
Fundenhall
Hapton
Flordon
Tasburgh
Newton Flotman
Saxlingham Thorpe
Forncett St Mary
Tharston
Low Tharston
Norwich
Cambridge
Ipswich
Chelmsford
London
Tilbury
0
1:25,000
1km
Print Date: 03-19-24 14:22:57

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Moths
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 2 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
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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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RG035

RG040

RG045

RG050

RG055

Page 2 and 3

Page 3 and 4

1

0 1:25,000 1 km

Print Date: 03-19-24 14:23:00

Draft order limits

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Discipline specific constraints

2km Study Area

Invertebrate Survey Location

Moths

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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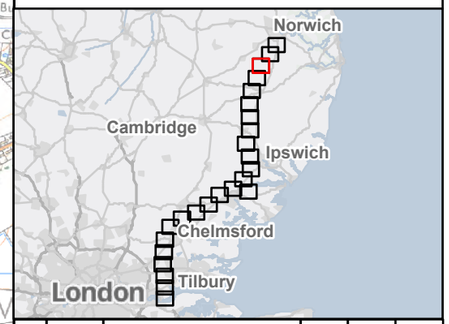

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT:
Norwich to Tilbury

Title:
Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 3 of 25

Designed	H.Smith	Date	April 2024
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Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number: 10059280-ARC-ELS-ZZ-DR-ZZ-00148

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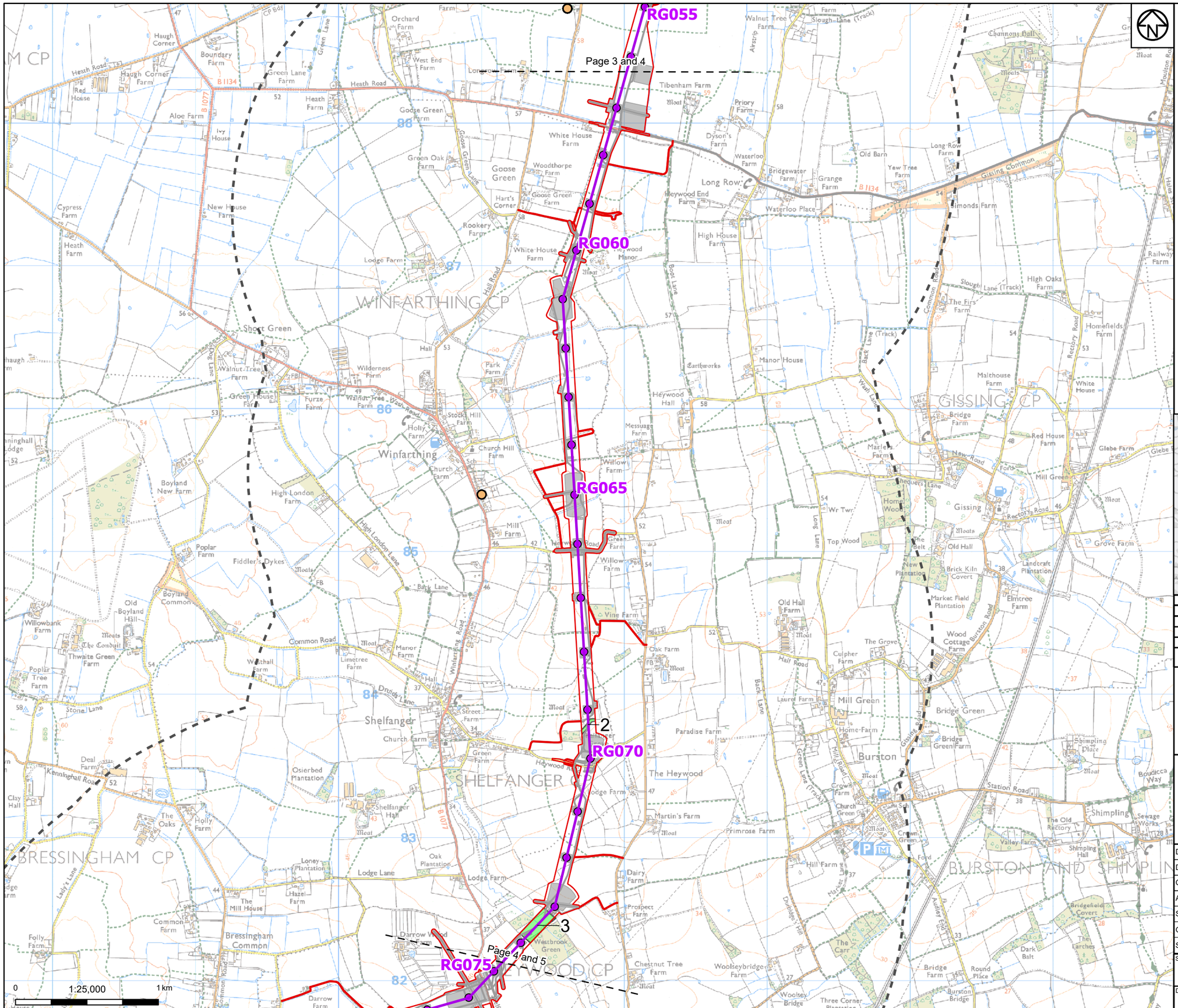
RG055
RG060
RG065
RG070
RG075
Page 3 and 4
Page 4 and 5
WINFARTHING CP
SHELFANGER CP
BRESSINGHAM CP
GISSING CP
BURSTON AND SHIMPLING CP
Winfarthing
Shelfanger
Burston
Gissing
Bressingham
Heywood Hall
Manor House
Earthworks
Tibenham Farm
Goose Green
Long Row
Gissing Common
Boot Lane
Hill Road
Lodge Lane
Common Road
Station Road
Mill Green
Bridge Green
Church Green
Shimpling Hall
Shimpling Place
Boudicca Way
Sewage Works
Valley Farm
The Old Rectory
Primrose Farm
Martin's Farm
The Heywood
Paradise Farm
Woolseybridge Farm
Chestnut Tree Farm
Dairy Farm
Prospect Farm
Oak Plantation
Loney Plantation
Osierbed Plantation
Darrow Wood
Darrow Farm
Westbrook Green
Woolsey Bridge
Three Corner Plantation
Round Place
Bridge Farm
Burston Bridge
Dark Belt
The Larches
Bridgefield Covert
Landcraft Plantation
Brick Kiln Covert
Market Field Plantation
Wood Cottage Farm
Elmtree Farm
Culpher Farm
Laurel Farm
Old Hall Farm
Vine Farm
Oak Farm
Manor Farm
Limetree Farm
Westhall Farm
Street Farm
Paradise Farm
Dyson's Farm
Priory Farm
Waterloo Farm
Bridgewater Farm
Grange Farm
Old Barn
Yew Tree Farm
Long Row Farm
Timonds Farm
Waterloo Place
Heywood End Farm
High House Farm
Rookery Farm
White House Farm
Woodthorpe Farm
Goose Green Farm
Hart's Corner
Green Oak Farm
Lodge Farm
Heywood Manor
Orchard Farm
West End Farm
Longe Farm
Walnut Tree Farm
Slough Lane (Track)
Common Hall
Moats
Moat
Haugh Corner
Haugh Corner Farm
Red House
Boundary Farm
Green Lane Farm
Heath Road
Heath Farm
Aloe Farm
Ivy House
Goose Green Lane
New House Farm
Cypress Farm
Short Green
Walnut Tree Farm
Green House Farm
Furze Farm
Wilderness Farm
Wash Road
Holly Farm
Stock Hill Farm
Church Hill Farm
Church Farm
Park Farm
Hall
Messuage Farm
Willow Farm
Mill Farm
Green Farm
Vine Farm
Boyland New Farm
High London Farm
High London Lane
Poplar Farm
Fiddler's Dykes
Back Lane
Old Boyland Common
Willowbank Farm
Old Boyland Hall
The Conduit
Thwaite Green Farm
Poplar Tree Farm
Stone Lane
Deal Farm
Kenninghall Road
Clay Hall
The Oaks
Holly Farm
Lady's Lane
Loney Plantation
Hazel Farm
Lodge Farm
The Mill House
Common Farm
Folly Farm
Bressingham Common
Drugs Lane
Shelfanger Hall
Osierbed Plantation
Lodge Farm
Martin's Farm
Primrose Farm
Dairy Farm
Prospect Farm
Oak Plantation
Darrow Wood
Darrow Farm
Westbrook Green
Chestnut Tree Farm
Woolseybridge Farm

Waveney Valley Overhead Line

RG075

RG080

RG085

RG090

RG095

RG100

Page 4 and 5

Page 5 and 6

Section A

Section B

3

4

5

6

0 1:25,000 1 km

Print Date: 03-19-24 14:23:10

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Small heath
- White admiral
- White-letter hairstreak
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 5 of 25

Designed	H.Smith	Date	April 2024
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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-ELS-ZZ-DR-ZZ-00148

Revision: A

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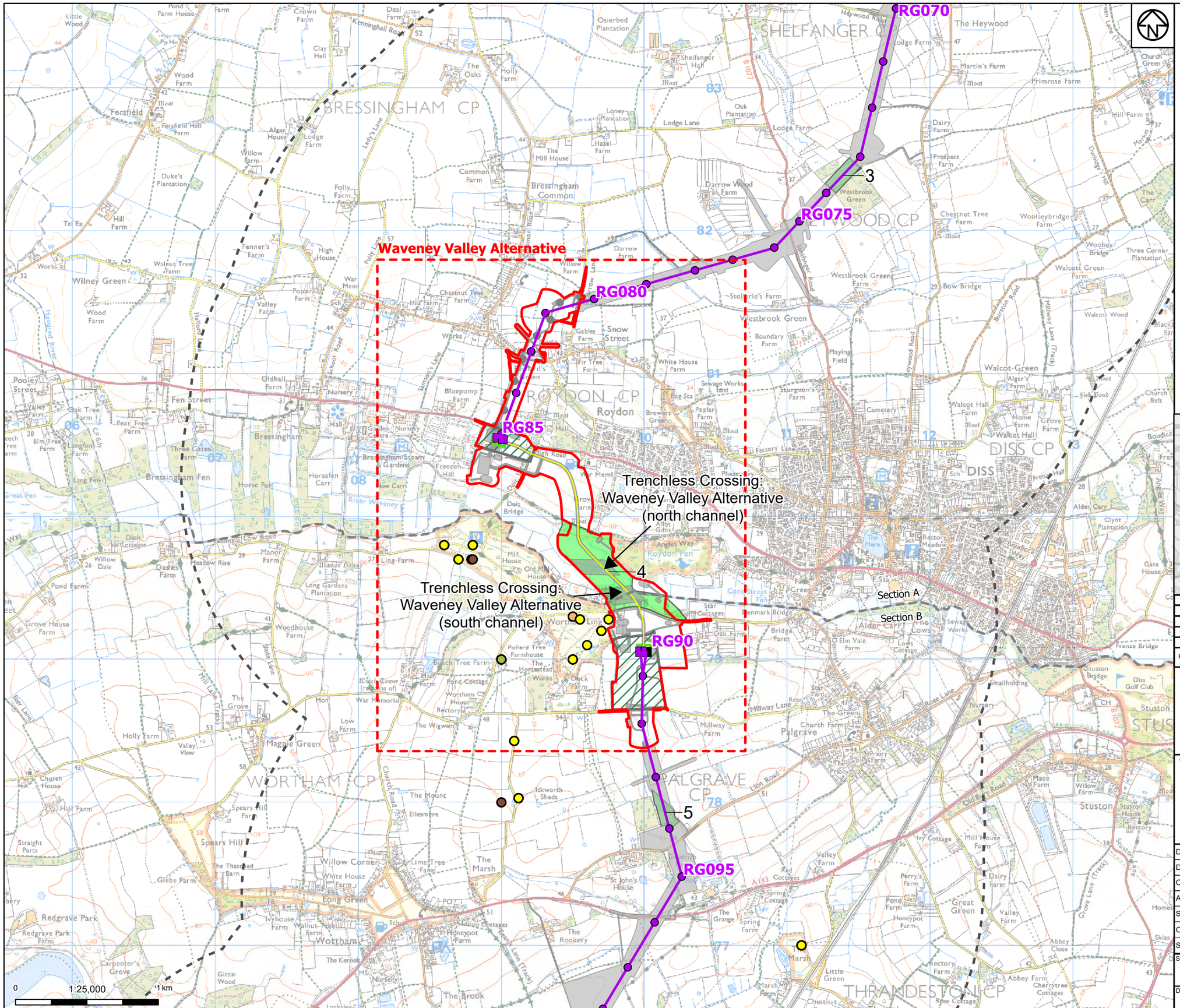

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed full line tension gantry

Proposed low duty gantry

Proposed pylon position

Proposed underground cable alignment

Proposed cable sealing end compound

Proposed environmental areas

Other temporary and permanent construction and operational works

Discipline specific constraints

2km Study Area

Moths

Small heath

White-letter hairstreak

Other invertebrates

Invertebrate Survey Location

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 5a of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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:
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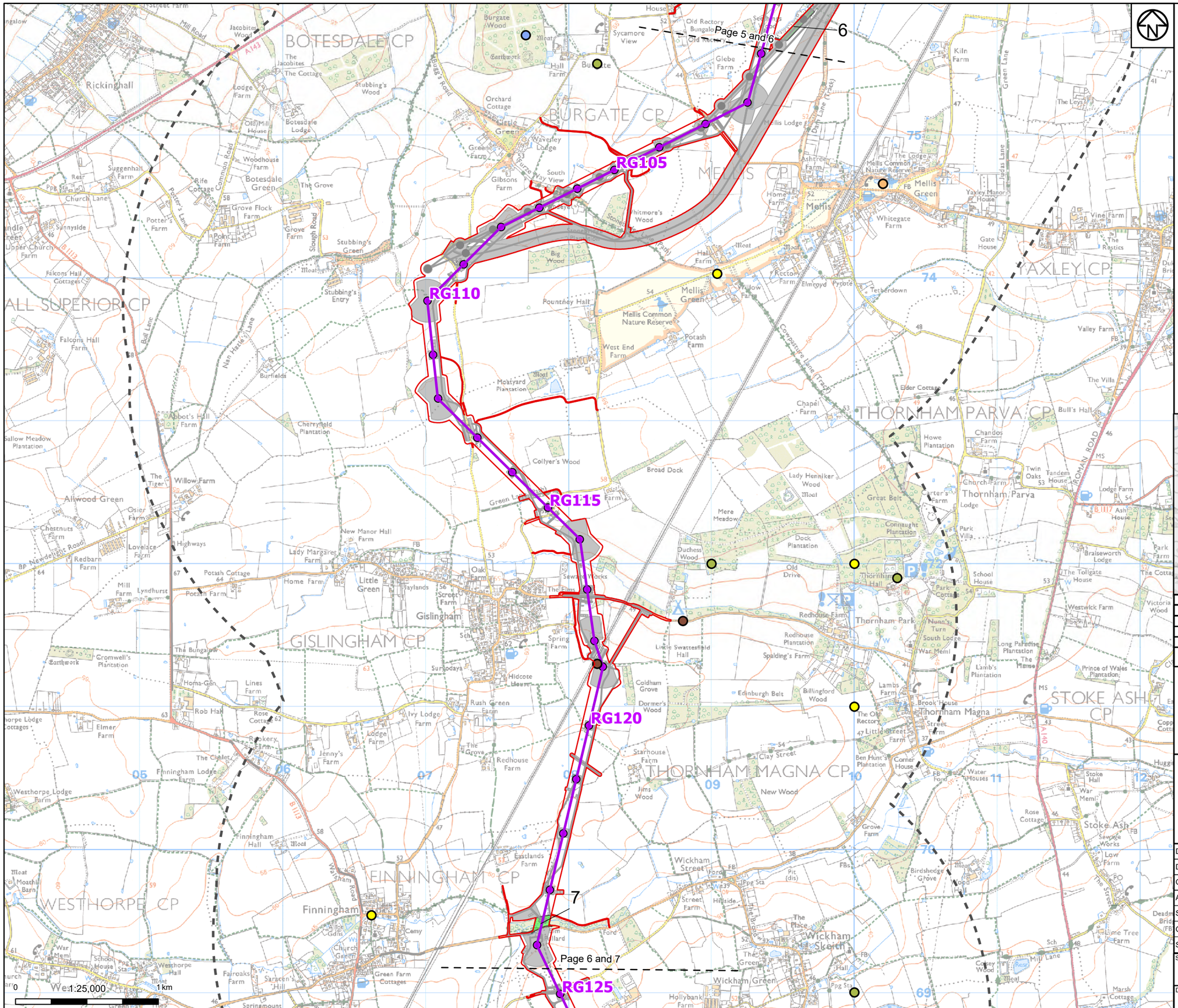

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Small heath
- White admiral
- White-letter hairstreak
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 6 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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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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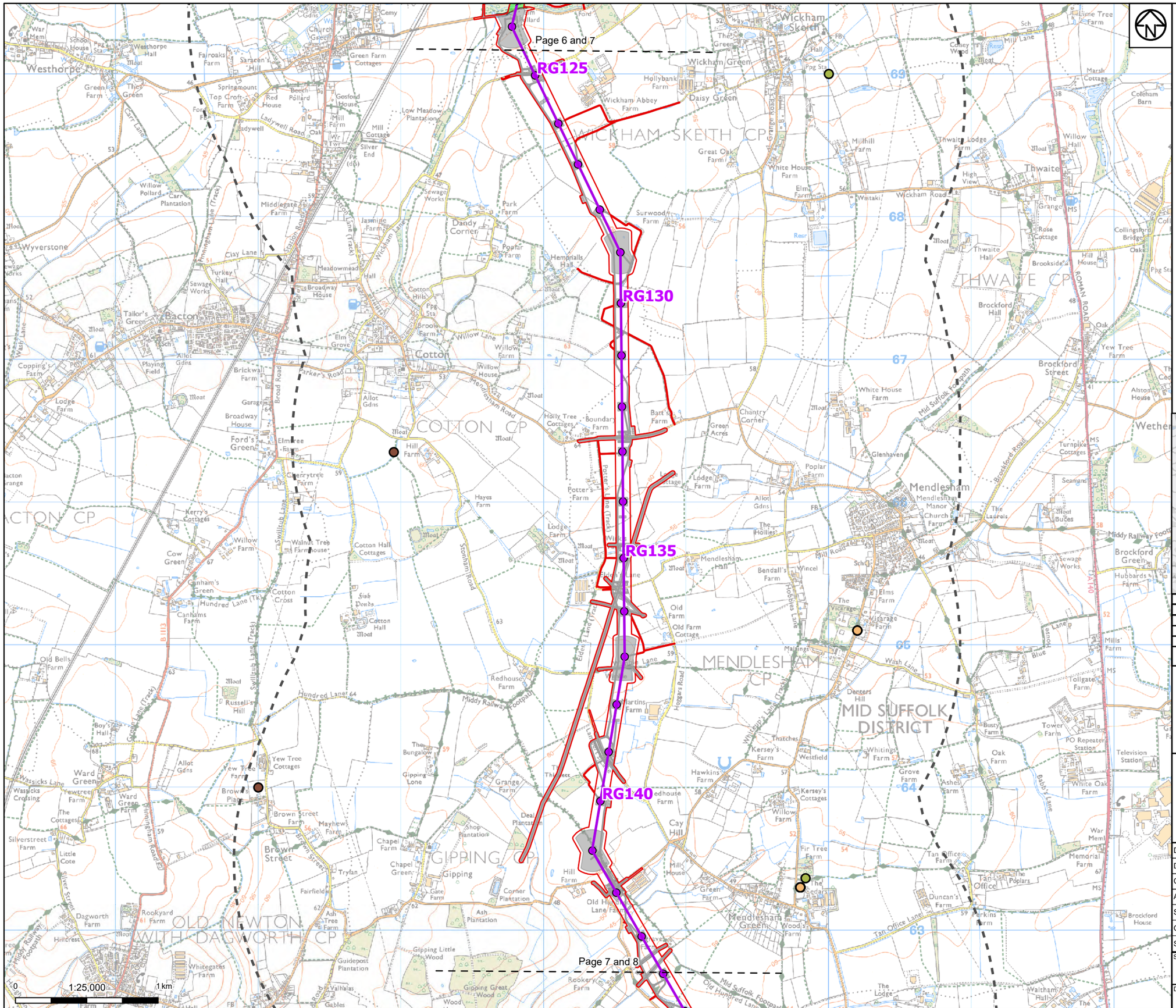

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Small heath
- White-letter hairstreak

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 7 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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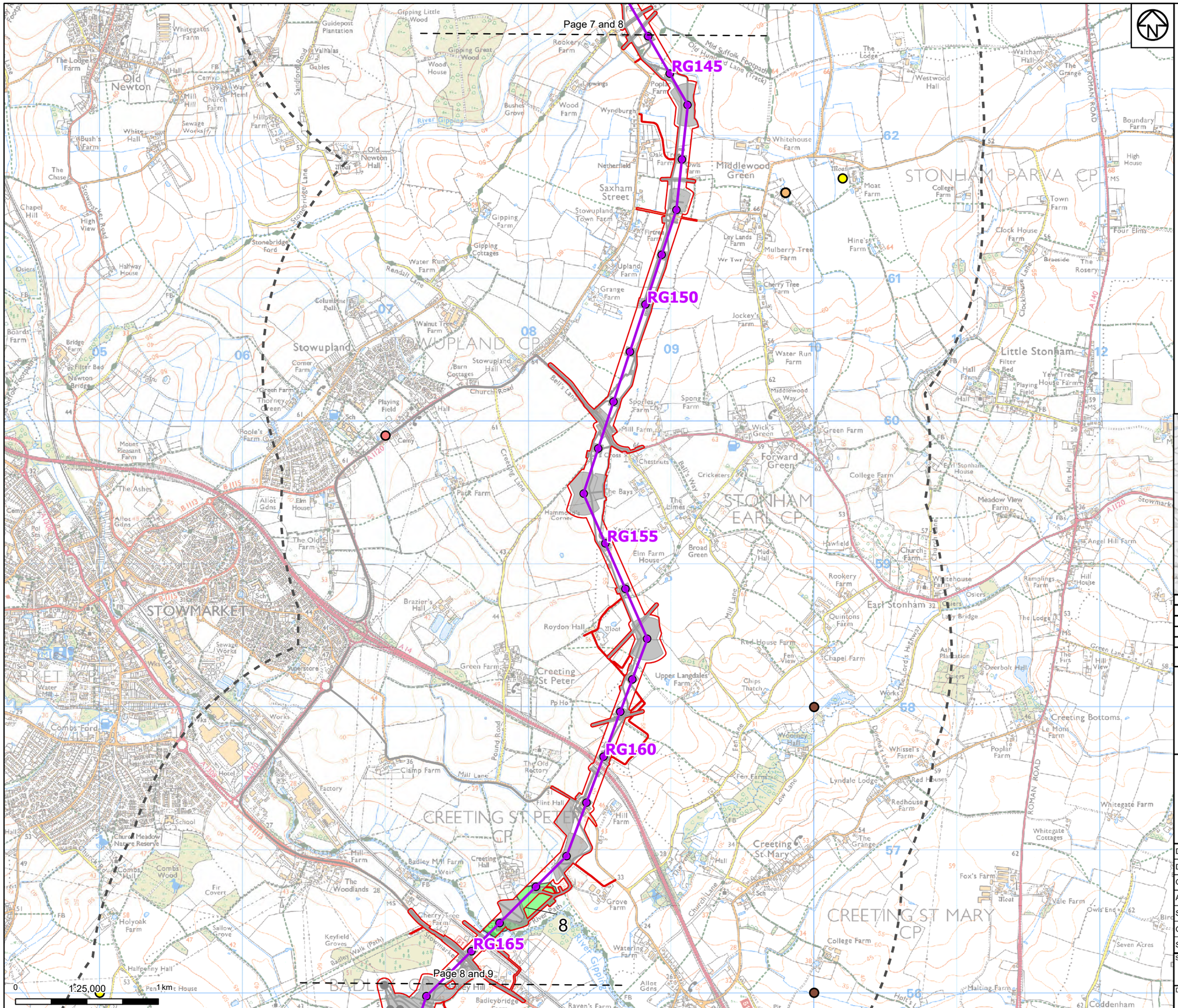
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Page 8 and 9
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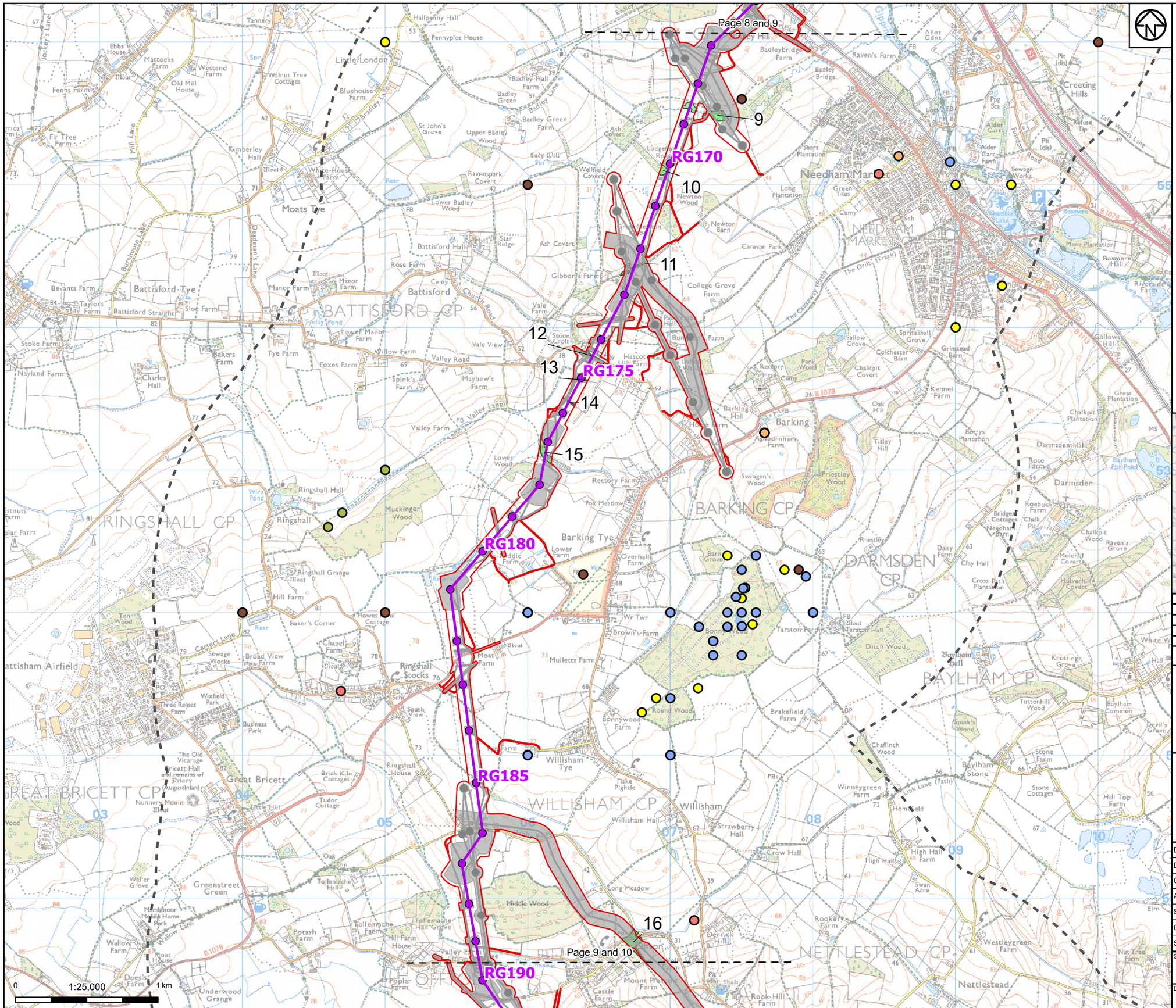
Stowupland
STOWUPLAND CP
Saxham Street
Middlewood Green
STONHAM PARVA CP
Little Stonham
Forward Green
STONHAM EARL CP
STOWMARKET
CREETING ST PETER CP
Creeting St Mary
CREETING ST MARY CP
Earl Stonham
Creeting Bottoms
Gipping Little Wood
Gipping Great Wood
Wood House
Rookery Farm
Wyndburgh
Netherfield
Oak Farm
Owls Farm
Whitehouse Farm
Moat Farm
Westwood Hall
Waltham Hall
The Grange
College Farm
Town Farm
Clock House Farm
Braeside
The Rosery
Four Elms
Boundary Farm
High House
Hine's Farm
Mulberry Tree Farm
Ley Lands Farm
Cherry Tree Farm
Jockey's Farm
Water Run Farm
Spong Farm
Spoles Farm
Mill Farm
Wick's Green
Green Farm
Meadow View Farm
Earl Stonham House
Pains Hill
Angel Hill Farm
Rookery Farm
Quintons Farm
Red House Farm
Chapel Farm
Ash Plantation
Deerbolt Hall
Le Mons Farm
Poplar Farm
Whissel's Farm
Redhouse Farm
Lyndale Lodge
Red Houses
Whitegate Farm
Whitegate Cottages
Fox's Farm
Vale Farm
Owls End
Seven Acres
Halting Farm
Coddenham
Woolpit Hall
Fen Farm
Low Lane
Fen Lane
Darcies Lane
Chips Thatch
Upper Langdales Farm
Creeting St Peter
Roydon Hall
Brazier's Hall
Mill Lane
Pound Road
Clamp Farm
The Old Rectory
Flint Hall
Hill Farm
Badley Mill Farm
Creeting Hall
The Woodlands
Grove Farm
Watering Farm
Raven's Farm
Badleybridge Farm
Allot Gdns
Combs Ford
Combs Hall
Combs Wood
Church Meadow Nature Reserve
Holyoak Farm
Sallow Grove
Fir Covert
Keyfield Groves
Halfpenny Hall
Water Mill
Superstore
Sewage Works
Factory
Hotel
Broad Green
Mud Hall
Hawfield
Church Farm
Whitehouse Farm
Ramplings Farm
Hill House
Earl Stonham
Osiers
Lady Bridge
The Lodge
The Firs
Hill View
Green Lane
Ash Plantation
Deerbolt Hall
Creeting Bottoms



Print Date: 03-19-24 14:23:27

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Small heath
- Stag beetle
- White admiral
- White-letter hairstreak
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 9 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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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-ELS-ZZ-DR-ZZ-00148

Revision: A

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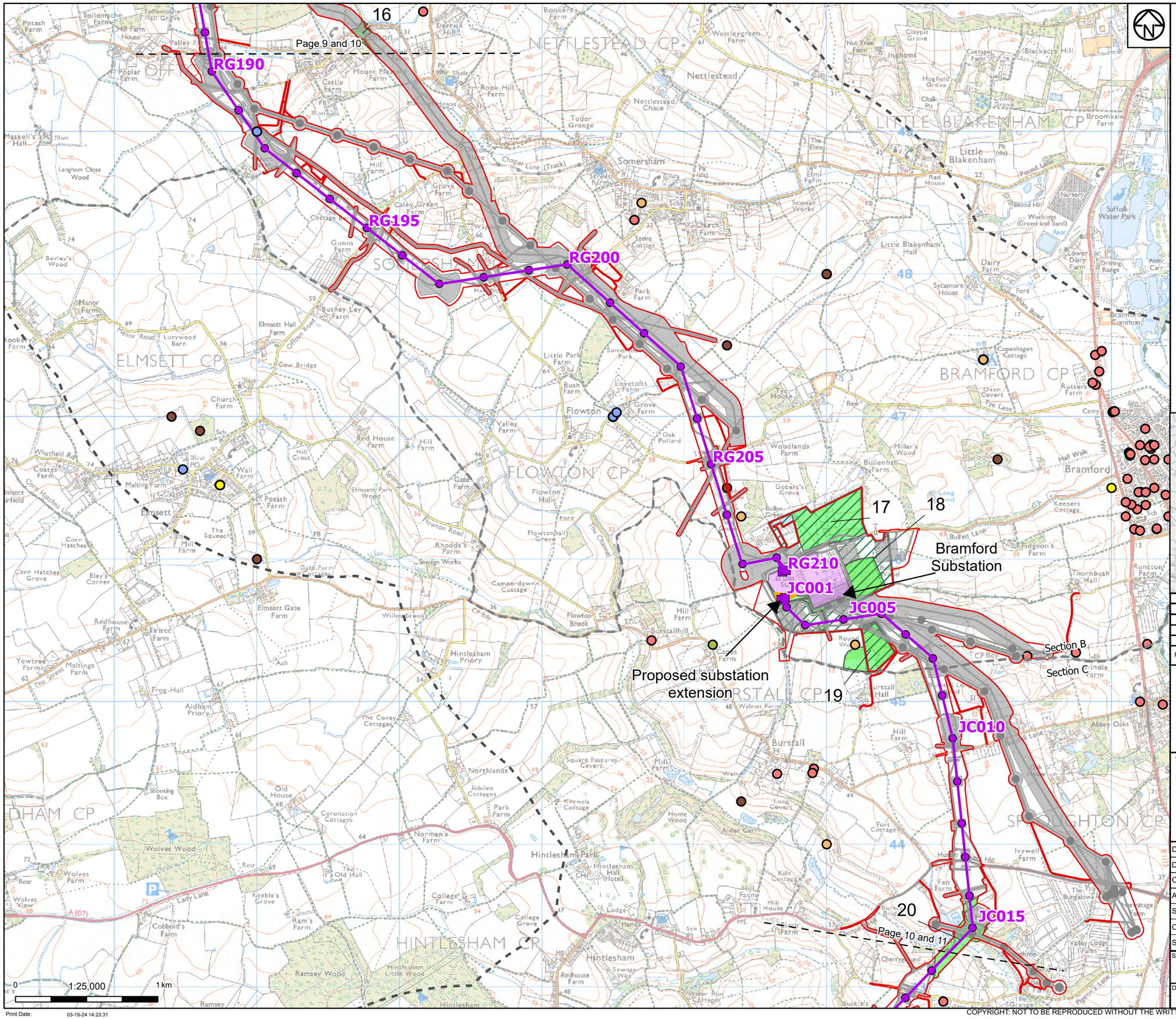

Draft order limits
Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed low duty gantry
- Proposed pylon position
- Existing substation
- Proposed substation extension
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Small heath
- Stag beetle
- White admiral
- White-letter hairstreak
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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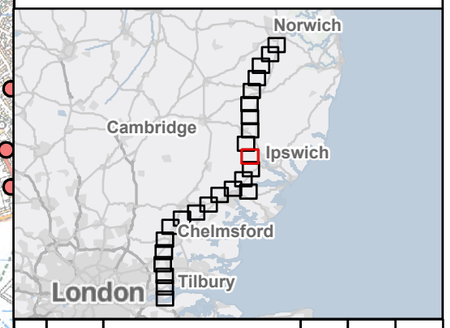

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 10 of 25

Designed	H.Smith	Date	April 2024
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Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

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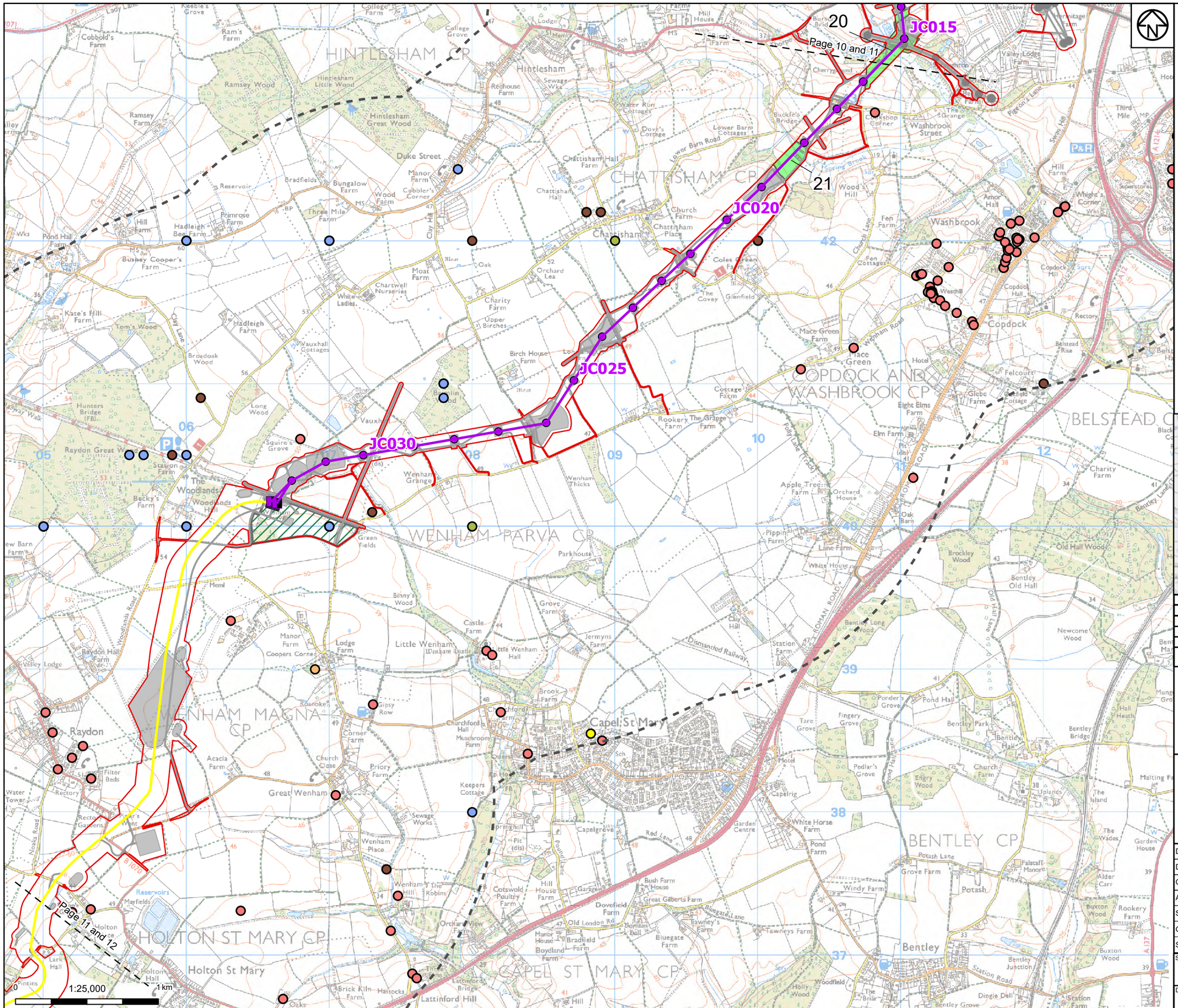

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Small heath
- Stag beetle
- White admiral
- White-letter hairstreak
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records

Page 11 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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Trenchless Crossing: Higham Road

Trenchless Crossing: River Stour (north part)

22

Trenchless Crossing: River Stour (south part)

23

Trenchless Crossing: Woodland Crossing Near St Mary's Church Langham

24

25

Trenchless Crossing: A12 highway crossing

Page 11 and 12

Page 12 and 13

0 1:25,000 1 km

Print Date: 03-19-24 14:23:41

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

2km Study Area

Invertebrate Survey Location

Copse snail

Moths

Small heath

Stag beetle

White admiral

Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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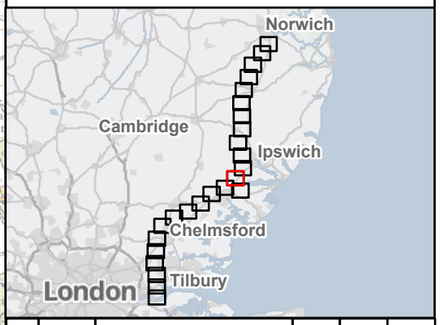

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A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 12 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-ELS-ZZ-DR-ZZ-00148

Revision: A

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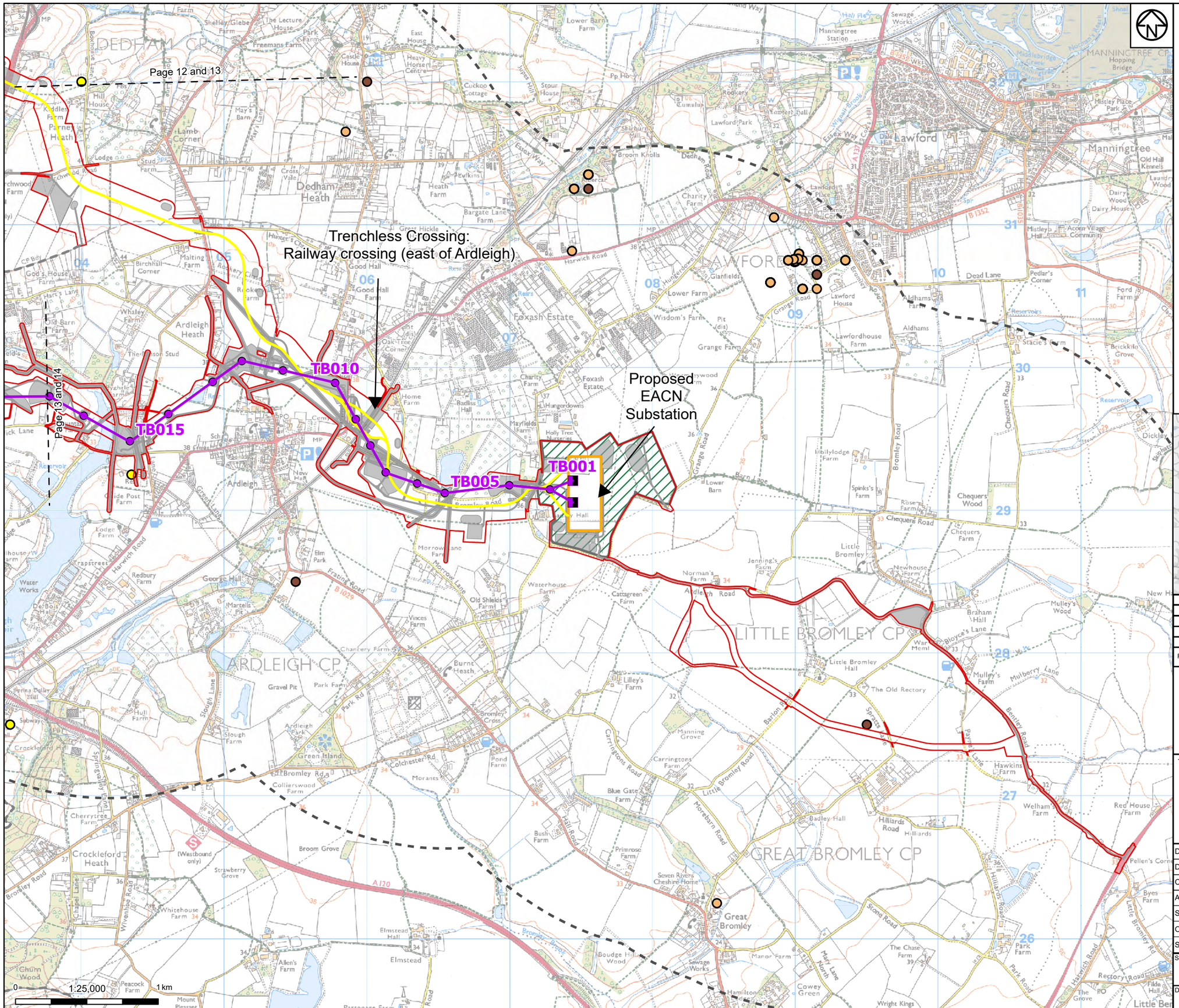
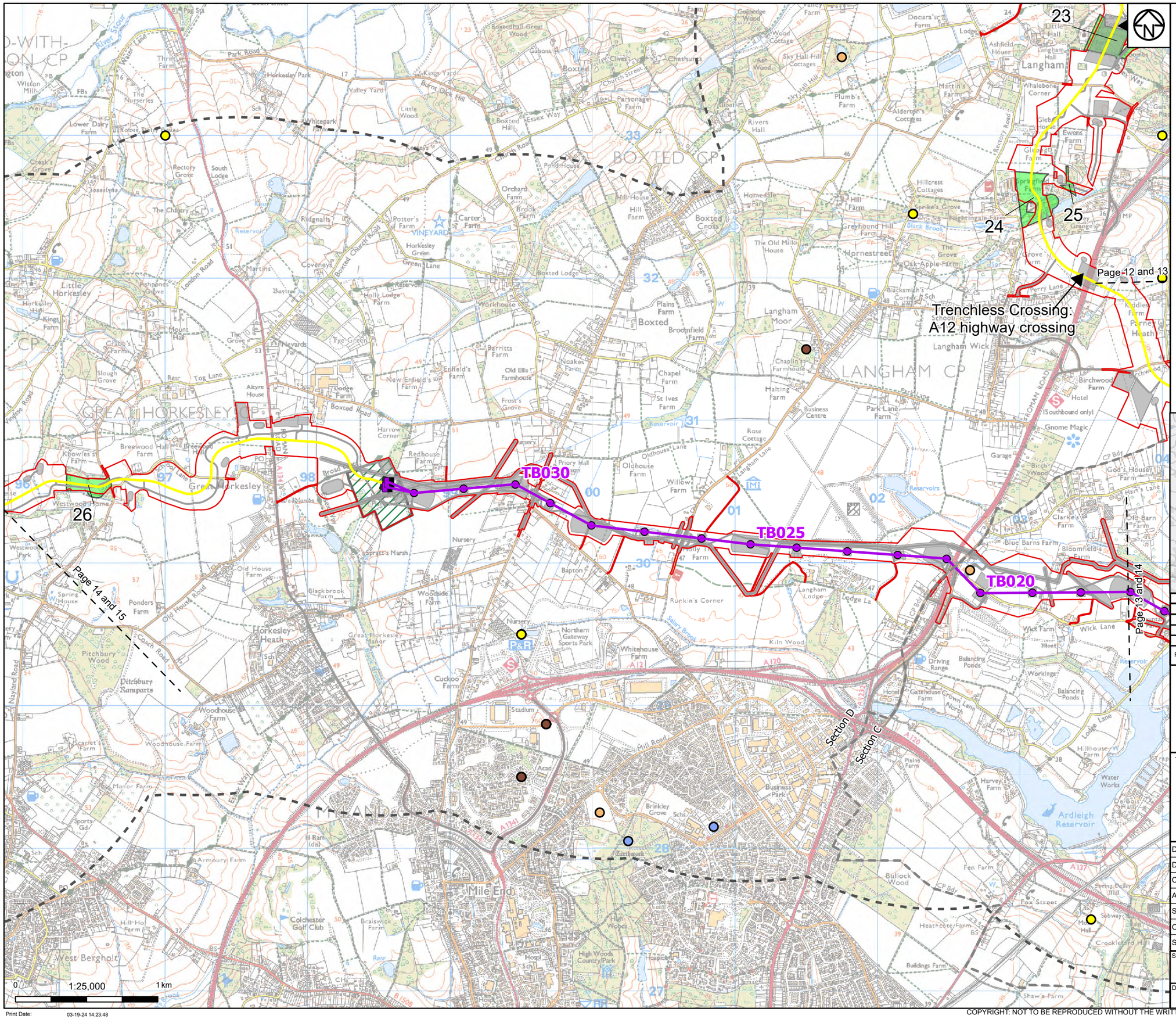

Page 12 and 13
Trenchless Crossing:
Railway crossing (east of Ardleigh)
Proposed
EACN
Substation
TB010
TB015
TB005
TB001
Page 13 and 14
DEDHAM CP
ARDLEIGH CP
LITTLE BROMLEY CP
GREAT BROMLEY CP
LAWFORD
Dedham Heath
Ardleigh Heath
Foxash Estate
Lawford
Manningtree
Crockleford Heath
Great Bromley
Little Bromley
Ardleigh
Elmstead
Cattsgreen Farm
Jenning's Farm
Newhouse Farm
Braham Hall
Mulley's Wood
Chequers Wood
Badley Hall
Hawkins Farm
Welham Farm
Hilliards
Hilliards Road
Bromley Road
Harwich Road
Colchester Rd
Ardleigh Rd
Bromley Rd
Dead Lane
Lawford Park
Lawford Place
Lawford House
Lawfordhouse Farm
Aldhams
Aldhams Farm
Grange Road
Lower Farm
Wisdom's Farm
Grange Farm
Foxash Estate
Charity Farm
Hungerdowns
Holly Tree Nurseries
Mayfields Farm
Badliss Hall
Home Farm
Good Hall
Good Hall Farm
Harwich Road
Hungerdown Lane
Broom Knolls
Lawford Park
Dale Hall
Manningtree Station
Mistley Place Park
Mistley's Hall
Acorn Village Community
Dairy Wood Dairy House
Old Hall Kennels
Laundry Wood
Hopping Bridge
Sewage Works
Lower Barn Farm
Castle House
Heavy Horse Centre
Cuckoo Cottage
Stour House
Hill Farm
Kiddle Farm
Parnel's Heath
Lamb Corner
Stud Farm
Cross Vale
Turkins
Heath Farm
Bargate Lane Farm
Great Hickle
Hunter's Chase
Birchhill Corner
Malting Farm
Rookery
Rookery Farm
God's House Farm
Hart's Lane
Whaley Farm
Old Barn Farm
The Ellison Stud
Oak Tree Corner
Pit (dis)
Ardleigh Reservoir
Clide Post Farm
Lodge Farm
Redbury Farm
George Hall
Martells Pit
Vinces Farm
Old Shields Farm
Waterhouse Farm
Morrow Lane Farm
Morrow Lane
Elm Park
Frating Road
B1029
Water Works
Dr Bois Hall
Trapstree
Chantry Farm
Burnt Heath
Gravel Pit
Park Farm
Park Rd
Hull Farm
Slough Lane
Slough Farm
Ardleigh Park
Green Island
Pond Farm
Bromley Cross
Lilley's Farm
Manning Grove
Carringtons Farm
Carringtons Road
Blue Gate Farm
Bush Farm
Primrose Farm
Seven Rivers Cheshire Home
Great Bromley Sewage Works
Bromley Brook
Bowdge Hill Wood
Manor Farm
Cowey Green
Hamilton
Parsonage Farm
Mount Pleasant
Peacock Farm
Allen's Farm
Elmstead Hall
Churn Wood
Whitehouse Farm
Wivenhoe Road
Chapel Lane
Strawberry Grove
Broom Grove
Crockleford Hall
Cherrytree Farm
Colliers Wood Farm
Morants
Subway
(Westbound only)
A120
Little Bromley Road
Moreberry Road
Hall Road
Barton Rd
Spratts Lane
Bentley Road
Payne Lane
Mulberry Lane
Mulley's Farm
The Old Rectory
Little Bromley Hall
War Memi
Bloyce's Lane
Braham Hall Lane
Stone Road
Mary Lane North
The Chase Farm
Park Farm
Rectory Road
Wright Kings
Filde Hall
The Grove
Little Bromley Rd
Byes Farm
Pellen's Corner
Red House Farm
Brickkiln Grove
Stacie's Farm
Ford Farm
Pedlar's Corner
Mistley's Hall
Reservoirs
Reservoir
Dickley
Skeet Hall
Ebbylodge Farm
Spinks's Farm
Rose Farm
Chequers Road
Chequers Farm
Little Bromley
Norman's Farm
Ardleigh Road
Essex Way
Wix Road
Dedham Road
Hill Farm
Shirburn
Tumpers Hall
Lawford Place
Bromley Cross
Sewage Works
Manningtree Station
Hall Flet
Middlebridge
Norman's Farm
Jenning's Farm
Newhouse Farm
Braham Hall
Mulley's Wood
Bloyce's Lane
Mulberry Lane
Bentley Road
Payne Lane
Hawkins Farm
Welham Farm
Red House Farm
Pellen's Corner
Byes Farm
Little Bromley Rd
Harwich Road
Rectory Road
Filde Hall
The Grove
Wright Kings
Park Road
Park Farm
The Chase Farm
Stone Road
Mary Lane North
Cowey Green
Hamilton
Manor Farm
Bowdge Hill Wood
Sewage Works
Great Bromley
Seven Rivers Cheshire Home
Primrose Farm
Bush Farm
Hall Road
Moreberry Road
Little Bromley Road
Carringtons Road
Carringtons Farm
Blue Gate Farm
Manning Grove
Barton Rd
Spratts Lane
Little Bromley Hall
The Old Rectory
War Memi
Bloyce's Lane
Braham Hall Lane
Mulley's Farm



Draft order limits

Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Small heath
- White admiral
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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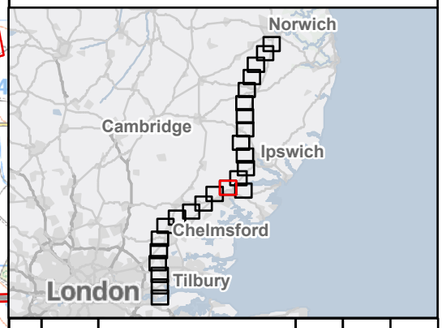

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 14 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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TB035
TB040
TB045
TB050
TB055
TB060
26
27
Page 14 and 15
Page 15 and 16
FORDHAM CP
WEST BERGHOLT CP
ALDHAM CP
EIGHT ASH GREEN CP
0 1:25,000 1 km

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Small heath
- Stag beetle
- White admiral
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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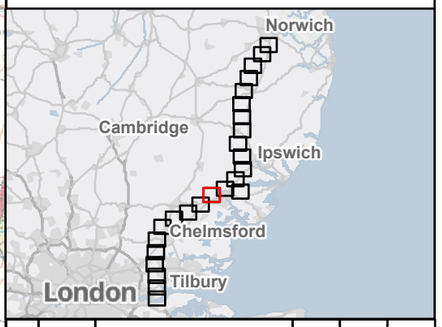

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title: Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 15 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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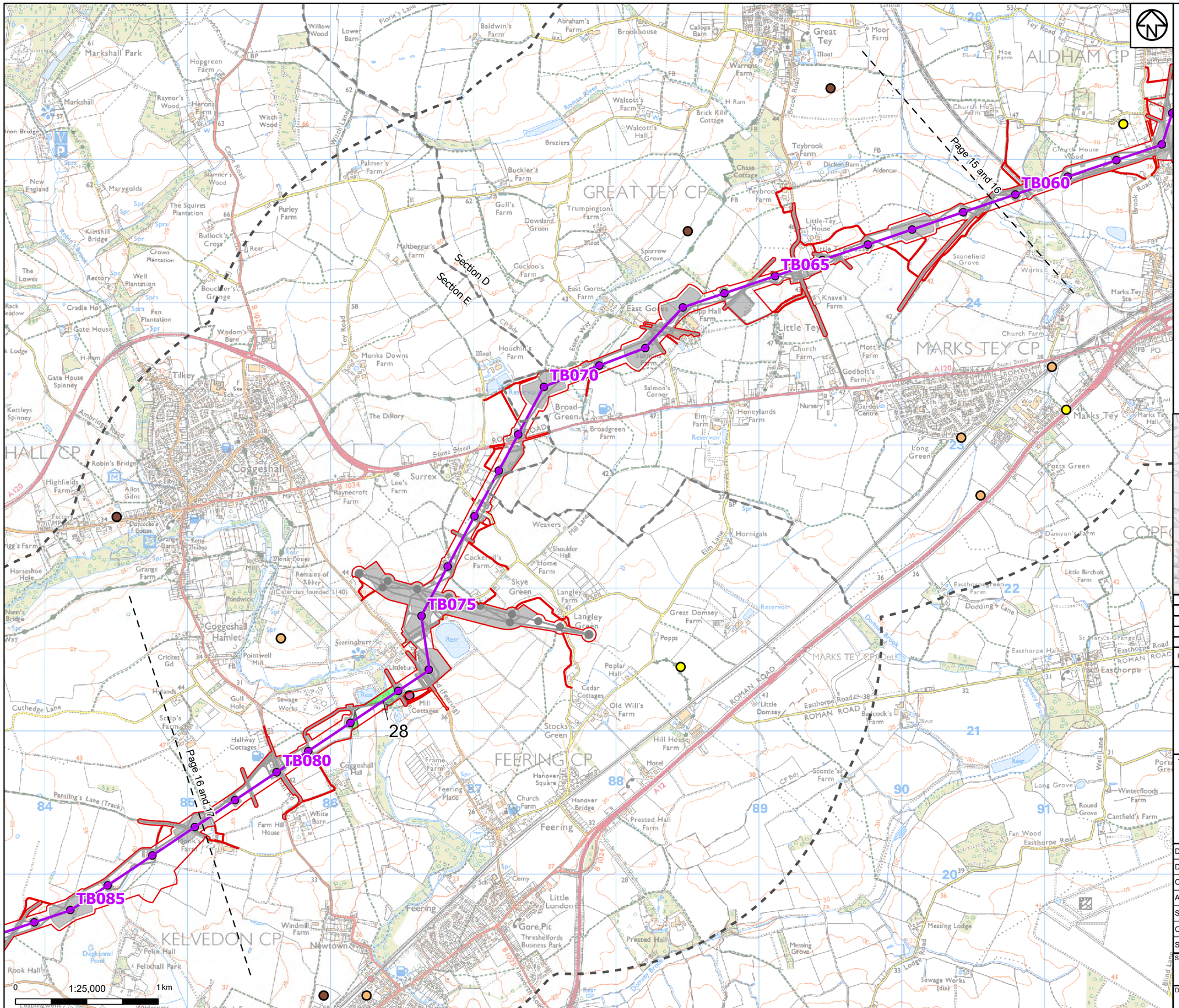

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Discipline specific constraints

2km Study Area

Invertebrate Survey Location

Copse snail

Moths

Small heath

Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 16 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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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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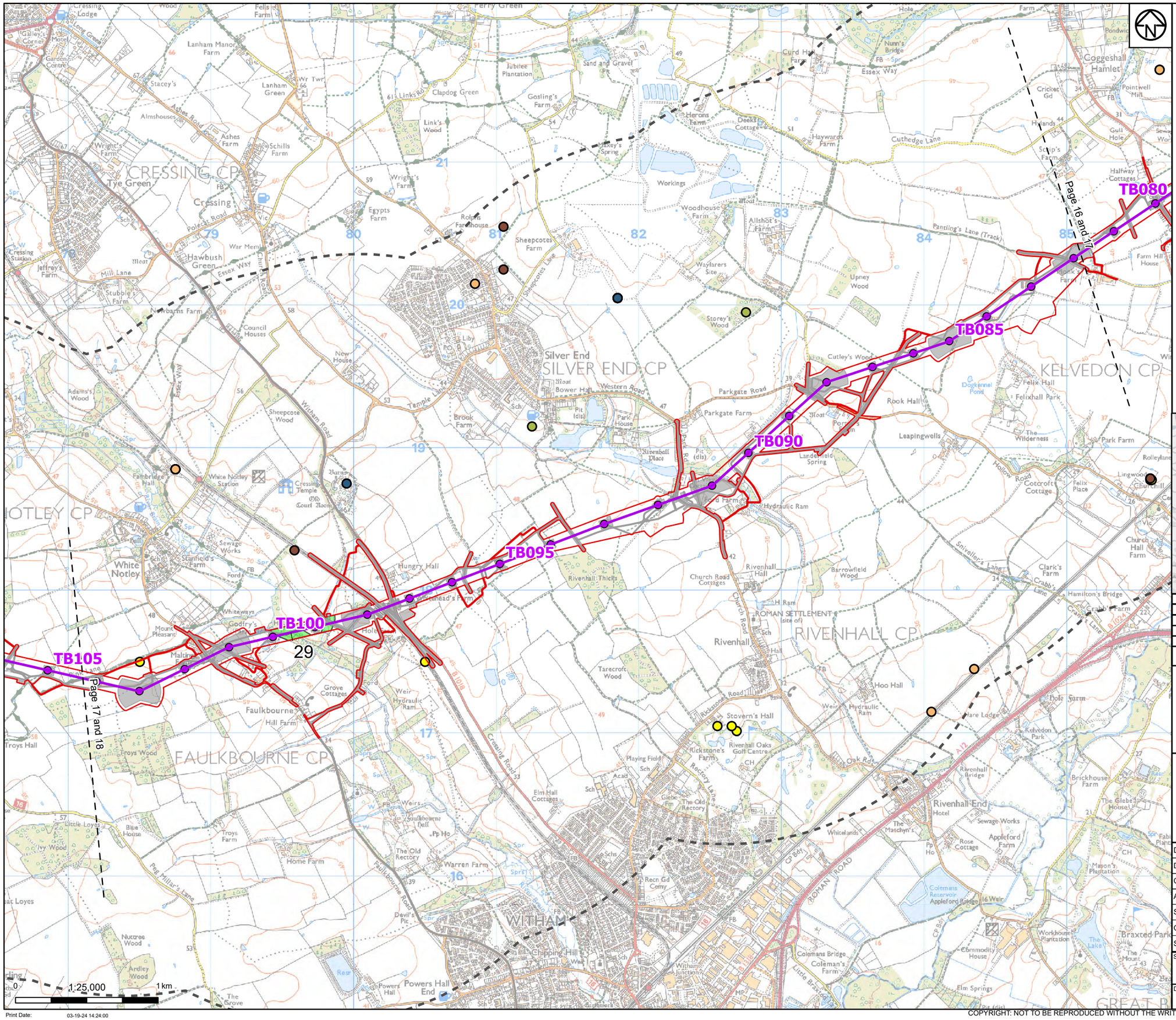

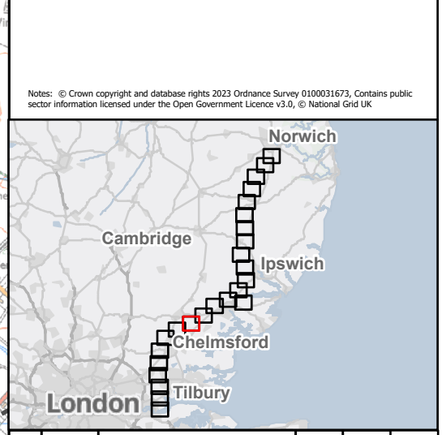

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Mallow flea beetle
- Small heath
- White-letter hairstreak
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records

Page 17 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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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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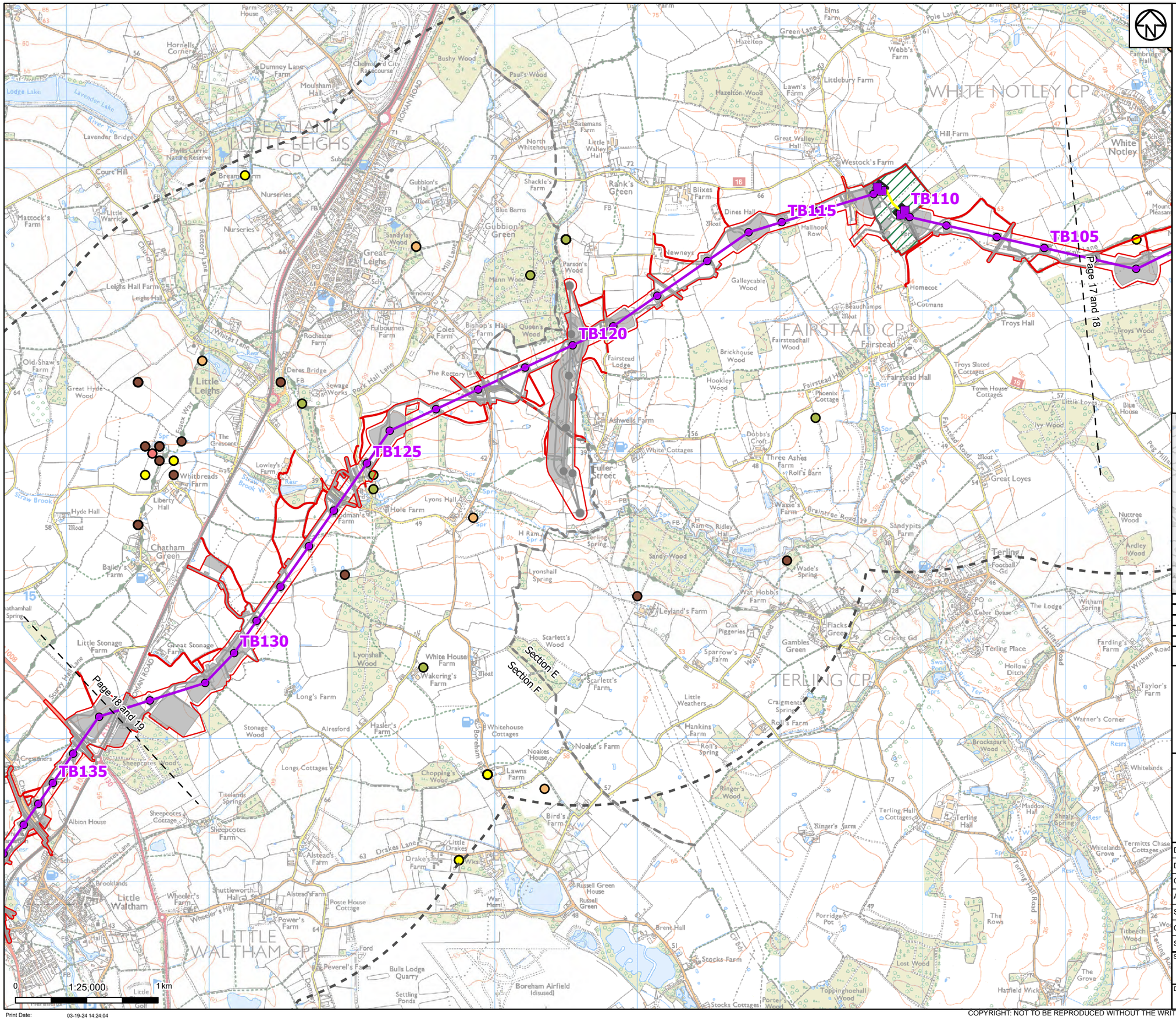

Draft order limits

Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed low duty gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Moths
- Small heath
- Stag beetle
- White-letter hairstreak
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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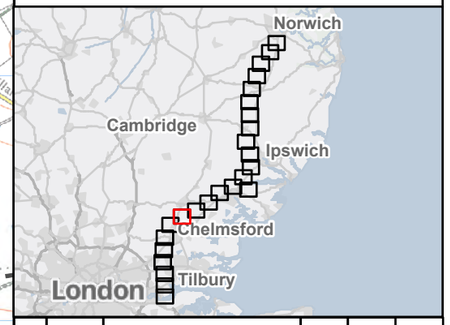

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 18 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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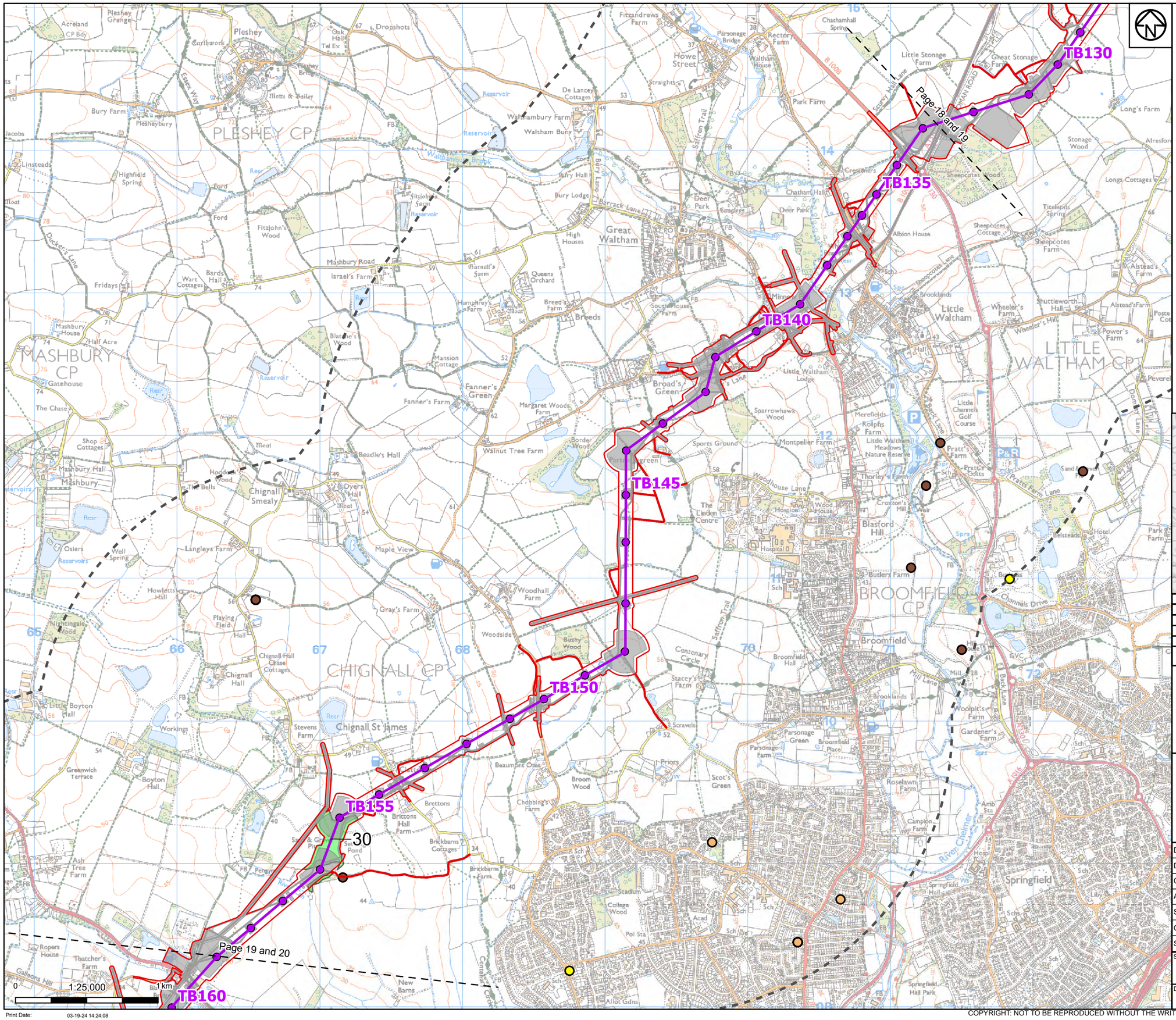

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Small heath
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title: Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 19 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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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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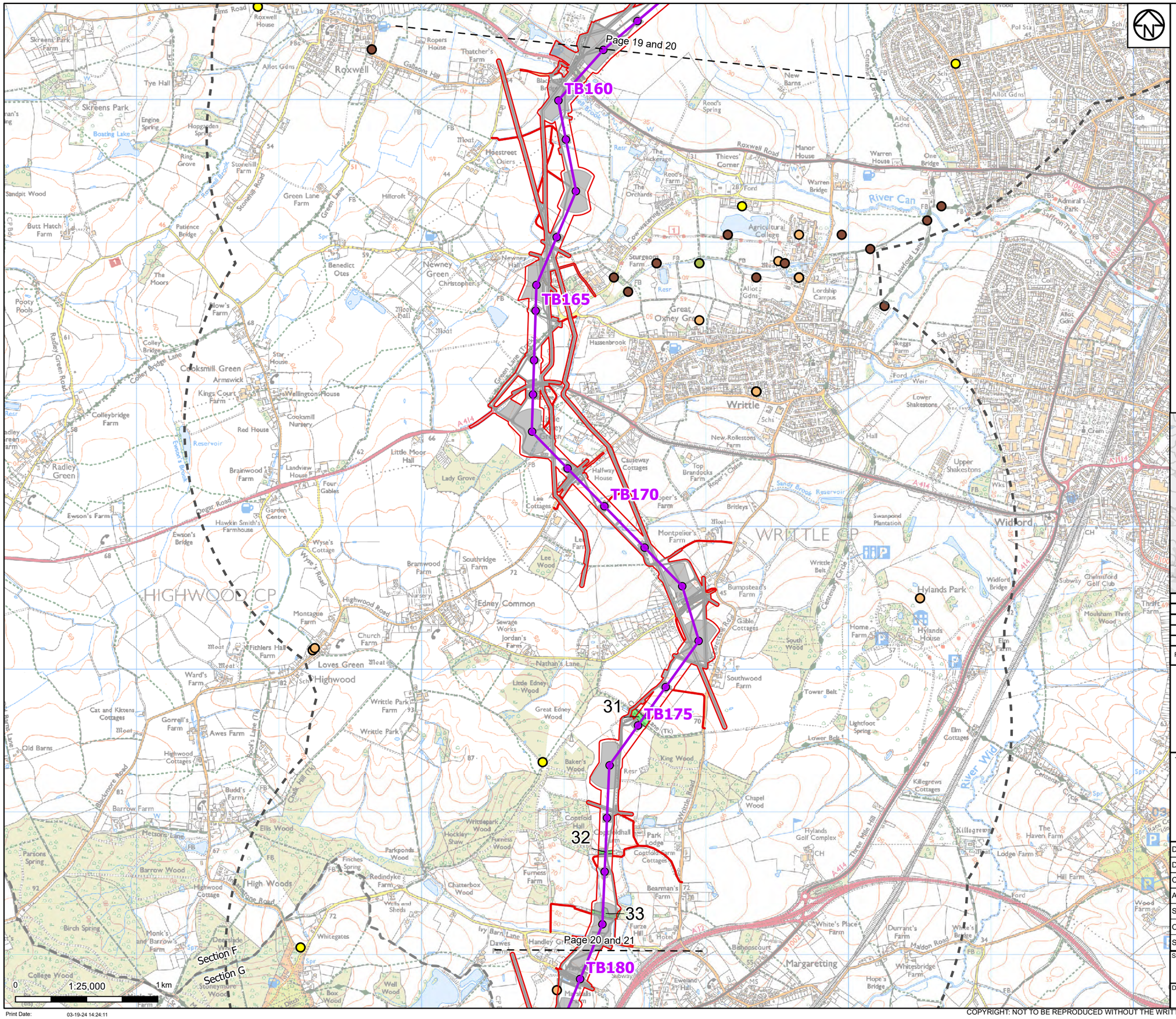

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Discipline specific constraints

2km Study Area

Invertebrate Survey Location

Moths

Small heath

White-letter hairstreak

Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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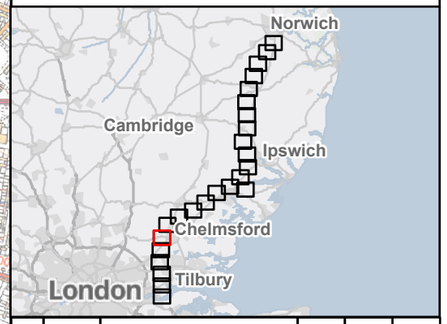

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 20 of 25

Designed	H.Smith	Date	April 2024
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Original Size:	A3	Grid:	OS
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Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position
Other temporary and permanent construction and operational works

Discipline specific constraints

2km Study Area
Invertebrate Survey Location
Moths
Small heath
Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
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Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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Revision: A

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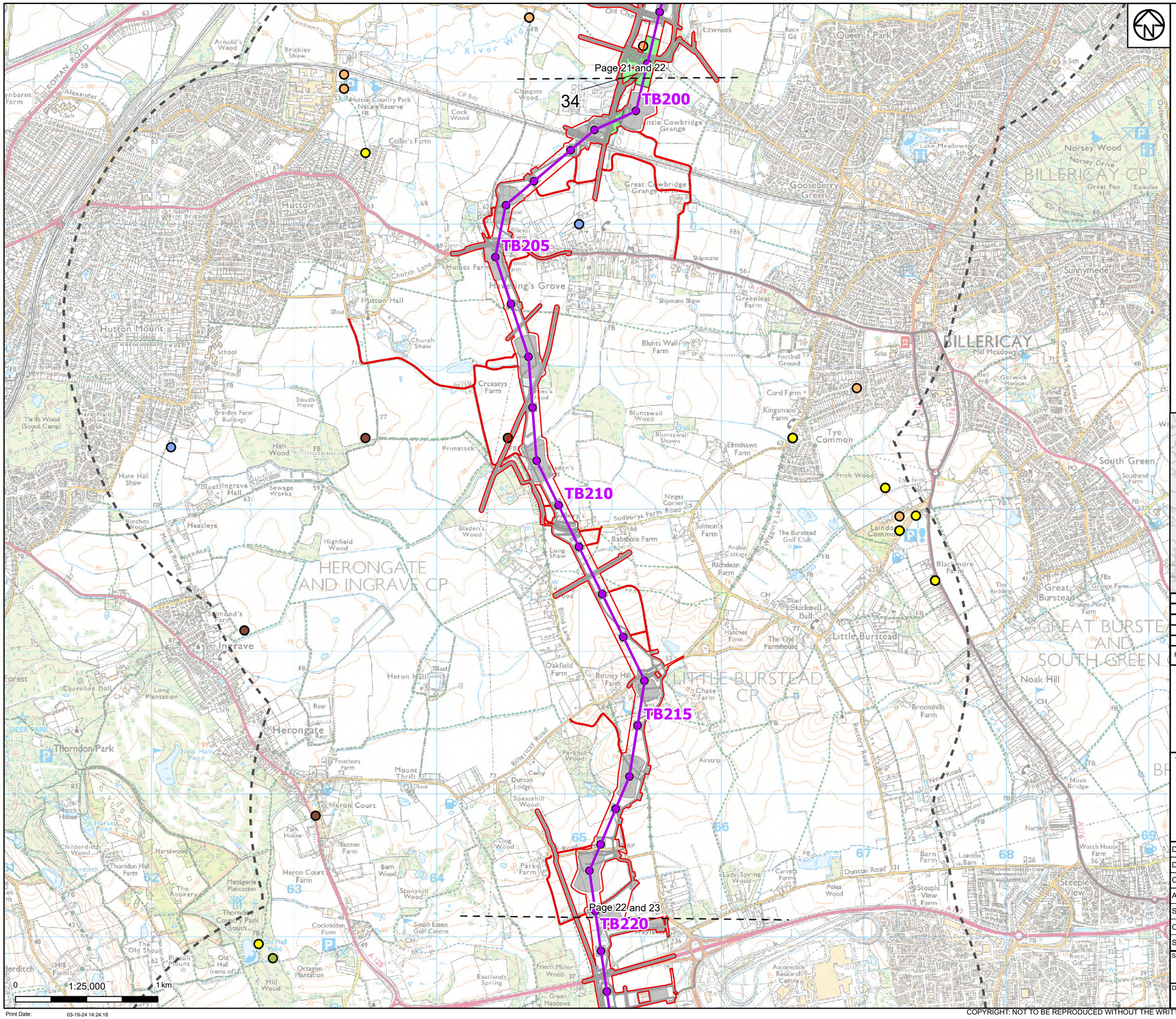

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Moths
- Small heath
- White admiral
- White-letter hairstreak
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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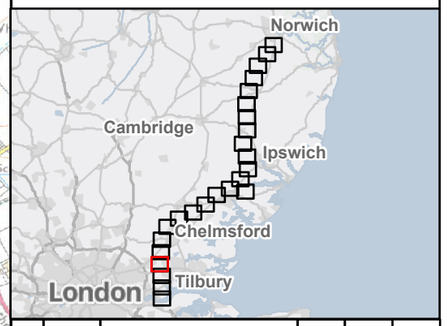

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A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT:
Norwich to Tilbury

Title:
Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 22 of 25

Designed	H.Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Page 22 and 23

TB220

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35

Section G

Section H

Page 23 and 24

Section G

Section H

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Print Date: 03-19-24 14:24:22

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Grizzled skipper
- Moths
- Mallow flea beetle
- Small heath
- White-letter hairstreak
- Xysticus acerbus (Ground crab spider)
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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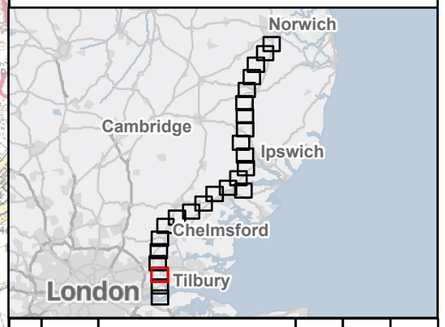

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
Page 23 of 25

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Drawing Number: 10059280-ARC-ELS-ZZ-DR-ZZ-00148

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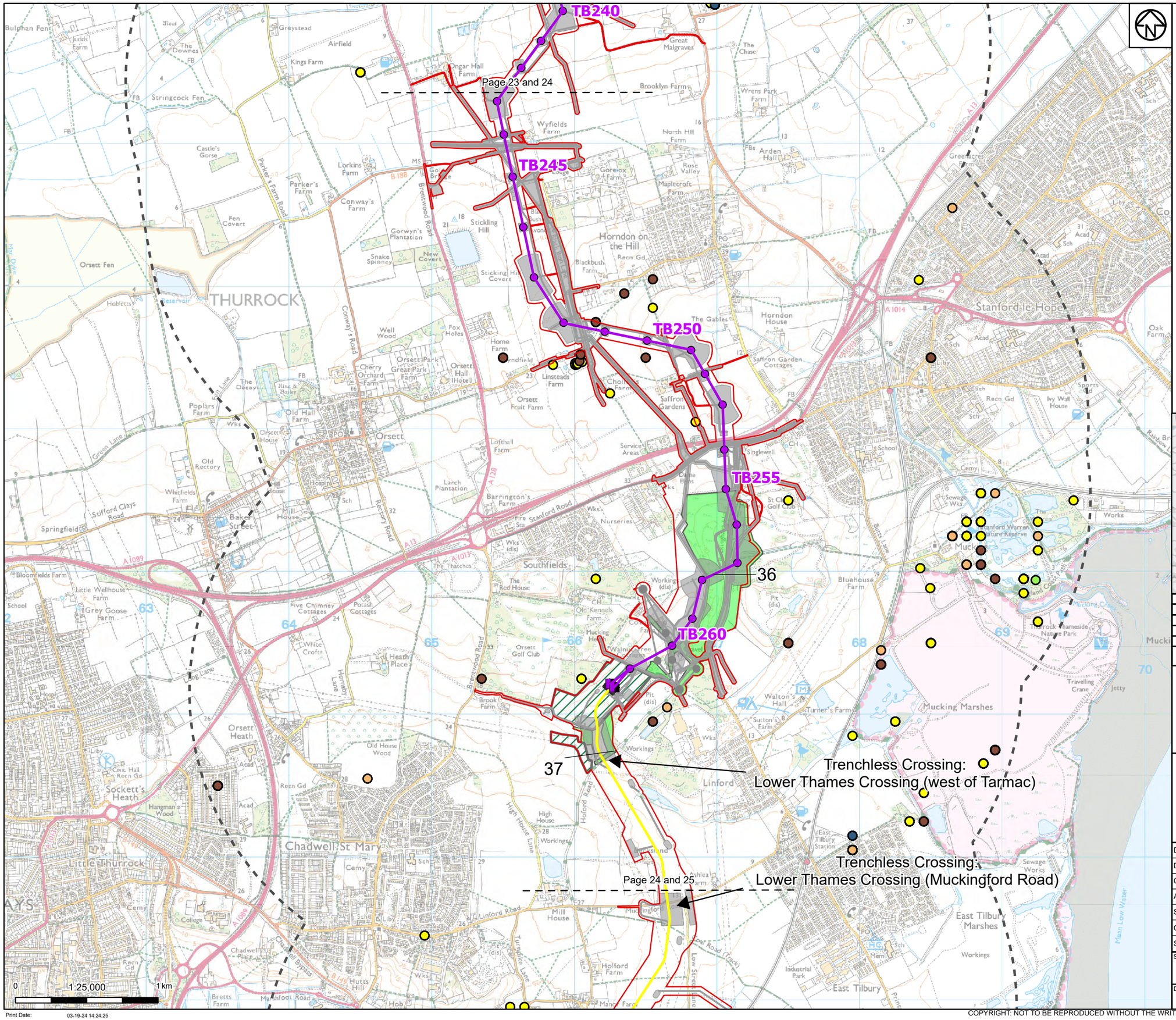

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Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Brown-banded carder bee
- Moths
- Mallow flea beetle
- Red-shanked carder bee
- Small heath
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.2.1 - Ecology and Biodiversity - Terrestrial Invertebrate Survey Sites and Desk Study Records
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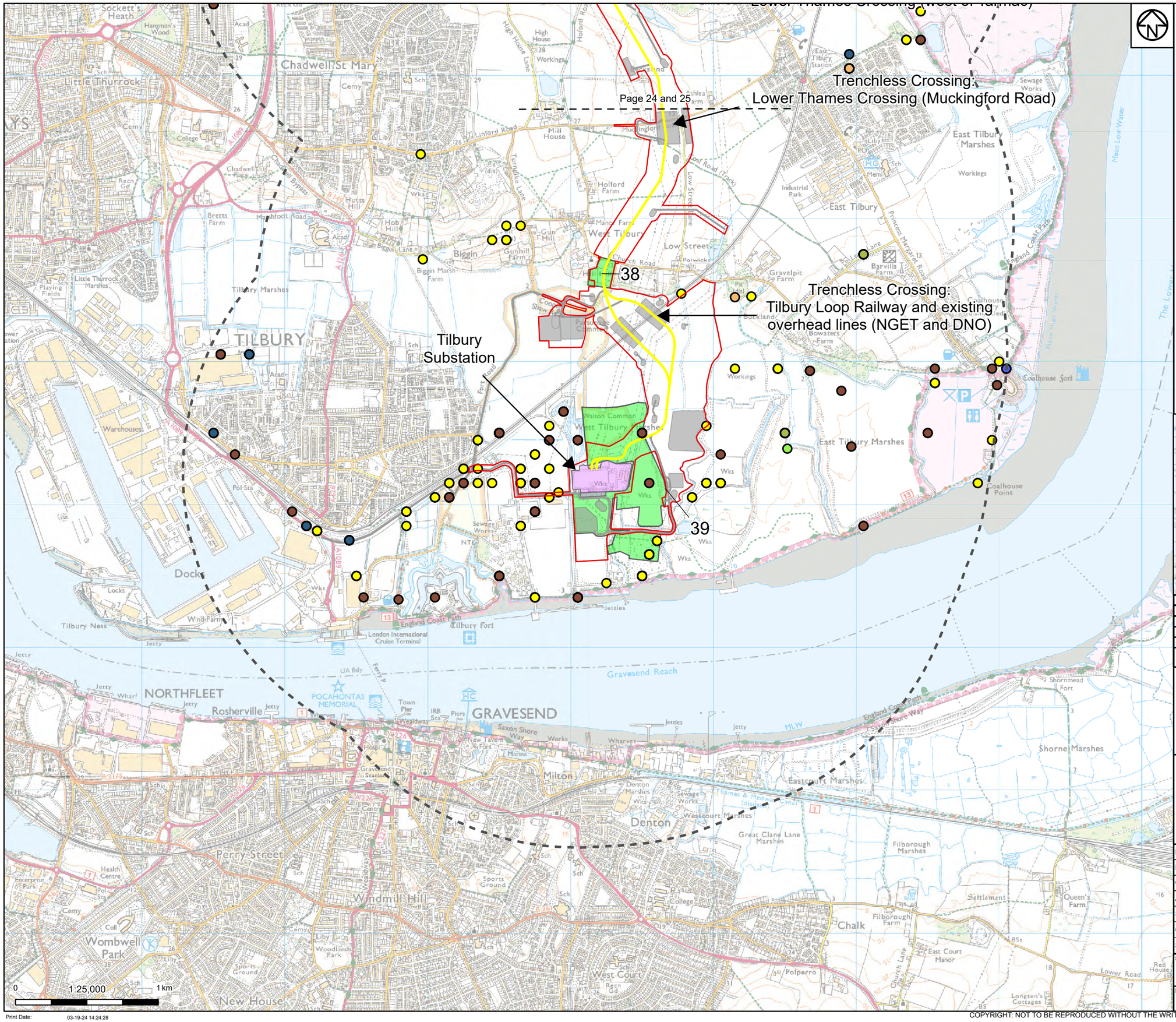

Draft order limits

Proposed project design details

- Proposed underground cable alignment
- Existing substation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- 2km Study Area
- Invertebrate Survey Location
- Brown-banded carder bee
- Moths
- Mallow flea beetle
- Red-shanked carder bee
- Small heath
- White-letter hairstreak
- Other invertebrates

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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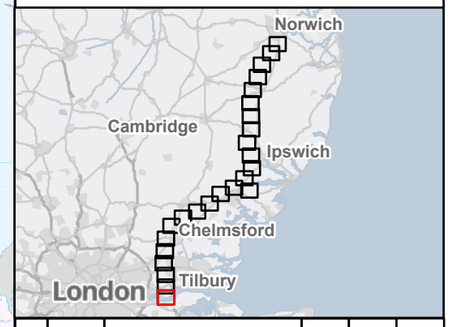

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Norwich to Tilbury

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Page 25 of 25

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Annex B: Terrestrial Invertebrate Incidental Records

Incidental record number	Date	Description of incidental records	Photo	Latitude	Longitude
I1	24/05/2023	Small Heath Butterflies feeding on nectar	None	51.83428076	0.60506529
I2	20/06/2023	Grassland with good invert diversity including Small Heath Butterfly	None	51.75389101	0.42041647

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Appendix 8.3: Reptile Report

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The Great Grid Upgrade

Norwich to Tilbury

Norwich to Tilbury

Preliminary Environmental Information Report - Volume III

Appendix 8.3: Reptile Report

April 2024

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1. Introduction

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1. Introduction

1.1 Background

1.1.1 This report has been produced as an appendix to Chapter 8: Ecology and Biodiversity in Volume I, for the Norwich to Tilbury Project (referred to as 'the Project').

1.1.2 The Project (formerly known as East Anglia Green Energy Enablement ((GREEN)) would facilitate the transfer of power from the East Anglia region to the rest of the National Electricity Transmission System (NETS) thereby enabling connection of offshore wind generation, nuclear power generation and interconnectors which are expected into East Anglia by 2035.

1.1.3 As described in Chapter 1: Introduction in Volume I, the Project has been broken down into eight sections based largely on local authority boundaries. The eight sections are described below and referred to throughout this report:

- 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
- Section G: Brentwood Borough Council and Basildon Borough Council
- Section H: Thurrock Council

1.1.4 Further details of the Project are included within Chapter 4: Project Description in Volume I.

1.2 Ecological Background

1.2.1 The ecological background and the scope for reptile surveys is set out in the Environmental Impact Assessment (EIA) Scoping Report (National Grid, 2022) and agreed within the Scoping Opinion received from the Planning Inspectorate in December 2022 (Planning Inspectorate, 2022). It is anticipated that widespread presence and large reptile populations are unlikely due to habitat unsuitability of most of the habitats within the draft Order Limits; habitats are predominantly agricultural fields. However, more widespread reptile species are anticipated to be present within suitable habitat, these are adder *Vipera berus*, grass snake *Natrix helvetica*, common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis*. In these areas, reptiles are at risk of direct effects during construction such as habitat loss/fragmentation and in the absence of appropriate mitigation, killing/injury during construction. This would constitute a breach of legislation.

1.2.2 The largely temporary nature of the Project is expected to potentially cause only temporary and minor adverse effects, which can be avoided through precautionary working conditions. Due to this, the need for reptile surveys can be largely avoided. However, areas of the Project considered to be exceptional habitat for reptiles that would potentially be adversely affected will be targeted for reptile survey.

1.3 Brief and Objectives

1.3.1 This report aims to present the known baseline information in relation to reptiles and the draft Order Limits in support of the PEIR and specify the approach to achieving the detailed reptile baseline for impact assessment (as part of the Environment Statement (ES)), including habitat suitability assessment and evaluation and the approach to reptile survey.

1.3.2 The objectives of the study were to use the baseline dataset to determine the importance of the survey area for reptiles and outline requirements for further survey work to inform detailed mitigation design.

2. Relevant Legislation and Policy

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2. Relevant Legislation and Policy

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 and policy is provided below.

2.2 Legal Compliance

2.2.1 The following legislation (Table A8.3.1) has been considered with regards to the methodology included within this report.

Table A8.3.1 - Legal Compliance

Legislation	Details
Conservation of Habitats and Species Regulations 2017 (as amended) ('Habitats Regulations') (HMSO, 2019)	Sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca* are fully protected in the UK under the combined measures of the Conservation of Habitats and Species Regulations 2017. However, the Project is situated outside of their natural range and thus these species are not considered further.
The Wildlife and Countryside Act 1981, as amended (WCA) (HMSO, 1981)	Common lizard, slow worm, grass snake and adder receive partial protection under Schedule 5 of the Wildlife and Countryside Act 1981, and it is an offence to intentionally kill, injure these species. Sand lizard and smooth snake receive full protection under Schedule 5 of the Wildlife and Countryside Act 1981; however, the Project is situated outside of their natural range and thus these species are not considered further.

2.3 Planning Policy

2.3.1 Chapter 8: Ecology and Biodiversity in Volume I provides further details of relevant planning policy.

3. Methodology

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3. Methodology

3.1 Desk Study

3.1.1 A detailed desk-based study was conducted in September 2023 and subsequently updated in January 2024 following a design change, to determine the baseline information in relation to reptiles. Table A8.3..2 summarises the various sources of information, the various study areas utilised for the desk study and the information obtained.

Table A8.3.2 - Sources of Information

Source	Information Obtained
Google Earth (2023) aerial imagery	Review of aerial photography was undertaken to: assess habitats within the draft Order Limits in a wider (landscape-scale; which extended up to 2 km of the draft 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 (MAGIC)	The location of statutory designated sites for nature conservation within 2 km of the draft Order Limits. As some ecological features are not always apparent on aerial photographs, relevant Ordnance Survey mapping on MAGIC was also studied to identify ponds, issues and/or drains within the draft Order Limits.
Local Record Centres	The location of non-statutory designated sites for nature conservation and records of reptiles within 2 km of the draft Order Limits were obtained from Norfolk Biodiversity Information Service (NBIS) (2023), Suffolk Biodiversity Information Service (SBIS) (2023) and Essex Field Club (EFC) (2023). NB: Only records recorded within the last 20 years were included in the desk study unless specified.
National Infrastructure Planning website	The National Infrastructure Planning website was searched for reptile survey information and documents relating to other Nationally Significant Infrastructure Projects (NSIPs) within 2 km of the draft Order Limits. Relevant projects are listed within Table A8.3..
Local planning authority projects	The planning portals for all local planning authorities within the study area were searched for any previous reptile surveys or ecological documents regarding reptiles, that were produced for any local planning applications within 2 km of the draft Order Limits. This included a search of the following planning portals (relevant Project Sections are identified in brackets): Babergh and Mid-Suffolk Councils (2023) (Sections B and C)

Source	Information Obtained
	Basildon Borough Council (2023) (Section G) Braintree District Council (2023) (Section E) Brentwood Borough Council (2023) (Section G) South Norfolk Council (2023) (Section A) Chelmsford City Council (2023) (Section F) Essex County Council (2023) Tendring District Council (2023) (Section C) Thurrock Council (2023) (Section G) Relevant projects are listed within Table A8.3.7 and Annex C and D.

3.2 Survey Methodology

Overview

3.2.1 Widespread presence and large/notable populations of reptiles are thought to be unlikely due to the unsuitable nature of most of the habitats within the draft Order Limits (predominately structurally poor agricultural fields). Four reptile species (adder, grass snake, common lizard, and slow worm) are present locally and have historically been confirmed within sections of the draft Order Limits.

3.2.2 It is proposed that surveys target habitats identified from habitat suitability assessment and aim to inform the extent and method of measures necessary to mitigate for the risk of death or injury of individual reptiles during the construction period. This proposed approach has been taken to ensure that surveys are proportionate yet robust and provide up-to-date information whilst minimising the collection of irrelevant/abortive information and the need for repeat surveys.

3.2.3 Ecological impact assessment is moving towards strategic, landscape-scale habitat provision in favour of localised/isolated mitigation and compensation where greater benefit can be demonstrated (i.e., the 'bigger, better, more joined up' approach which also underpins other initiatives such as Biodiversity Net Gain and District Level Licensing). The approach taken for reptiles for the Project is in line with this shift.

3.2.4 In addition to being proportionate, this approach has been chosen because the Project affects are largely temporary and provide the opportunity to improve habitats for this species group across an extensive area. Reptile presence is assumed within all suitable habitats. Accordingly, suitable precautionary working methods and mitigation will be developed to prevent death or injury during construction activities and to ensure an increase in area of better-quality habitat than that affected and that these habitats are well connected to the wider landscape (see Chapter 8: Ecology and Biodiversity in Volume I of the PEIR).

Habitat Suitability Assessment and Site Evaluation

3.2.5 Aerial imagery (Google Earth, 2023) has been reviewed to:

- Assess habitats within the study area in a wider (landscape-scale) 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)
- Review changes to habitats over time so that an assessment of reliability/longevity can be made

3.2.6 In conjunction with the desk study results, aerial imagery was used to identify and map areas/sites known and/or potentially suitable to qualify as a Key Reptile Site within, or adjacent to, the draft Order Limits. Habitat suitability within each area was then appraised based on the following characteristics (Natural England, 2011):

- Location in relation to species range
- Vegetation structure
- Insolation (sun exposure)
- Aspect
- Topography
- Surface geology
- Connectivity to nearby good quality habitat
- Prey suitability/abundance
- Refuge opportunity
- Hibernation habitat potential
- Disturbance
- Egg-laying site potential (grass snake only)

3.2.7 Each survey area was then be graded for reptile suitability as follows:

- Poor – habitat which is unfavourable for reptiles based on most of the habitat assessment characters listed above or is limited in size and highly isolated from other areas of suitable habitat
- Good – habitat which is favourable or sub-optimal for many of the habitat assessment characters listed above; or is sub-optimal for some of the characters and has good connectivity with areas of more suitable habitat
- Exceptional – habitat which is favourable for reptiles based on the habitat assessment characters listed above

3.2.8 Grading also noted which species the survey area was considered potentially suitable for, and this was combined with the results of the desk study and professional judgement to rank the likelihood of presence as follows:

- Negligible – while presence cannot be absolutely discounted, habitats are very limited in size or of poor suitability for reptile species and/or assemblages. There may be no desk study records and the surrounding habitats are considered unlikely to support wider populations. The Project may also be outside or peripheral to the known natural range of reptile species.
- Low – habitats are of poor to good suitability for reptiles. There are few or no desk study records but presence cannot be discounted based on national distribution, the nature of surrounding habitats, habitat fragmentation or recent disturbance etc.

- Medium – habitats are of good suitability and desk study records reveal local occurrence, or the area is within the national distribution and with suitable surrounding habitat. Factors limiting the likelihood of occurrence may include small habitat area, habitat isolation, and/or disturbance
- High – habitats are of exceptional suitability for reptiles. Desk study provides evidence of historic presence (greater than two years old, see 'confirmed presence' below) or local occurrence. The area is within/peripheral to a national or regional stronghold and/or has good suitability surrounding habitat and good connectivity
- Confirmed Presence – presence confirmed from survey undertaken in support of this Project or by recent records (within the last two years) and/or long-standing presence data sets

3.2.9 Accordingly, an isolated area of exceptional suitability habitat could be considered to have negligible likelihood of reptile presence and an area of poor-suitability habitat could have a high likelihood of reptile presence, if situated adjacent to better suitability habitat with confirmed presence.

Key Reptile Sites

3.2.10 Froglife (1999) defined the criteria for site selection as a 'Key Reptile Site', whereby survey results can be used to obtain an objective evaluation of the importance of the reptile interest within a given area. To qualify as a Key Reptile Site (KRS), the site must meet one of the criteria illustrated within Image A8.3.1.

Image A8.3.1 - Criteria for Key Reptile Sites, taken from Froglife (1999)

(1) supports three or more reptile species
(2) supports two snake species
(3) supports an exceptional population of one species (see table)
(4) supports an assemblage of species scoring at least 4 (see table)
(5) does not satisfy 1-5 but which is of particular regional importance due to local rarity (e.g. in the East Midlands of England, adders are very rare so even "low" populations should be designated as Key Sites)

	Low population *Score 1*	Good population *Score 2*	Exceptional population *Score 3*
Adder	<5	5 - 10	>10
Grass snake	<5	5 - 10	>10
Common lizard	<5	5 - 20	>20
Slow-worm	<5	5 - 20	>20

Figures in the table refer to maximum number of adults seen by observation and/or under tins (placed at a density of up to 10 per hectare), by one person in one day.

3.2.11 Habitat suitability assessments and site evaluation was initially used in the absence of survey data to assess the potential for each area/site to qualify as a KRS.

3.2.12 The areas to be targeted for presence/likely absence surveys comprise only the land affected by construction of the Project that is assessed as having the potential to qualify as a KRS, except for the following:

- Areas where the existing baseline is deemed sufficiently robust to inform the mitigation solution

- Areas where the displacement through habitat manipulation is considered the most appropriate/satisfactory mitigation solution regardless of perceived importance for reptiles
- Any access constrained areas (e.g., due to health and safety concerns such as busy roadside verges)

Presence/likely Absence Survey

3.2.13 Five areas were selected as potential KRS that (a) would be significantly affected by Project related construction, and (b) it was determined that displacement by habitat manipulation may not an appropriate mitigation solution:

- Wortham Ling and Royden Fen (Section B)
- Sproughton Park (Section C)
- Colne Valley (Section D)
- River Wid Corridor (Section G)
- Orsett Golf Course and Potential Local Wildlife Site (pLWS) complex (Section H)

3.2.14 These areas will be subject to presence/likely absence surveys. Details of these locations are provided in Annex E, assessment results outlined in Table A8.3.8 and illustrated in Figure A8.3.2: Reptile Survey Locations in Annex A.

3.2.15 Reptile presence/likely absence surveys will be conducted according to the below methodology which draws heavily upon Herpetofauna Groups of Britain and Ireland (HGBI, 1998), Froglife (1999 and 2015) and Natural England (2011).

3.2.16 In each area, refugia (comprising a 50:50 ratio of corrugated metal and roofing felt measuring a minimum 0.5 m x 0.75 m in size) will be numbered and placed in suitable habitat.

3.2.17 In non-linear habitats, refugia will be placed at a density of at least 100/ha of suitable habitat (for very small sites this density may be increased appropriately with a justification provided). In linear habitats of less than 10 m in width (e.g., hedgerows) refugia will be placed at a frequency of at least one every 10 m of suitable habitat. Where varying from the refugia ratio and densities, a justification will be provided, based on the habitat type and target species concerned. Once placed, artificial refugia will be left to settle for at least 14 days prior to conducting the first survey (Natural England, 2011).

3.2.18 Each area will be checked for reptiles on the required number of occasions (see section 3.3), with binoculars used where appropriate to check for reptiles on and between refugia, as well as careful checks beneath each refugia. Each refugia check will be conducted during appropriate weather conditions (i.e., air temperature 10°C-20°C, still to moderate winds and no or very light rain).

3.2.19 During each check the surveyor will record details of all reptiles encountered during the survey including refugia number/location, species, number, life stage (adult, subadult, juvenile) and where possible, sex.

Population size class estimate

3.2.20 Population size class for each area will be assessed utilising the peak adult count for each species across all visits. Population density will be calculated by dividing the peak adult count by the area in hectares. Population densities will then be compared with the criteria outlined by HGBI (1998) and Froglife (1999) to determine if any of the areas qualify as Key Reptile Sites (as shown in Image A.8.3.1) which may trigger the requirement for further visits to provide a robust assessment to be considered.

3.3 Dates of Survey and Personnel

3.3.1 Surveys will commence in 2024. Seven visits (during suitable weather conditions) will be conducted at each survey location to determine presence/likely absence with at least four of these visits conducted during the 'optimum' survey months of April, May, June and/or September. At sites where surveys commence during July or August, if no reptiles are found during the first three visits, then the remaining visits would be delayed until September.

3.3.2 Where access allows, surveys will be programmed to maximise the number of visits conducted during April, May, June, and September. However, visits during July and August are not precluded assuming they are conducted according to the weather requirements specified in Paragraph 3.2.18.

3.3.3 For areas with confirmed or high likelihood of presence of adder, survey visits may also be carried out during October/November when adder use areas near potential hibernation habitats. Note that where a requirement for additional spring emergence visits is identified, these will be completed in the following April (i.e., in 2025).

3.3.4 Surveys will also be planned to ensure that there is at least 30 days between the first and last survey visits and a minimum of two days between each visit.

3.3.5 Where presence/likely absence survey confirms presence of one or more reptile species and all survey visits have been conducted during 'optimum' survey months (under suitable conditions) then, unless the surveyor considers it necessary, no further visits will be required.

3.3.6 Where any presence/likely absence survey visits have been conducted during the sub-optimal months of July or August, additional visits will be required until at least seven visits (under suitable conditions) have been conducted during optimum months.

3.3.7 These surveys will be undertaken by suitably experienced and competent ecologists.

3.4 Notes and Limitations

3.4.1 Whilst extensive effort has been, and would continue to be, made to identify all areas that could potentially qualify as a Key Reptile Site, no assessment can ensure the complete characterisation of the natural environment. Desk study data is not likely to be exhaustive and is biased towards areas with public access or where surveys have taken place to inform other development projects. It is therefore possible that there are reptiles present within/adjacent to the draft Order Limits that are not identified during the data searches. However, the presence (or absence) of desk study records forms only part of the extensive desk study analysis undertaken, which focuses heavily on habitat suitability and the landscape scale approach to site assessment and evaluation

assumes a ‘worst-case’ scenario to overcome this limitation for the purposes of impact assessment.

3.4.2 Habitat suitability assessments provide an assessment of the likelihood of reptile presence within the draft Order Limits. This is based on the suitability of the habitat, known distribution in the local area and any direct evidence within the study area. It should not be taken as providing a full and definitive survey and is only representative of the time the assessment was carried out. Where appropriate, additional surveys will be recommended to ensure the baseline is up to date during construction, to refine avoidance and restoration measures and to inform method statements. A lack of evidence does not necessarily mean that the species is absent, and the assessment will also record and assesses the ability of habitats to support reptiles.

3.4.3 Land access restrictions may result in some land parcels not being surveyed on the ground and survey data may therefore be incomplete. Every effort will be made to obtain access.

4. Results

nationalgrid

4. Results

4.1 Overview

4.1.1 The reptile surveys, as discussed within Section 3 above will be undertaken during the appropriate season in 2024. Therefore, results below present the results of the desk study only. All desk study results (including LERC records, previous NSIP results and Local Planning Authority Projects results) are also presented on Figure A8.3.1: Reptile Desk study records, and statutory and non-statutory designated sites within 2 km of the draft Order Limits, in Annex A. Further desk-based data and survey results obtained beyond September 2023 shall be reported within the ES.

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 adder, grass snake, slow-worm, and common lizard within the search area. Table A8.3.3 provides a summary of reptile desk study records from NBIS, SBIS and EFC based on the unitary planning authority they fall within.

Table A8.3.3 - Summary of Reptile Records from NBIS, SBIS and EFC

Species	Total number of records per unitary authority area:				
	Norfolk	Suffolk	Essex	Thurrock	Total
Grass Snake	3	31	64	14	112
Adder	0	1	14	65	80
Common Lizard	0	0	309	34	343
Slow worm	2	21	91	19	133

Statutory and Non-statutory Designated Sites

4.2.2 The desk study identified statutory and non-statutory designated sites, situated within 2 km of the draft Order Limits, with confirmed presence of reptiles or that were situated close to reptile records and so the presence was considered likely.

4.2.3 Statutory designated sites within 2 km included SSSI and Special Areas of Conservation (SACs) and are detailed within Table A8.3.4.

Table A8.3.4 - Statutory Designated Sites, although not designated for reptiles, are likely to support reptile populations

Site Name and Distance and Direction to draft Order Limits	Summary
Section A	
Flordon Common SSSI / Norfolk Valley Fens SAC - 0.14 km South	Species-rich calcareous fen within the valley of the River Tas, is known to support grass snake, common lizard, and slow worm.
Shelfanger Meadows - SSSI 0.17 km North-west	Traditionally managed, herb-rich hay meadows located in a tributary valley of the River Waveney. The desk study did not identify the presence of reptiles within proximity to the site, but its habitats are considered suitable to support them.
Section B	
Wortham Ling SSSI - Within the draft Order Limits	Lowland dry heath and acid grassland communities and has good connectivity to records of adder, grass snake and slow worm.
Gypsy Camp Meadows, Thrandeston SSSI - 0.91 km East	Species-rich wet meadow, situated on poorly drained Suffolk boulder-clay. The citation does not note the presence of reptiles, but grass snake has been recorded within the site with records of adder close by.
Combs Wood SSSI - 1.41 km West	Ancient Woodland site. The citation does not note the presence of reptiles, but grass snake has been recorded on site with records of slow worm close by.
Barking Woods SSSI - 0.21 km South-east	Inter-related group of Ancient Woodlands. The citation does not note the presence of reptiles, but grass snake has been recorded on site with records of slow worm close by.
Middle Wood, Offton SSSI - Adjacent North	Ancient secondary woodland. The citation does not note the presence of reptiles, grass snake has been recorded close by and it is likely that the site supports them.
Section D	
Marks Tey Brickpit SSSI - 0.04 km South	Former clay extraction site, designated as a geological SSSI, that appears (from aerial photography) to support a mosaic of grassland, scrub and woodland and has good connectivity to records of slow worm.
Section F	
River Ter SSSI - 0.18 km South-west	A lowland stream described as flashy with high flood peaks. The citation does not note the presence of reptiles, but grass snake, common lizard and slow worm have been recorded close to this extensive corridor.

Site Name and Distance and Direction to draft Order Limits	Summary
Section G	
Thorndon Park SSSI - 1.26 km North	Semi-natural broadleaved woodland and ancient parkland. The citation does not note the presence of reptiles, but there are records of grass snake and slow worm on site and it is known to support adder and common lizard.
Langdon Ridge SSSI - 0.07 km East	A mosaic of semi-natural habitats, including grasslands, woodlands, wetlands, and scrub. The citation does not note the presence of reptiles, slow worm has been recorded on site with adder and grass snake recorded close by.
Section H	
Mucking Flats and Marshes SSSI - 1.66 km South-east	An extensive stretch of mudflats, saltmarsh, and grassy sea wall, on the eastern side of the River Thames. The site is largely unsuitable for reptiles and the citation does not mention them, but there are areas of suitable habitat and all four species have been recorded on site or close by. The site is likely to support reptiles. Natural England is considering an extension to the SSSI, and the North Thames Estuary and Marshes SSSI extension interest area supports a large area of terrestrial habitat suitable for reptiles. This extension area is a potential Key Reptile Site.

4.2.4 Non-statutory designated sites within 2 km of the draft Order Limits are listed within Annex B. They include County Wildlife Sites (CWS) and Local Wildlife Sites (LWS), and included the following:

- No sites in Norfolk that directly noted the presence of reptiles, but ten sites were identified as likely to support them based on the habitats recorded on site
- Six sites in Suffolk that directly noted the presence of reptiles, with thirty-three sites identified as likely to support them based on the habitats recorded on site
- Three sites in Essex that directly noted the presence of reptiles, with three sites identified as likely to support them based on the habitats recorded on site
- Five sites in Thurrock that directly noted the presence of reptiles, with thirteen sites identified as likely to support them based on the habitats recorded on site

Nationally Significant Infrastructure Projects (NSIPs)

4.2.5 Table A8.3.5 summarises the results from a search of ecological survey reports undertaken in support of NSIPs within 2 km of the draft Order Limits that note the presence of reptiles.

Table A8.3.5 - Summary of Reptile Records from other NSIPs

Project Name	Species			
	Grass Snake	Adder	Common Lizard	Slow worm
A12 – A120 Widening Scheme (National Highways, 2022a)	✓	X	✓	✓
A47 - A11 Thickthorn Junction (National Highways, 2021)	✓	✓	✓	X
Bramford to Twinstead overhead lines (National Grid, 2023)	✓	X	✓	✓
Hornsea Project Three offshore wind farm (Orsted, 2018).	X	X	✓	X
Longfield solar farm (Longfield Solar Farm Ltd, 2022)	X	X	X	X
Lower Thames Crossing [LTC] (National Highways, 2022b)	✓	✓	✓	✓
Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects (Wild Frontier Ecology, 2022)	✓	X	✓	✓
Thurrock flexible generation plant [TFGB] (RPS, 2019a)	✓	✓	✓	✓
Tilbury2 power station (Port of Tilbury London, 2017)	✓	✓	✓	✓

✓ - Recorded by the project within the study area.

X - Recorded as absent by the project within the study area.

Local Planning Authority Projects

4.2.6 Table A8.3.6 summarises the results from a search of ecological survey reports that note the presence of reptiles that were produced in support of local planning authority applications within 2 km of the draft Order Limits. This included a search of the planning portals as described in Table A8.3.6.

Table A8.3.6 - Summary of Reptile Records from Local Authority Projects in Norfolk

Project Name and Reference	Species			
	Grass Snake	Adder	Common Lizard	Slow worm
Suffolk				
DC/21/03954 - Land at Capel Grove Capel St Mary (Geosphere Environmental, 2021a)	✓	X	X	✓
DC/21/02671 - Land North of the A1071 (Boyer, 2021)	X	X	X	✓
DC/21/06882 - Agricultural Land North of Barking Road (Parker Planning Services, 2018)	X	X	X	X
B/16/00928 - Stoke by Nayland Golf Club (Environmental Business Solutions, 2013)	X	X	X	X
DC/20/01036 - Ashes Farm, Stow Market (RPS, 2019b)	✓	X	X	✓
DC/21/03287 - Land North West of Stowupland Road (Southern Ecological Solutions, 2021)	X	X	X	X
DC/17/05687 - Former Sugar Beet Factory Sproughton Road (BSG ecology, 2017)	X	X	X	X
DC/21/05110 - Land to The South of Thompson and Morgan (Hopkins Ecology, 2021)	X	X	X	X
DC/20/03246 - Land between the A1120 and the A14 (Avison Young, 2020)	X	X	X	✓
DC/19/04105 - Land West of Brantham Hill (FPCR Environment and Design Ltd, 2019)	✓	X	✓	X
Essex				
ESS/03/18/BTE - Rivenhall Airfield (Green Environmental Consultants, 2017)	✓	X	X	X
21/01525/OUT - Land East of A128 South of A127 Tilbury Road (Lichfields, 2021)	✓	✓	✓	✓
20/02064/OUT - Strategic Growth Site North of Woodhouse Lane (Practical Ecology Ltd, 2020)	✓	X	X	X
21/03579/OUT - Land South West of Coggeshall Road (Lloyd Bore Ltd, 2021)	X	X	X	✓
19/01025/FUL - Land off Station Road, Kelvedon (Ethos Environmental Planning, 2020)	X	X	✓	✓
20/00594/FUL - Land at Old Ipswich Road (Iceni Ecology Ltd, 2020)	✓	X	✓	X

Project Name and Reference	Species			
	Grass Snake	Adder	Common Lizard	Slow worm
18/00255/OUT - Land North West of Longlands Farm (Southern Ecological Solutions, 2018)	X	X	X	X
Thurrock				
19/01709/FUL - Orsett Quarry and Land at Walton's Hall Farm (Ingrebourne Valley Ltd, 2022)	✓	✓	✓	✓
21/01812/FUL - Land Adjacent and to the Rear of The George and Dragon (Ecology Solutions, 2021)	✓	✓	✓	✓
06/00664/TTGCND - Cory Waste Management Site Mucking (Cory Environmental Ltd, 2006)	✓	✓	✓	X
21/00508/OUT - Land Adjacent Bulgenen House and Wick Place Cottage (Brindle and Green, 2020)	X	X	✓	X

✓ - Recorded by the planning application within the study area.

X - Recorded as absent by the planning application within the study area.

Summary

4.2.7 Table A8.3.7 provides a summary of the perceived distribution of each reptile species across the study area based on the desk study.

Table A8.3.7 - Reptile Species Summary

Reptile	Summary
Adder	Adder distribution across the study area is much like its national distribution; rather patchy and localised, especially to the south where the species is more common. The species appears to be widely distributed across suitable habitats (see Edgar *et al*., 2010 for detailed species habitat requirements) within the Thurrock unitary authority area but largely absent outside of this area (to the north). There does appear to be populations to the immediate south of Norwich, around Diss and between Ipswich and Colchester.
Grass Snake	Grass snake appears to be common and widespread (albeit patchy) across the entire study area with greater abundance to the south (within Essex and Thurrock).
Common Lizard	Common lizard appears to be common and widespread within suitable habitats (see Edgar *et al*., 2010 for detailed species habitat requirements) in Essex and Thurrock, but largely absent from Suffolk and Norfolk. Outside of Essex and Thurrock, records are restricted to the area immediately south of Norwich and between Ipswich and Colchester

Reptile	Summary
Slow Worm	Slow worm appears to be common and widespread within suitable habitats (see Edgar *et al*., 2010 for detailed species habitat requirements) across most of the study area but with progressively fewer records heading north and very patchy and localised to the north of Stowmarket.

4.3 Survey Results

4.3.1 No surveys have been undertaken to date; these are planned for the appropriate survey period in 2024 as described in Section 3.2. Survey results will feed into the Habitat Suitability Assessment undertaken during the ES.

4.4 Incidental Records

4.4.1 During the 2023 ecology field surveys, there have been seven sightings of reptiles recorded. These comprise one sighting of common lizard, two sightings of slow worm, two sightings of grass snake and two sightings of adder. Full details of these records are presented in Annex F.

4.5 Habitat Suitability Assessment

4.5.1 Table A8.3.8 provides a summary of the results of the Habitat Suitability Assessment. Detailed results, including site evaluation, and the conclusion of the Key Reptile Site assessment are provided within Annex E. The locations of these areas/sites are illustrated on Figure A8.3.2: Reptile Survey Locations, in Annex A.

Table A8.3.8 - Habitat Suitability Assessment Summary

Site Name / Reference	Habitat Suitability	Likelihood of supporting:				Potential KRS	Survey required ?
		Grass Snake	Adder	Common Lizard	Slow worm		
Section A							
Semi natural habitat Dunston	Good	Low	Negligible	Confirmed	Confirmed	Yes	No[2]
Wood adjacent to Hickling Lane	Poor	Negligible	Negligible	Low	Confirmed	No	No[2]
Brickkiln Lane Solar Farm	Good	Negligible	Negligible	Low	Moderate	No	No[2]
Woodlands off Long Lane	Poor	Negligible	Negligible	Low	Moderate	No	No[2]
Upper Grove Wood	Poor	Negligible	Negligible	Low	Moderate	No	No[1]
Tributary of River Tas	Good	Moderate	Negligible	Moderate	Moderate	Yes	No[2]
Dismantled Wymondham and Forncett Branch Line	Good	Low	Negligible	Low	Low	Yes	No[2]
Stickfer Lane	Good	Low	Negligible	Low	Low	Yes	No[2]
Tabernacle Lane	Good	Low	Negligible	Low	Low	Yes	No[2]
Bunwell Wood	Good	Low	Negligible	Low	Low	Yes	No[1]
River Tas Valley	Exceptional	High	Negligible	Low	Low	Yes	No[2]
Carleton Rode Fen	Exceptional	High	Negligible	Low	Low	Yes	No[2]
Shelfanger	Exceptional	Low	Negligible	Low	Low	Yes	No[2]
Section B							

Site Name / Reference	Habitat Suitability	Likelihood of supporting:				Potential KRS	Survey required ?
		Grass Snake	Adder	Common Lizard	Slow worm		
Wortham Ling and Royden Fen	Exceptional	Moderate	Low	Moderate	Moderate	Yes	Yes
Goodrich Park Palgrave	Poor	Moderate	Negligible	Low	Low	Yes	No[2]
Rookery Farm	Good	Moderate	Negligible	Low	Low	Yes	No[1]
Seethings Wood	Good	Moderate	Negligible	Low	Low	Yes	No[2]
Big and Whitmore's Woods	Good	Low	Negligible	Low	Low	Yes	No[2]
Diss to Stowmarket Railway	Good	Low	Low	Low	Low	Yes	No[2]
Elm Pollard and Jessies Wood	Poor	Low	Negligible	Negligible	Low	No	No[2]
Old Farm	Poor	Negligible	Negligible	Low	Low	No	No[2]
A14 Soft Estate	Poor	Low	Negligible	Low	Low	Yes	No[1]
River Gipping Valley	Good	High	Negligible	Low	High	Yes	No[2]
Tributary of the River Gipping	Exceptional	High	Negligible	Low	High	Yes	No[2]
Middle Farm Lakes	Poor	Low	Negligible	Negligible	Negligible	No	No[2]
Middle Wood and Tollemache Hall Grove	Moderate	Moderate	Negligible	Negligible	Negligible	No	No[2]
Lovetofts Farm	Poor	Low	Negligible	Negligible	Negligible	No	No[2]
Round Wood	Good	Low	Negligible	Negligible	Negligible	No	No[1]
Section C							
Sproughton Park	Exceptional	High	Negligible	Confirmed	High	Yes	Yes
Spring Brook	Exceptional	High	Negligible	High	High	Yes	No[2]

Site Name / Reference	Habitat Suitability	Likelihood of supporting:				Potential KRS	Survey required ?
		Grass Snake	Adder	Common Lizard	Slow worm		
Dismantled Hadleigh Railway	Good	High	High	Low	High	Yes	No[2]
Dewlands Farm	Exceptional	High	Low	Low	High	Yes	No[1]
Higham Lodge	Good	Low	Negligible	Low	High	Yes	No[1]
Bush Hills	Poor	Low	Negligible	Negligible	Low	No	No[1]
River Stour Corridor	Exceptional	Low	Low	High	High	Yes	No[2]
Black Brook	Exceptional	High	Low	High	Moderate	Yes	No[2]
Woodland south of Orchard House	Poor	Negligible	Negligible	Low	Negligible	No	No[1]
Parney Heath	Good	Moderate	Low	High	Low	Yes	No[1]
Dedham Road	Poor	Negligible	Negligible	Low	Negligible	No	No[2]
Colchester to Manningtree Railway	Good	Moderate	Negligible	Low	Low	Yes	No[2]
Home Farm Reservoir	Good	High	Negligible	Low	Low	No	No[1]
Mayfields Farm	Poor	High	Negligible	Negligible	Negligible	No	No[2]
Badley Hall	Poor	High	Negligible	Negligible	Negligible	No	No[2]
Martell's Quarry	Good	Moderate	Low	Moderate	Moderate	No	No[1]
Coronation Cottages	Good	Moderate	Low	Moderate	Moderate	No	No[1]
Fen Lane	Poor	Low	Negligible	Negligible	Negligible	No	No[1]
Ardleigh Reservoir	Exceptional	High	Low	High	Low	Yes	No[2]

Section D

Site Name / Reference	Habitat Suitability	Likelihood of supporting:				Potential KRS	Survey required ?
		Grass Snake	Adder	Common Lizard	Slow worm		
Redhouse Farm	Good	Moderate	Negligible	Low	Low	Yes	No[1]
Otters Brook Cottage	Exceptional	Moderate	Low	Moderate	Moderate	Yes	No[1]
Old House Road	Poor	Negligible	Negligible	Low	Low	No	No[1]
Newhouse Farm	Poor	Negligible	Negligible	Low	Negligible	No	No[1]
Westwood Home Farm	Good	Moderate	Negligible	High	Moderate	Yes	No[2]
Grove Lodge	Good	High	Negligible	High	Moderate	Yes	No[2]
Highfield Farm	Good	High	Negligible	High	Moderate	Yes	No[2]
Colne Valley	Exceptional	Moderate	Negligible	Moderate	Moderate	Yes	Yes
Coney Byes Farm	Exceptional	High	Negligible	High	Moderate	Yes	No[2]
Marks Tey	Exceptional	High	Low	High	High	Yes	No[2]
Little Tey House Farm	Good	Low	Negligible	Low	Low	Yes	No[1]
Section E							
Coggleshall Hall Farm	Exceptional	High	Low	High	Moderate	Yes	No[2]
Monk's Farm	Poor	Low	Negligible	Low	Negligible	No	No[2]
Porters Farm	Exceptional	High	Negligible	High	High	Yes	No[2]
Cressing to Witham Railway	Good	Moderate	Low	High	High	Yes	No[2]
River Brain	Exceptional	High	Low	High	Moderate	Yes	No[2]
Fairstead Road	Poor	Negligible	Negligible	Low	Low	No	No[2]

Site Name / Reference	Habitat Suitability	Likelihood of supporting:				Potential KRS	Survey required ?
		Grass Snake	Adder	Common Lizard	Slow worm		
Section F							
River Ter	Exceptional	High	Low	High	Moderate	Yes	No[2]
River Chelmer	Good	High	Low	Moderate	High	Yes	No[1]
River Can and Former Brittons Hall Farm Landfill Site	Good	High	Negligible	High	High	Yes	No[2]
Chelmsford Compressor Station	Good	Moderate	Negligible	Moderate	Moderate	Yes	No[2]
Land off Roxwell Road	Good	Moderate	Negligible	Moderate	Moderate	Yes	No[2]
Willowmere Lake and Associated Habitat	Good	High	Negligible	Low	Low	Yes	No[2]
Writtlepark and Associated Woodlands	Exceptional	High	Moderate	High	High	Yes	No[2]
Section G							
Ingatestone to Chelmsford Railway	Good	Low	Low	High	High	Yes	No[2]
River Wid Corridor	Exceptional	Moderate	Low	Moderate	Moderate	Yes	Yes
Shenfield to Billericay Railway	Good	Low	Low	High	High	Yes	No[1]
Oakleigh Farm	Good	Moderate	Negligible	Moderate	Moderate	Yes	No[2]
Bladenwood Farm	Good	Moderate	Low	High	High	Yes	No[2]
Dunton Hills Family Golf Centre	Exceptional	High	Moderate	High	High	Yes	No[2]
West Horndon to Laindon Railway	Good	Moderate	Low	Moderate	Moderate	Yes	No[2]
Section H							

Site Name / Reference	Habitat Suitability	Likelihood of supporting:				Potential KRS	Survey required ?
		Grass Snake	Adder	Common Lizard	Slow worm		
Semi-natural Habitats between Orsett and Linford	Exceptional	High	High	High	High	Yes	Yes
Land off Low Street Lane	Good	Moderate	Moderate	Moderate	Moderate	Yes	No[1]
Low Street Pond	Exceptional	High	High	High	High	Yes	No[2]
Tilbury Town to East Tilbury Railway	Exceptional	High	High	High	High	Yes	No[1]
Tilbury Ditch Network	Poor	High	High	High	High	Yes	No[2]
Land surrounding Tilbury Power Station	Exceptional	High	High	High	High	Yes	No[3]

1. Direct effects to habitat avoided by construction methodology.
2. Displacement by habitat manipulation is the most appropriate mitigation solution regardless of survey result.
3. Existing baseline is sufficiently detailed to inform mitigation solution.

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Annex A: Figures

Figure A8.3.1: Reptile Desk study records, and Statutory and Non-Statutory Designated Sites within 2 km of the draft Order Limits

Pages

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Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Title:
Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits Overview

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-EGN-ZZ-DR-ZZ-00126
Revision: A

Print Date: 19-03-24 14:36:55

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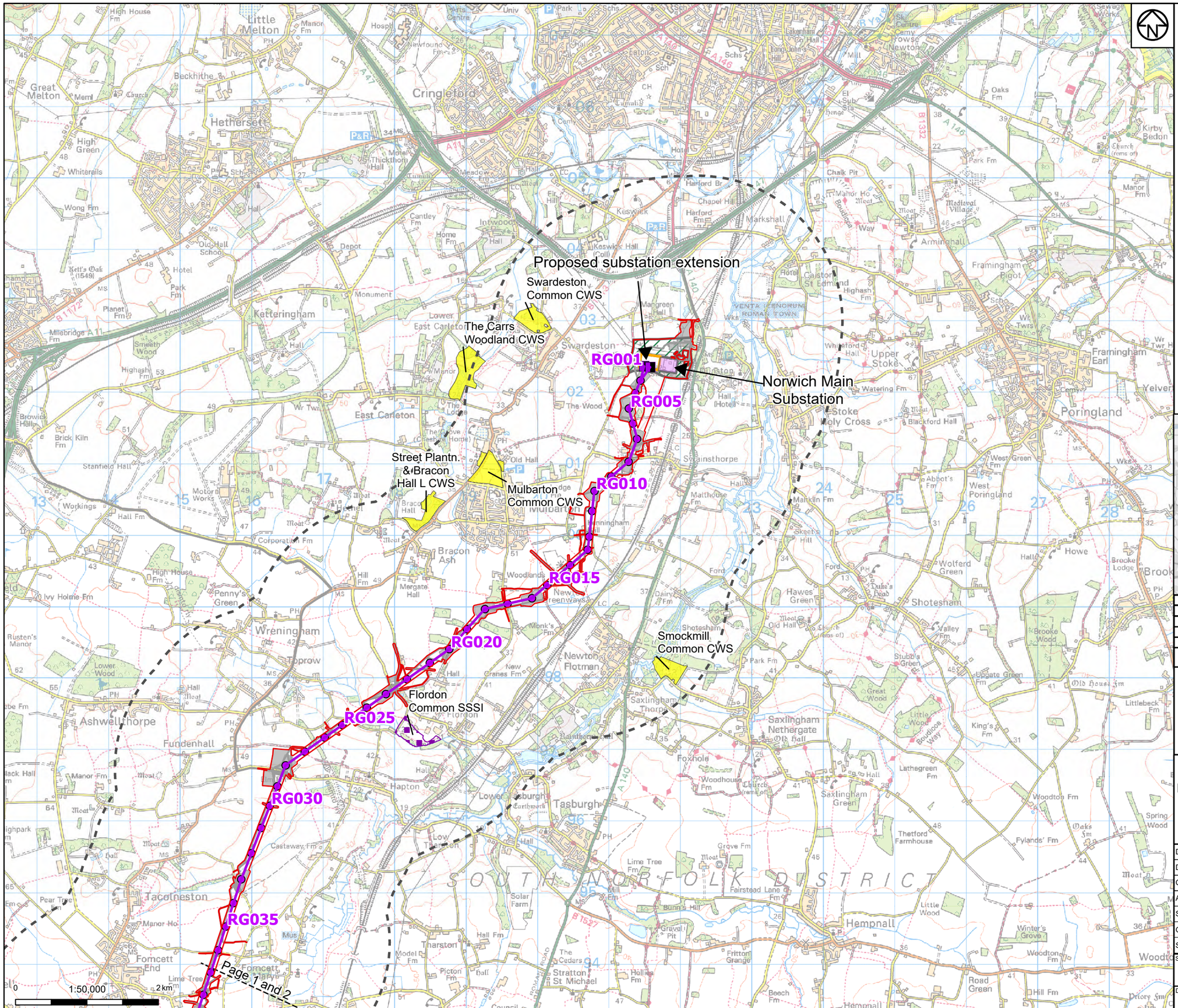

Print Date: 19-03-24 14:37:02

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed pylon position
Existing substation
Proposed substation extension
Proposed environmental areas

Discipline specific constraints

2km Study Area
Sites of Special Scientific Interest
County Wildlife Sites

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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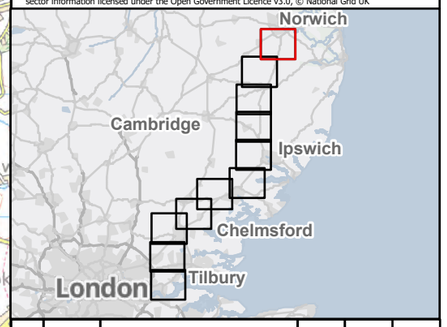

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:
Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits
Page 1 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126

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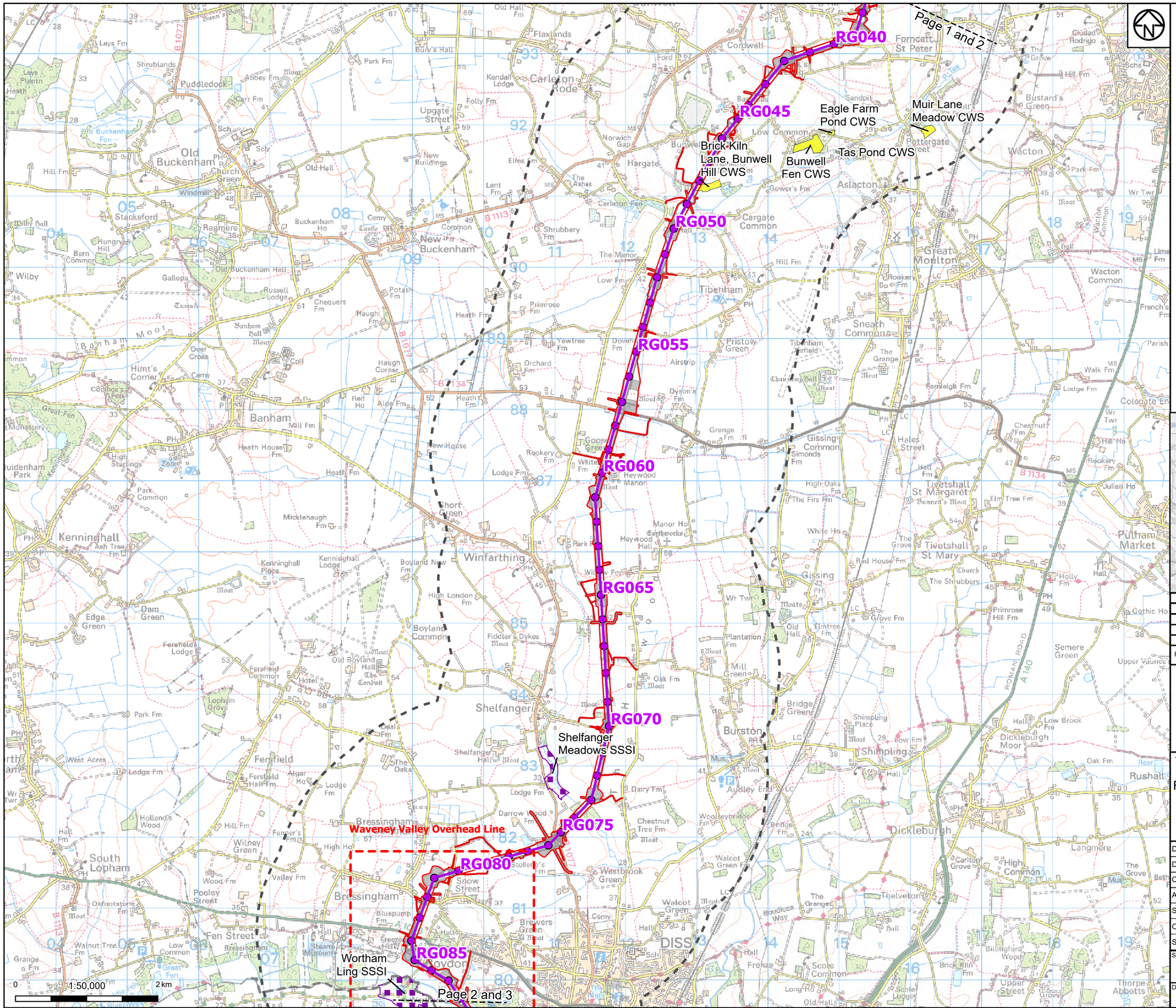

Print Date: 19-03-24 14:37:06

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Discipline specific constraints

2km Study Area

Sites of Special Scientific Interest

County Wildlife Sites

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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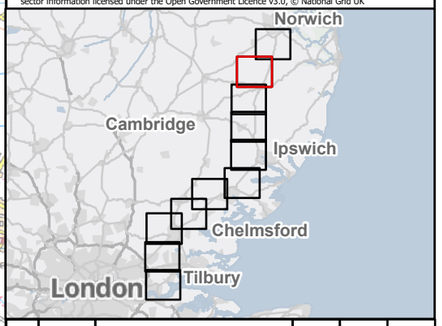

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title: Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits Page 2 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126

Revision: A

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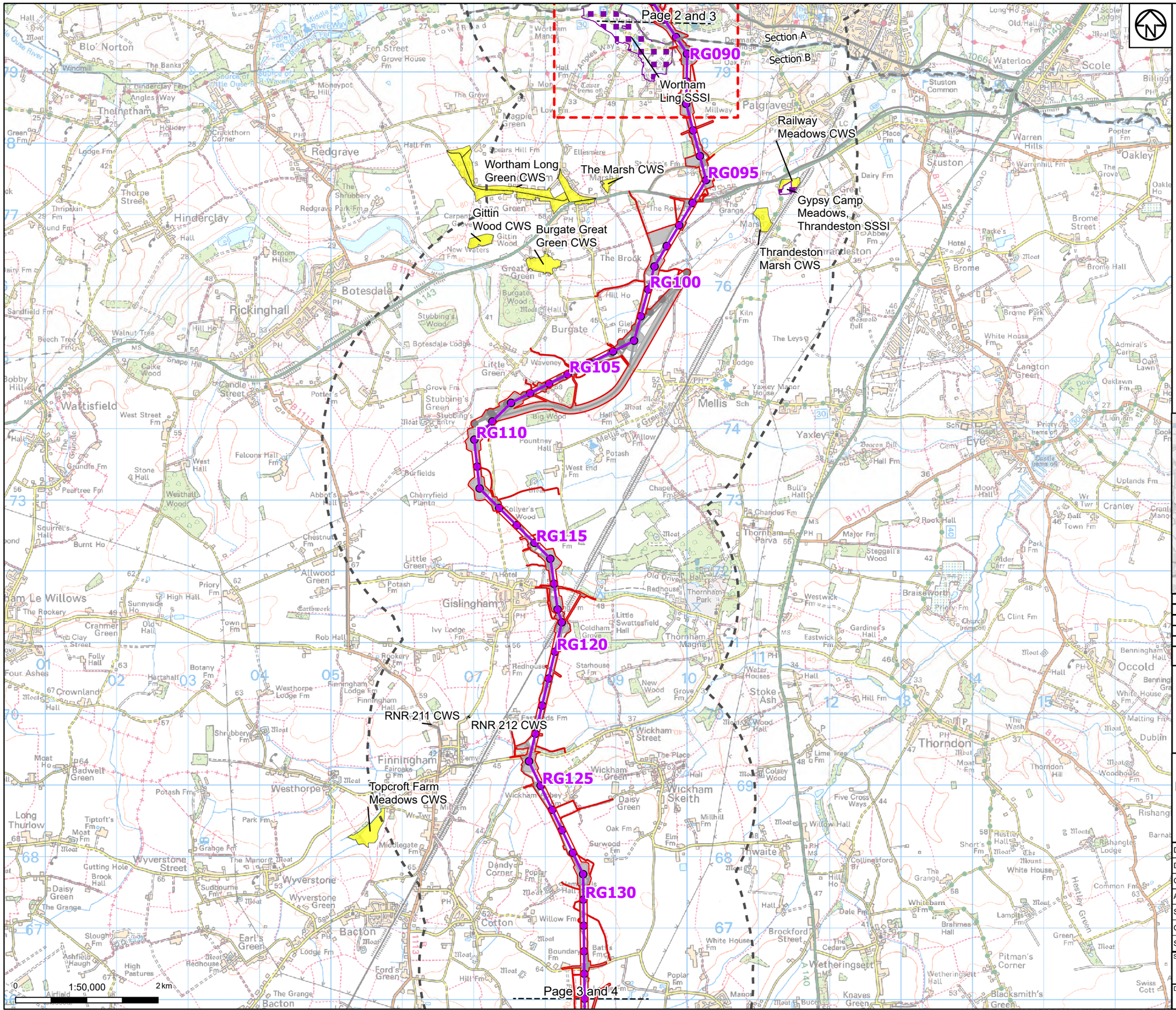

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Discipline specific constraints

2km Study Area

Sites of Special Scientific Interest

County Wildlife Sites

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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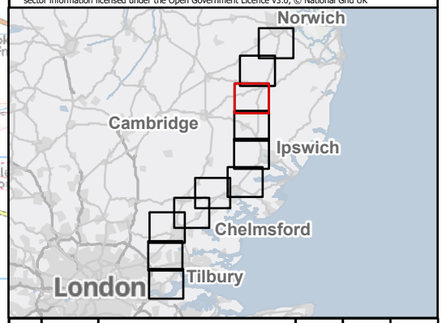

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits
Page 3 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:

Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126

Revision: A

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RG060
RG065
RG070
Shelfanger Meadows SSSI
RG075
Waveney Valley Alternative
RG080
RG85
Trenchless Crossing: Waveney Valley Alternative (north channel)
Wortham Ling SSSI
RG90
Section A
Section B
Trenchless Crossing: Waveney Valley Alternative (south channel)
Railway Meadows CWS
Wortham Long Green CWS
The Marsh CWS
RG095
Gypsy Camp Meadows, Thrandeston SSSI
Gittin Wood CWS
Burgate Great Green CWS
Thrandeston Marsh CWS
RG100
RG105
RG110
0 1:50,000 2 km
Print Date: 19-03-24 14:40:31

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed low duty gantry
Proposed pylon position
Proposed underground cable alignment
Proposed cable sealing end compound
Proposed environmental areas
Other temporary and permanent construction and operational works

Discipline specific constraints

2km Study Area
County Wildlife Sites
Sites of Special Scientific Interest

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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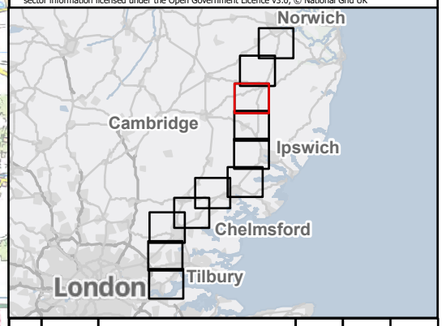

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title: Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits Page 3a of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126 Revision: A

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Page 3 and 4

RG135

RG140

RG145

RG150

RG155

RG160

RG165

RG170

RG175

RG180

Page 4 and 5

Guidepost Plantation CWS

Ash Plantation CWS

Gipping Little Wood CWS

RNR 169 CWS

Combs Wood SSSI

Suffolk Business Park Meadow - Formerly EEB CWS

Fen Alder Carr CWS

Creeting St Mary Meadows CWS

Creeting St Mary Churchyard CWS

Keyfield Groves CWS

Little Newton Wood CWS

Great Newton Wood CWS

Chalkeith Road Meadow CWS

Flordon Road Grassland CWS

Lion Inn Meadow & Chalk Pit CWS

Barking Woods SSSI

Forrold Meadow CWS

MID SUFFOLK DISTRICT

STOWMARKET

0 1:50,000 2 km

Print Date: 19-03-24 14:37:13

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Discipline specific constraints

2km Study Area

Sites of Special Scientific Interest

County Wildlife Sites

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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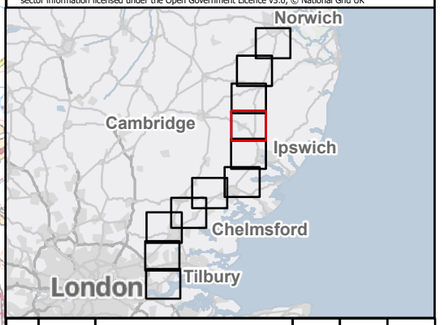

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title: Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits Page 4 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126 Revision: A

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Page 4 and 5

Barking Woods SSSI

RG185

Middle Wood, Offton SSSI

RG190

RG195

RG200

Bushey Ley Farm (Arable Fields) CWS

RG205

Miller's Wood CWS

Bramford Substation

RG210

Bullen Wood CWS

JC005

Proposed substation extension

JC010

River Gipping (Sections) CWS

Bramford Meadows CWS

Hazel Wood CWS

Chantry Park, Beechwater and Meadow CWS

Sproughton Park CWS

JC015

JC020

JC025

JC030

Hadleigh Railway Walk CWS

Tom`s / Broadoak Wood CWS

Long Wood CWS

Raydon Great Wood CWS

Squire`s Wood CWS

Water Farm Meadow CWS

Page 5 and 6

0 1:50,000 2 km

Print Date: 19-03-24 14:37:19

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed low duty gantry
Proposed pylon position
Proposed underground cable alignment
Existing substation
Proposed substation extension
Proposed cable sealing end compound
Proposed environmental areas

Discipline specific constraints

2km Study Area
Grass snake data
Common lizard data
Sites of Special Scientific Interest
County Wildlife Sites

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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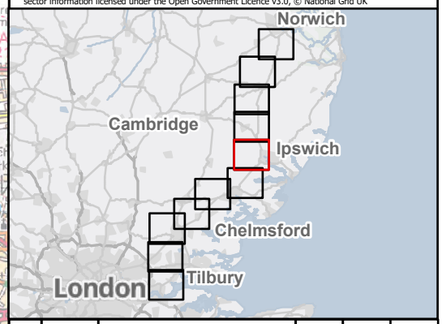

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title: Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits
Page 5 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126

Revision: A

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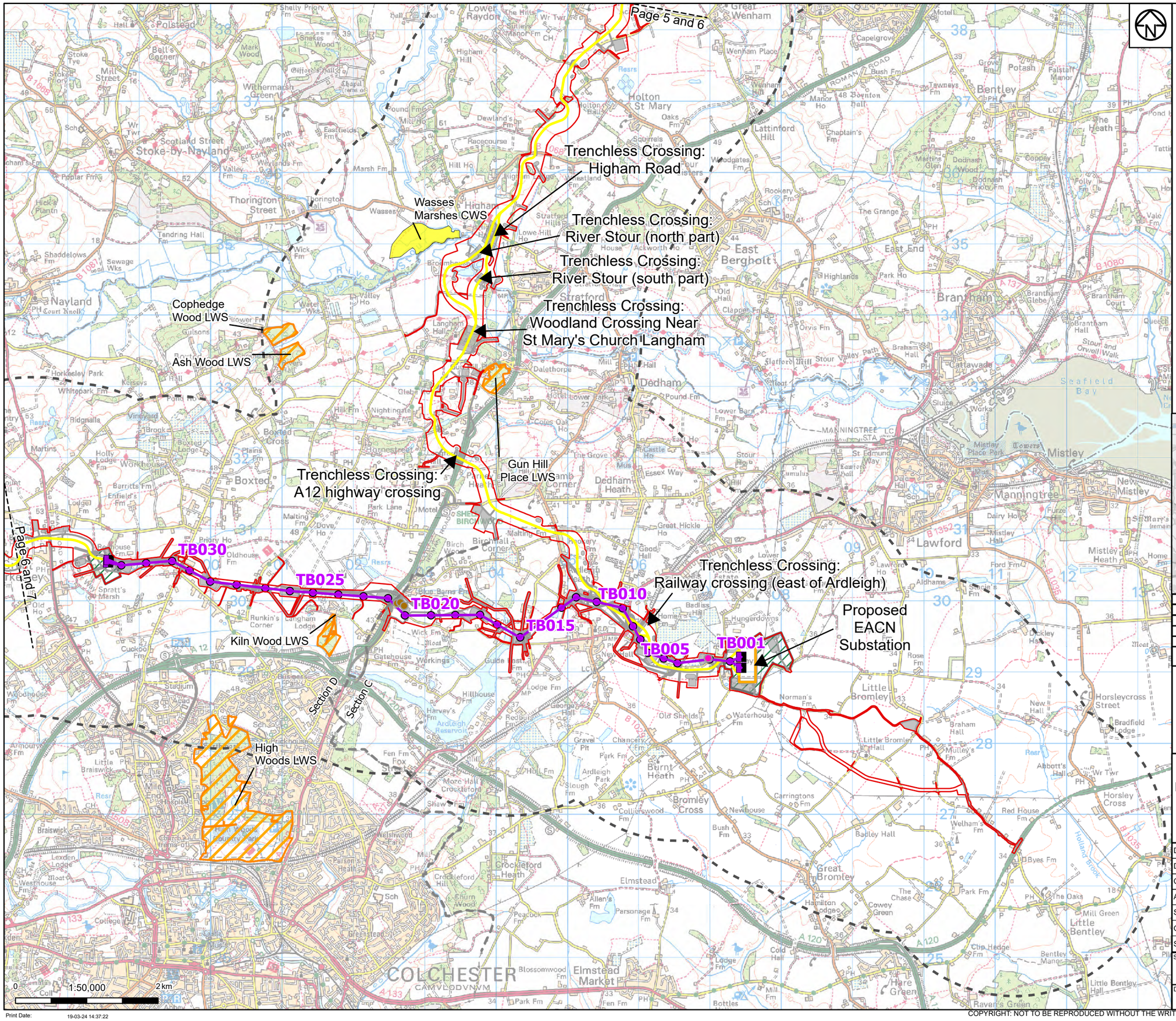

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed pylon position
Proposed underground cable alignment
Proposed EACN substation
Proposed cable sealing end compound
Proposed environmental areas

Discipline specific constraints

2km Study Area
Grass snake data
Common lizard data
Local Wildlife Sites
County Wildlife Sites

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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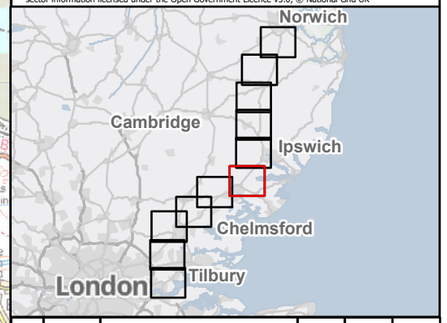

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title: Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits Page 6 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126

Revision: A

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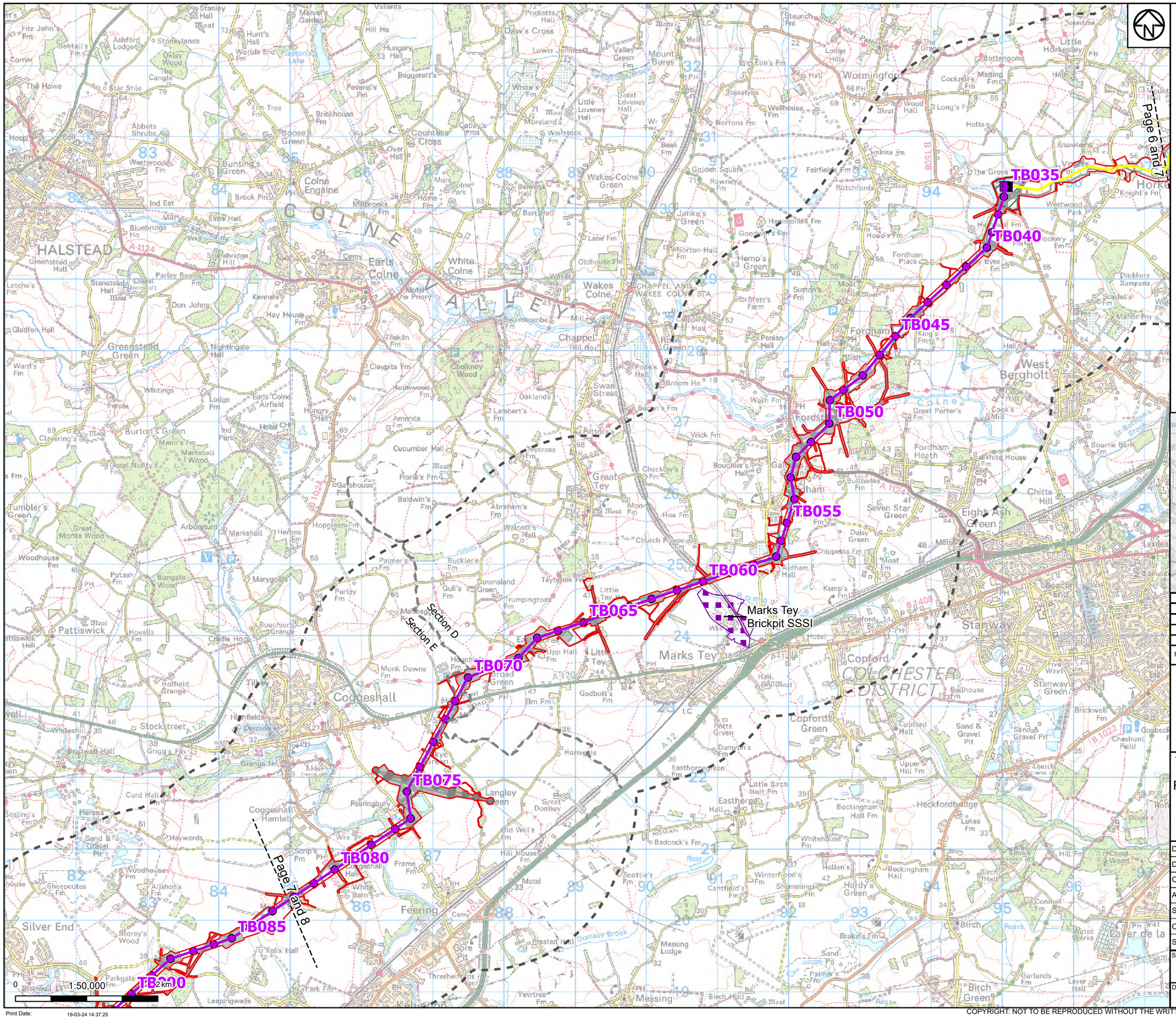

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed full line tension gantry

Proposed pylon position

Proposed underground cable alignment

Proposed cable sealing end compound

Proposed environmental areas

Discipline specific constraints

2km Study Area

Sites of Special Scientific Interest

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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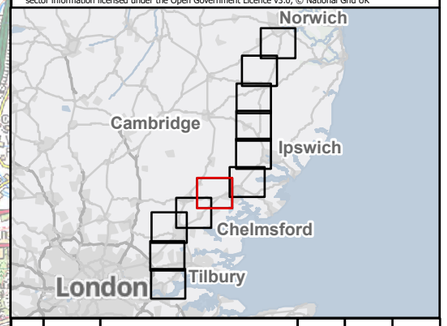

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Title:
Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits
Page 7 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126

Revision: A

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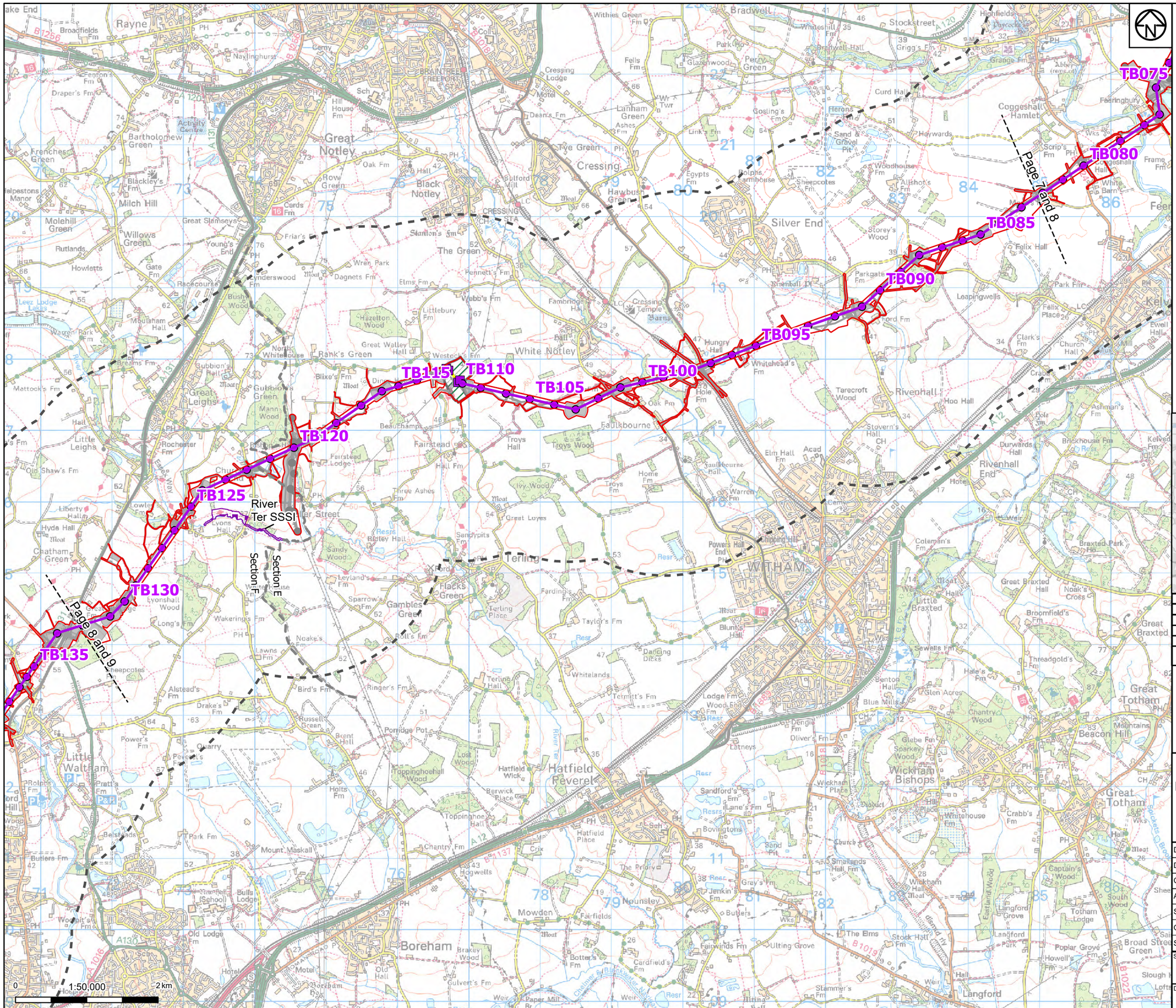

Print Date: 19-03-24 14:37:29

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed low duty gantry
Proposed pylon position
Proposed underground cable alignment
Proposed cable sealing end compound
Proposed environmental areas

Discipline specific constraints

2km Study Area
Sites of Special Scientific Interest

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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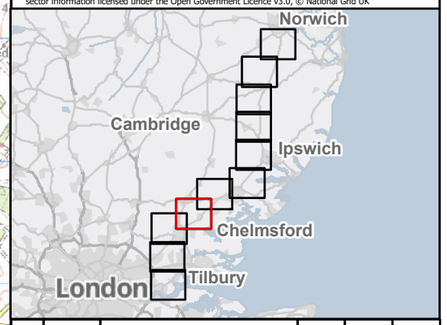

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title: Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits Page 8 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126

Revision: A

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TB170
TB175
TB180
River Ter SSSI
Section E
Section F
Page 8 and 9
Page 9 and 10
Section F
Section G
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1:50,000
2 km

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed pylon position

Discipline specific constraints

2km Study Area
Sites of Special Scientific Interest

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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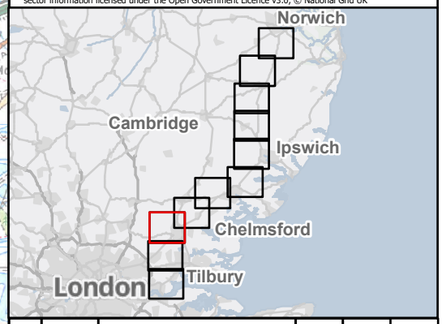

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT:
Norwich to Tilbury

Title:
Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits
Page 9 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126
Revision: A

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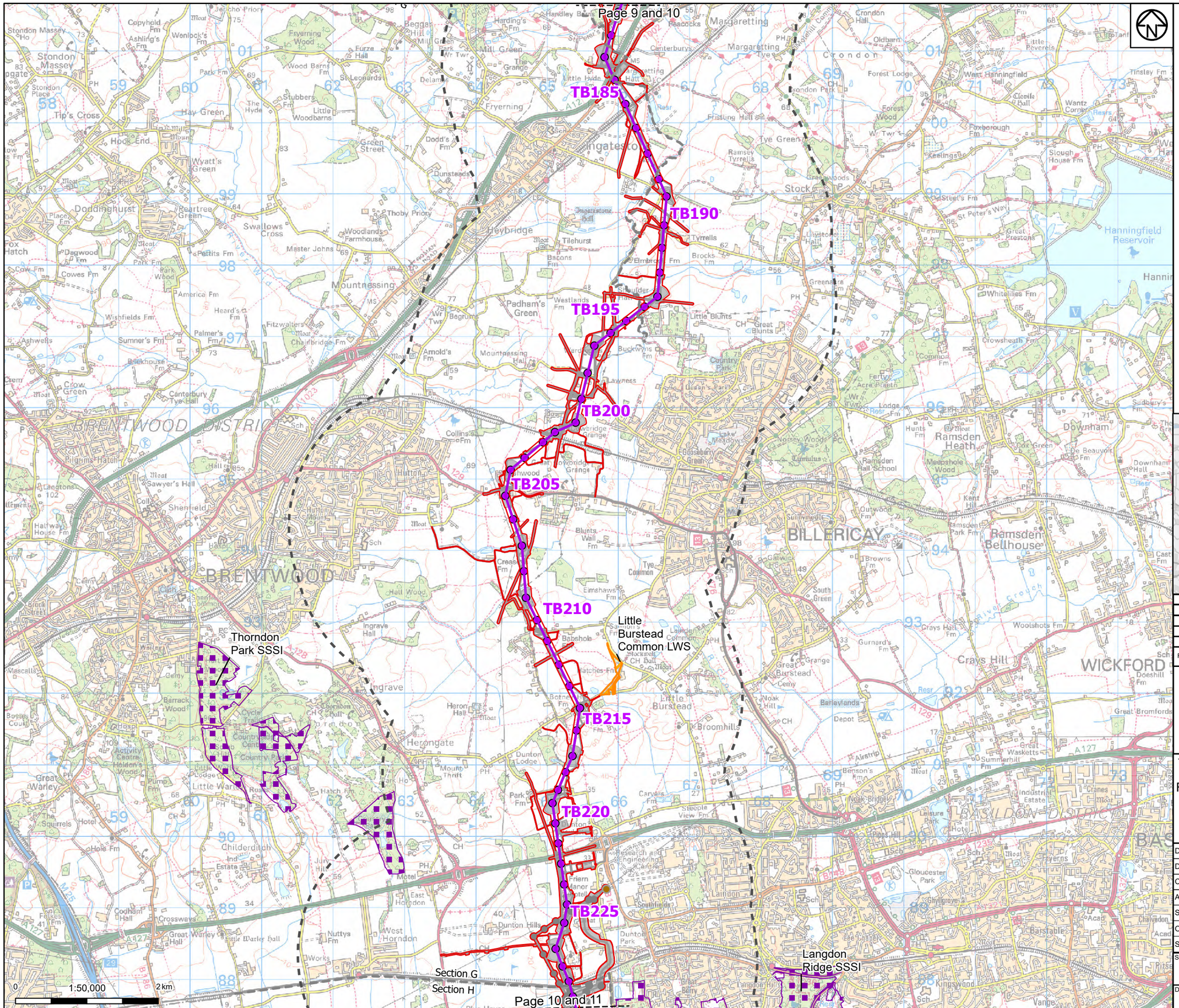

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Discipline specific constraints

2km Study Area

Common lizard data

Local Wildlife Sites

Sites of Special Scientific Interest

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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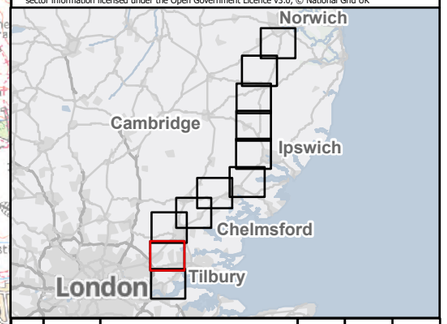

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits Page 10 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EGN-ZZ-DR-ZZ-00126

Revision: A

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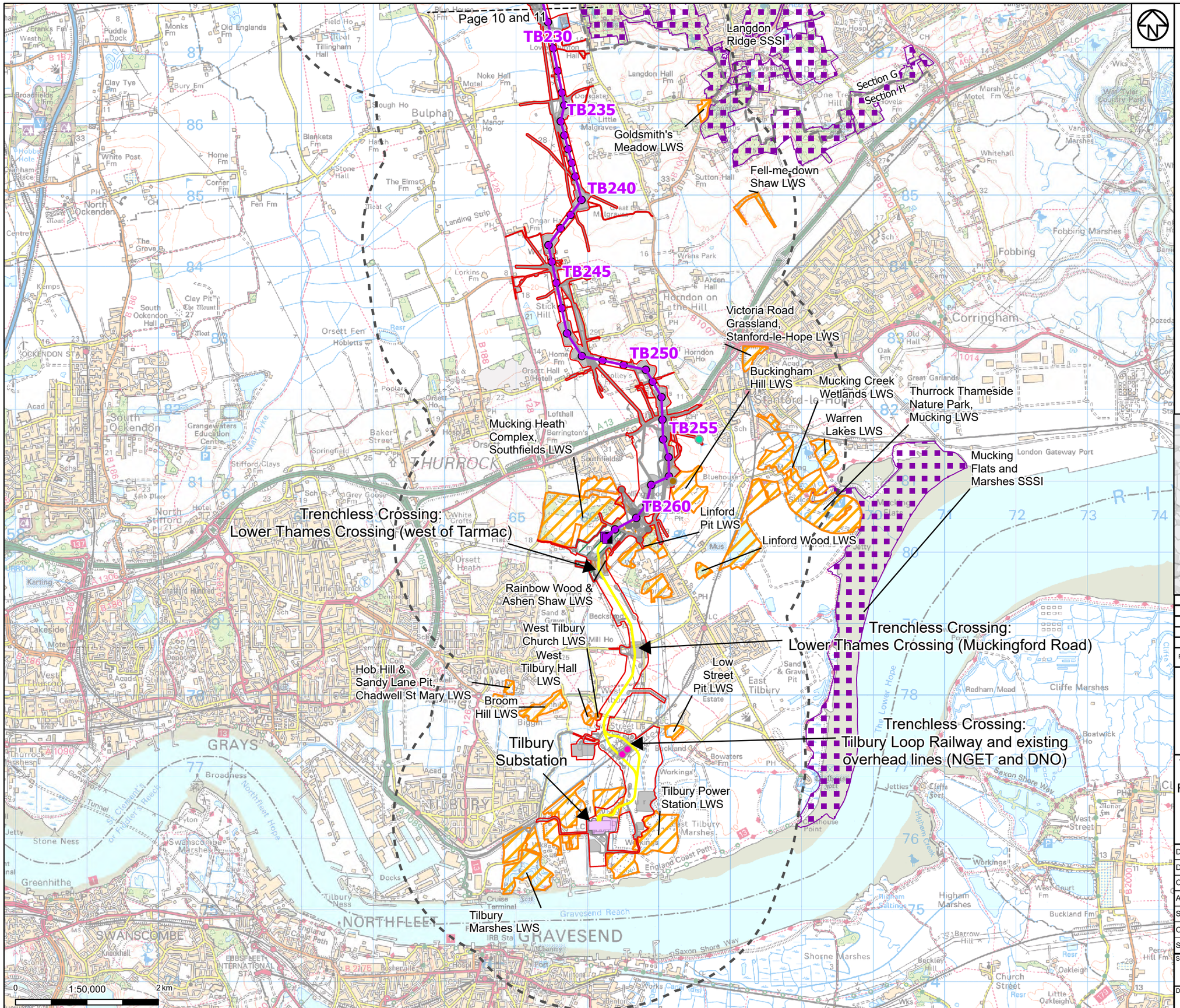

Print Date: 19-03-24 14:37:39

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Existing substation
- Proposed cable sealing end compound
- Proposed environmental areas

Discipline specific constraints

- 2km Study Area
- Adder data
- Grass snake data
- Common lizard data
- Slow worm data
- Local Wildlife Sites
- Sites of Special Scientific Interest

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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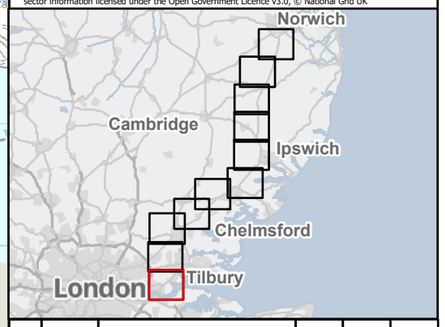

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title: Figure A.8.3.1 - Ecology and Biodiversity - Reptiles Desk Study Records, and Statutory and Non-Statutory Designated Sites Within 2km of the Draft Order Limits Page 11 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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Figure A8.3.2: Reptile Survey Locations

Pages

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Peterborough
Norwich
Great Yarmouth
Gorleston-on-Sea
Lowestoft
Beccles
Bungay
Loddon
Wymondham
Hingham
Watton
Attleborough
Swaffham
Downham Market
Wisbech
Crowland
Deeping
March
Ramsey
Chatteris
A1(M)
Ely
Brandon
Thetford
Harleston
Diss
Halesworth
Southwold
Eye
Mildenhall
Soham
Huntingdon
St Ives
Bury St Edmunds
Newmarket
St Neots
Cambridge
Framlingham
Saxmundham
Stowmarket
Needham Market
Wickham Market
Aldeburgh
Woodbridge
Sandy
Potton
Biggleswade
Haverhill
Clare
Acton
Sudbury
Ipswich
Hadleigh
Royston
Saffron Walden
Stotfold
Baldock
Letchworth
Hitchin
Buntingford
Thaxted
Halstead
Manningtree
Felixstowe
Harwich
Stevenage
Stansted Mountfitchet
Bishop's Stortford
Great Dunmow
Braintree
Coggeshall
Colchester
Wivenhoe
Walton-on-the-Naze
Frinton-on-Sea
Brightlingsea
Clacton-on-Sea
West Mersea
Witham
Ware
Sawbridgeworth
Harlow
Hatfield
Hoddesdon
Albans
Chelmsford
Maldon
Chipping Ongar
Cheshunt
Potters Bar
Waltham Abbey
Radlett
Borehamwood
Loughton
M25
Chigwell
Brentwood
Wickford
Rayleigh
Rochford
Basildon
Southminster
South Woodham Ferrers
Burnham-on-Crouch
Southend-on-Sea
Canvey Island
London City Airport
London
Heathrow Airport
Grays
Tilbury
Northfleet
Gravesend
Sheerness
Minster
Margate

0 1:500,000 20 km

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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations Overview

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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-00172

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Proposed substation extension

Norwich Main Substation

RG001

Semi natural habitat Dunston

RG005

Wood adjacent to Hickling Lane

RG010

Brickkiln Lane Solar Farm

RG015

Upper Grove Wood

Woodlands off Long Lane

RG020

RG025

Tributary of River Tas

Dismantled Wymondham & Forncett Branch Line

RG030

Stickfer Lane

RG035

Page 1 and 2

0 1:50,000 2 km

Print Date: 19-03-24 14:55:40

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed full line tension gantry

Proposed pylon position

Existing substation

Proposed substation extension

Proposed environmental areas

Other temporary and permanent construction and operational works

Discipline specific constraints

Habitat Suitability Assessment Locations

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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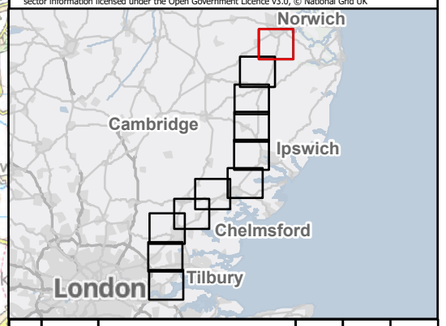

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A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
Page 1 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	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-00172

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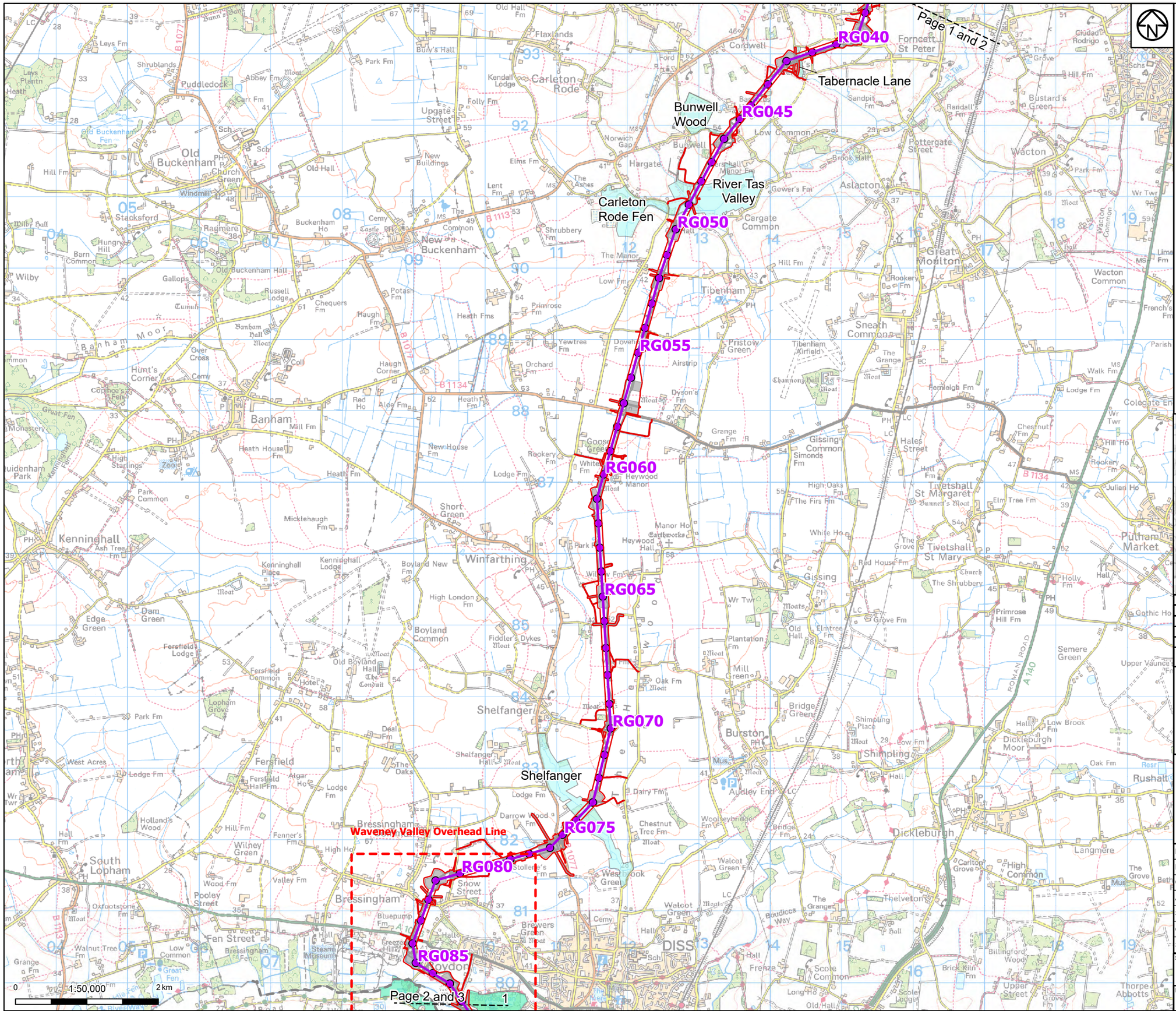

Print Date: 19-03-24 14:55:44

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Discipline specific constraints

Habitat Suitability Assessment Locations

Reptile Survey Locations

1

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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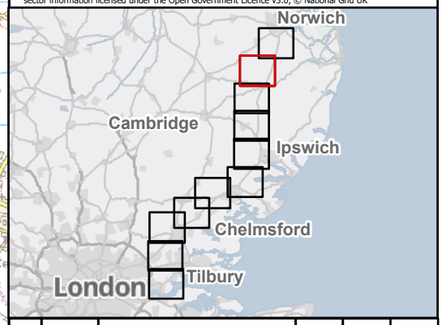

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A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
Page 2 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	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-00172

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Page 2 and 3

Section A

Section B

RG090

RG095

Goodrich Park Palgrave

Rookery Farm

RG100

Seethings Wood

RG105

RG110

Big and Whitmore's Woods

RG115

Diss to Stowmarket Railway

RG120

Elm Pollard and Jessies Wood

RG125

RG130

Page 3 and 4

0 1:50,000 2 km

Print Date: 19-03-24 14:55:47

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Discipline specific constraints

Habitat Suitability Assessment Locations

Reptile Survey Locations

1

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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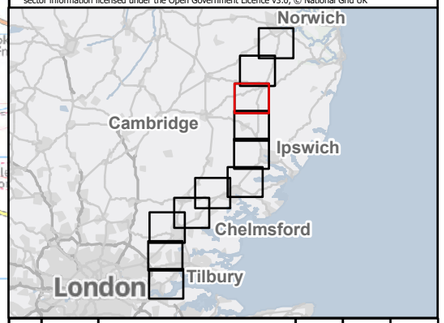

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
Page 3 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	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-00172

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RG060
RG065
RG070
RG075
Waveney Valley Alternative
RG080
RG85
RG90
RG095
RG100
RG105
RG110
Shelfanger
Trenchless Crossing:
Waveney Valley Alternative
(north channel)
Trenchless Crossing:
Waveney Valley Alternative
(south channel)
1
Section A
Section B
Goodrich Park
Palgrave
Rookery
Farm
Seethings Wood
Big and
Whitmore's
Woods
0
1:50,000
2 km
Print Date:
19-03-24 14:44:36

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed low duty gantry
Proposed lattice pylons
Proposed underground cable alignment
Proposed cable sealing end compound
Proposed environmental areas
Other temporary and permanent construction and operational works

Discipline specific constraints

Reptile Survey Locations

1
Habitat Suitability Assessment Locations

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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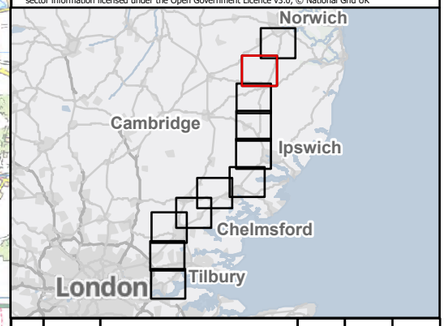

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
Page 3a of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	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-00172
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Page 3 and 4

RG135

Old Farm

RG140

RG145

RG150

RG155

RG160

A14 Soft Estate

River Gipping Valley

RG165

Tributary of the River Gipping

RG170

RG175

RG180

Page 4 and 5

MID SUFFOLK DISTRICT

STOWMARKET

Mendlesham

Haughley

Wetherden

Old Newton

Stowupland

Onehouse

Harleston

Saxham Street

Wetherup Street

Mickfield

Needham Market

Coddenham

Creeting St Peter

Creeting St Mary

Darmsden

Crowfield

Stonham Aspal

Little Stonham

Forward Green

Gosbeck

Hemingstone

Battisford

Combs

Ringshall

Norwich

Cambridge

Ipswich

Chelmsford

London

Tilbury

0 1:50,000 2 km

Print Date: 19-03-24 14:55:50

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Habitat Suitability Assessment Locations

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
Page 4 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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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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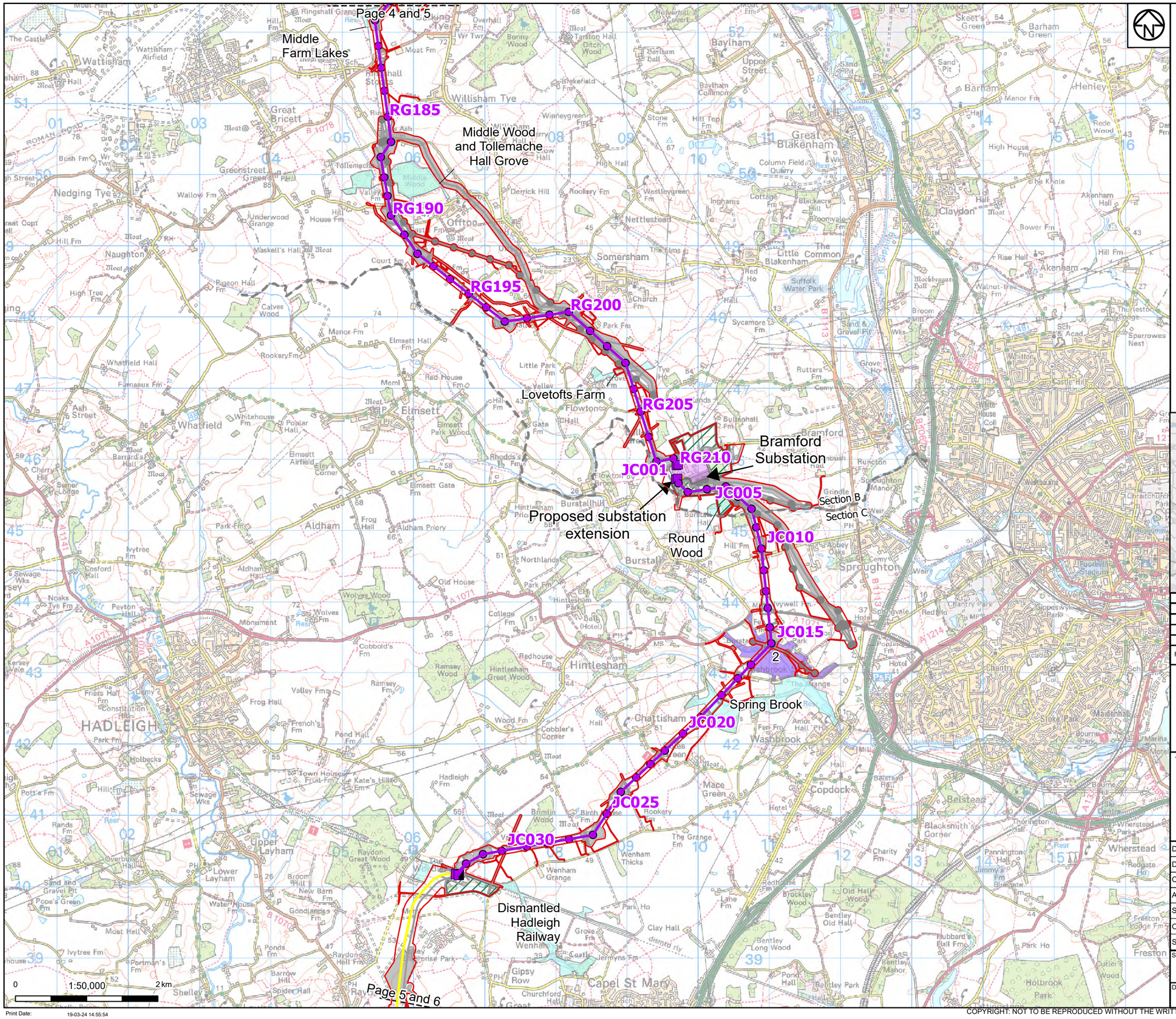

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Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed full line tension gantry

Proposed low duty gantry

Proposed pylon position

Proposed underground cable alignment

Existing substation

Proposed substation extension

Proposed cable sealing end compound

Proposed environmental areas

Other temporary and permanent construction and operational works

Discipline specific constraints

Habitat Suitability Assessment Locations

Reptile Survey Locations

2

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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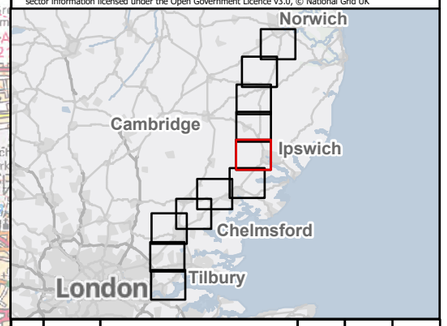

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
Page 5 of 11

Designed	H. Smith	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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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-00172

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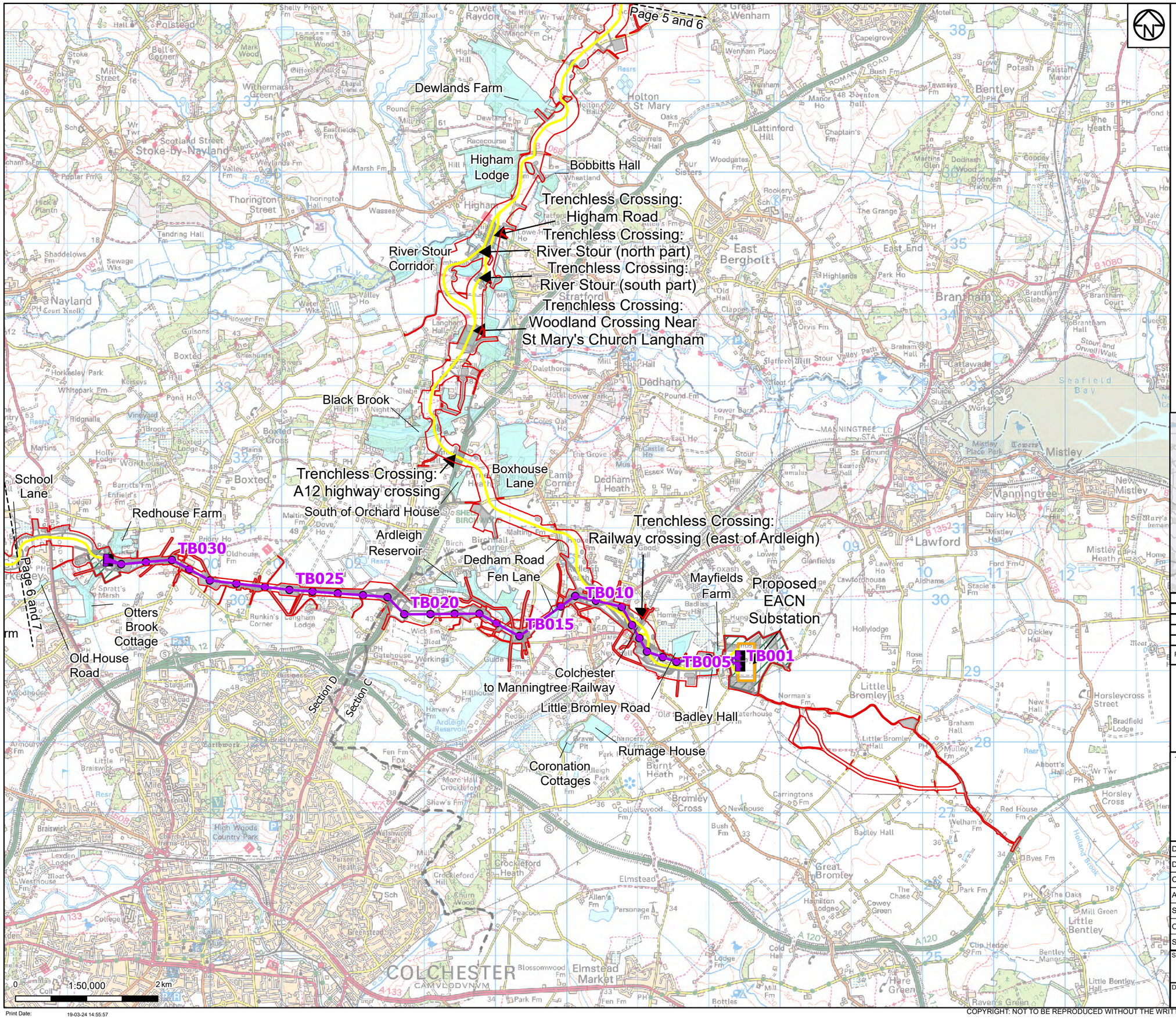

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed pylon position
Proposed underground cable alignment
Proposed EACN substation
Proposed cable sealing end compound
Proposed environmental areas
Other temporary and permanent construction and operational works

Discipline specific constraints

Habitat Suitability Assessment Locations

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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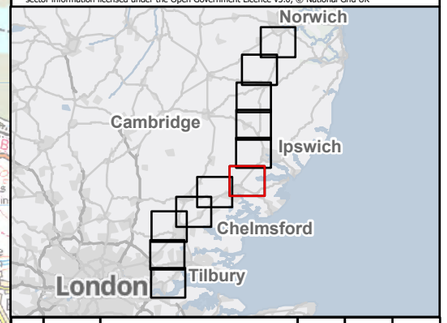

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
Page 6 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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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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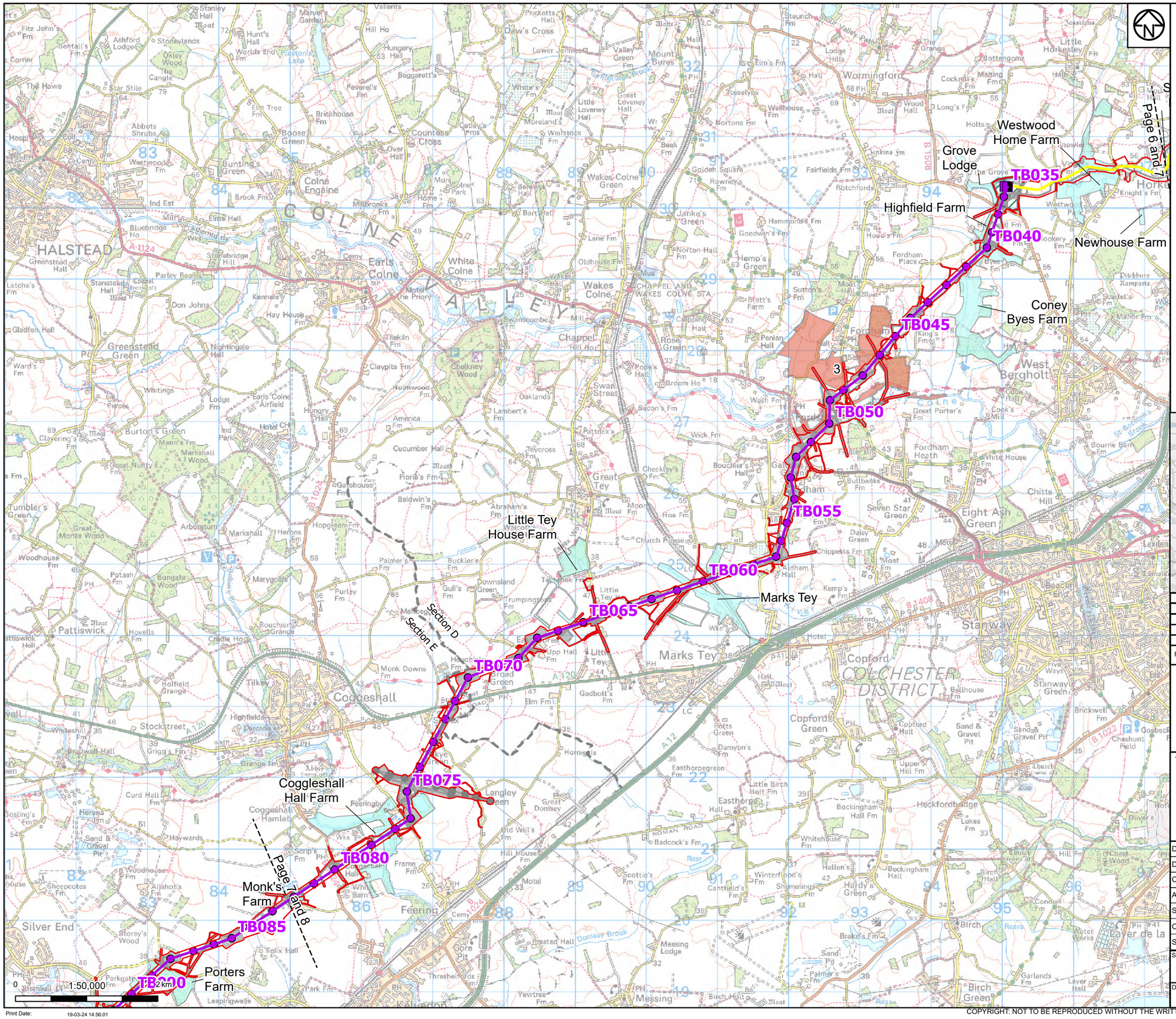

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed full line tension gantry

Proposed pylon position

Proposed underground cable alignment

Proposed cable sealing end compound

Proposed environmental areas

Other temporary and permanent construction and operational works

Discipline specific constraints

Habitat Suitability Assessment Locations

Reptile Survey Locations

3

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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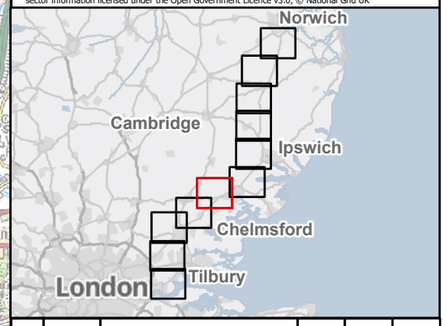

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PROJECT:
Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
Page 7 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	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-00172

Revision: A

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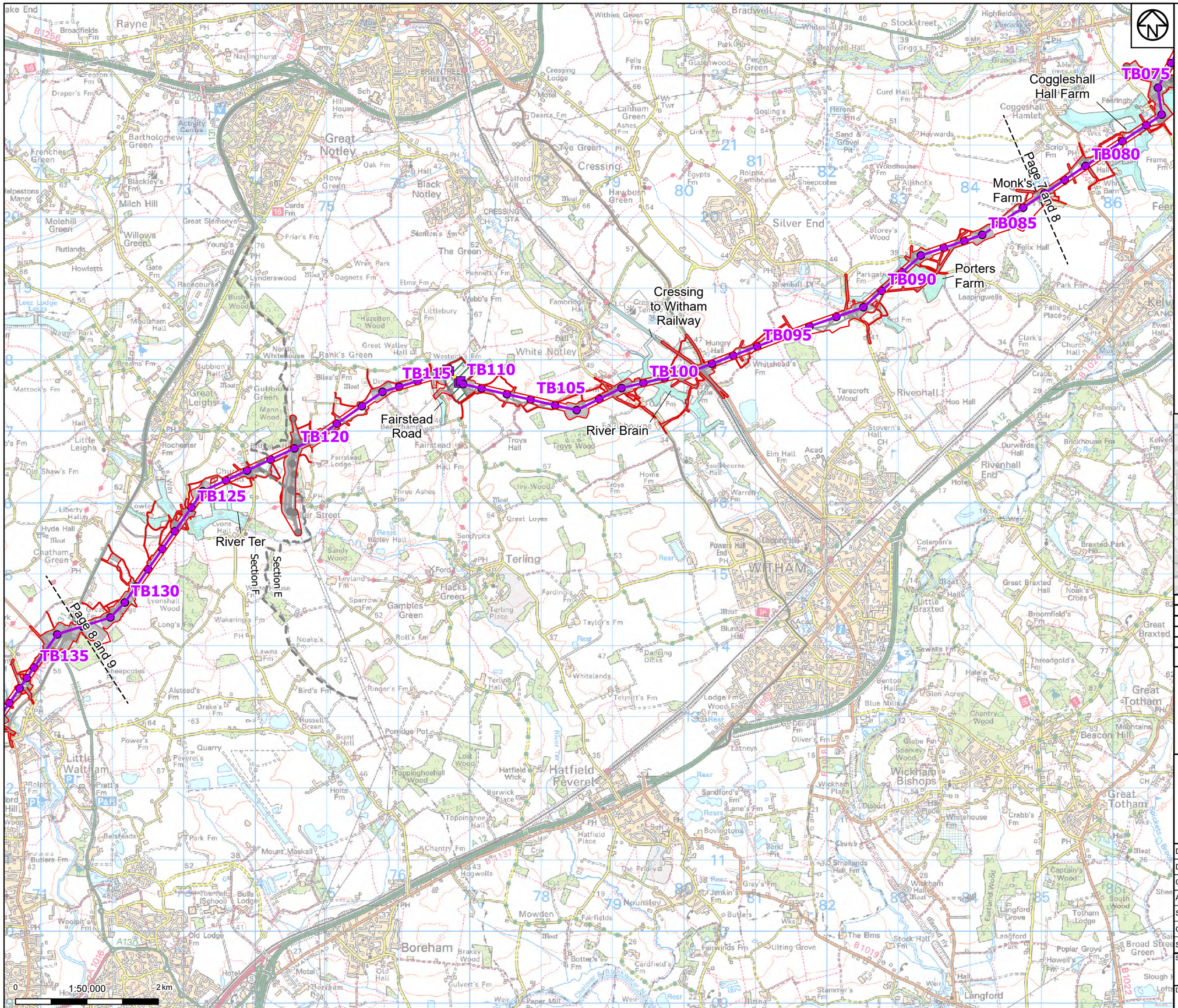

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Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed low duty gantry
Proposed pylon position
Proposed underground cable alignment
Proposed cable sealing end compound
Proposed environmental areas
Other temporary and permanent construction and operational works

Discipline specific constraints

Habitat Suitability Assessment Locations

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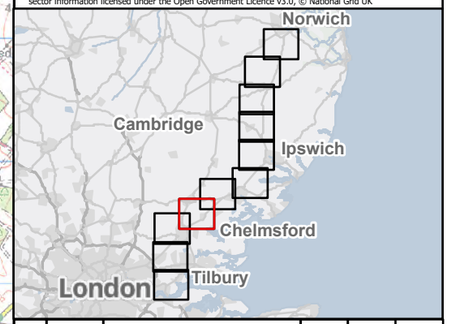

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations Page 8 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
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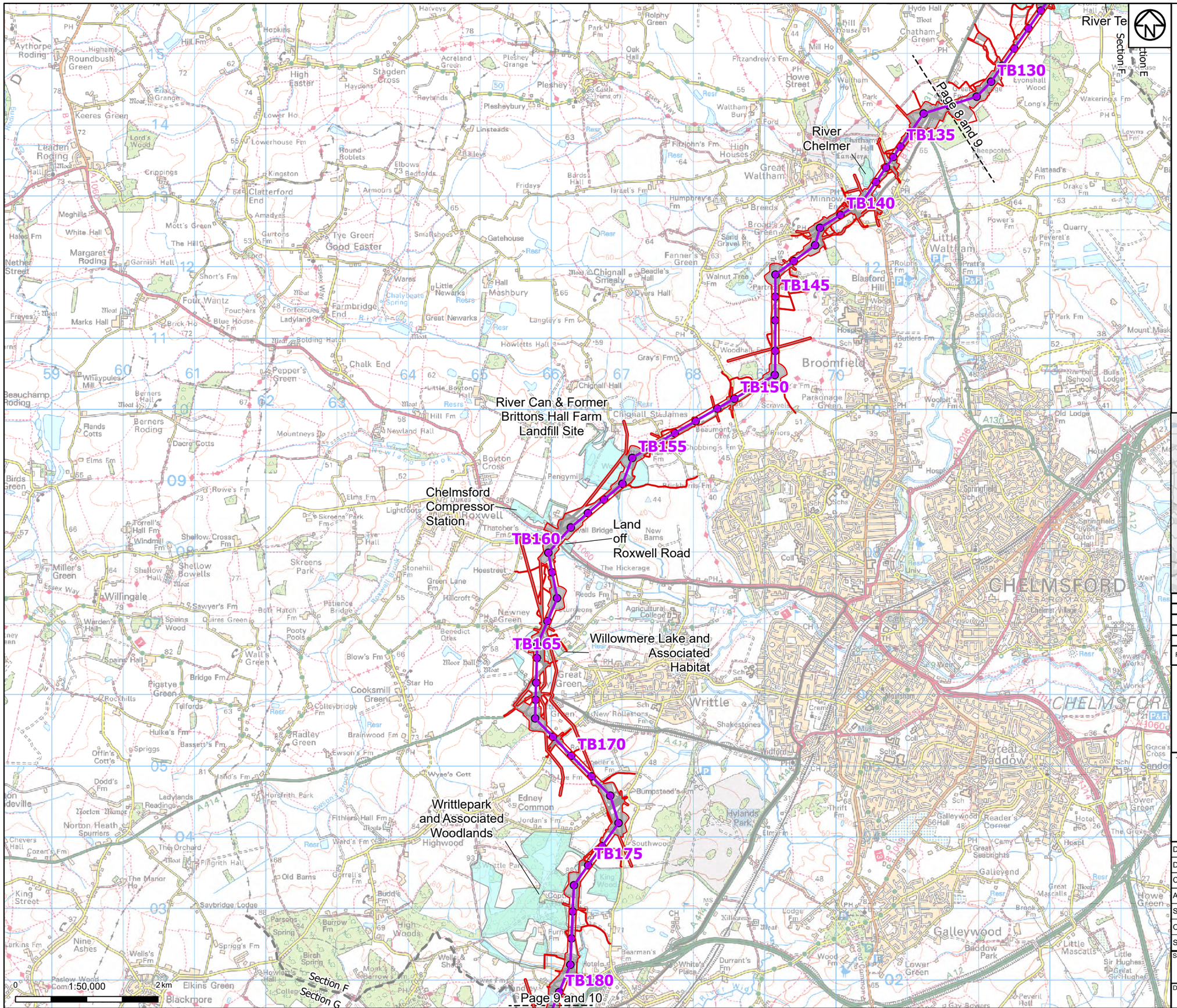

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Discipline specific constraints

Habitat Suitability Assessment Locations

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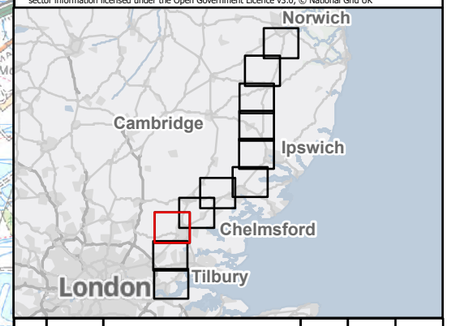

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PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
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Designed	H. Smith	Date	April 2024
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Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10059280-ARC-EBD-ZZ-DR-ZZ-00172

Revision: A

Print Date: 19-03-24 14:56:07

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Page 9 and 10

Ingatestone to Chelmsford Railway

TB185

TB190

TB195

TB200

4

Shenfield to Billericay Railway

Oakleigh Farm

TB205

Bladenwood Farm

TB210

TB215

TB220

Dunton Hills Family Golf Centre

TB225

West Horndon to Laindon Railway

Section G

Section H

Page 10 and 11

0 1:50,000 2 km

Print Date: 19-03-24 14:56:11

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Habitat Suitability Assessment Locations

Reptile Survey Locations

- 4

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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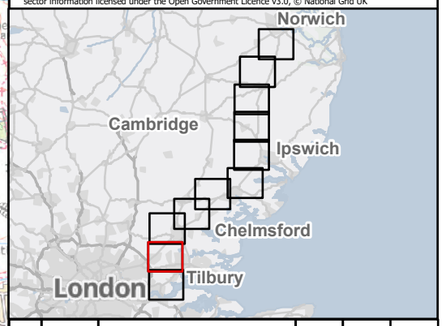

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
Page 10 of 11

Designed	H. Smith	Date	April 2024
Drawn	S. Bhandarkar	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	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-00172

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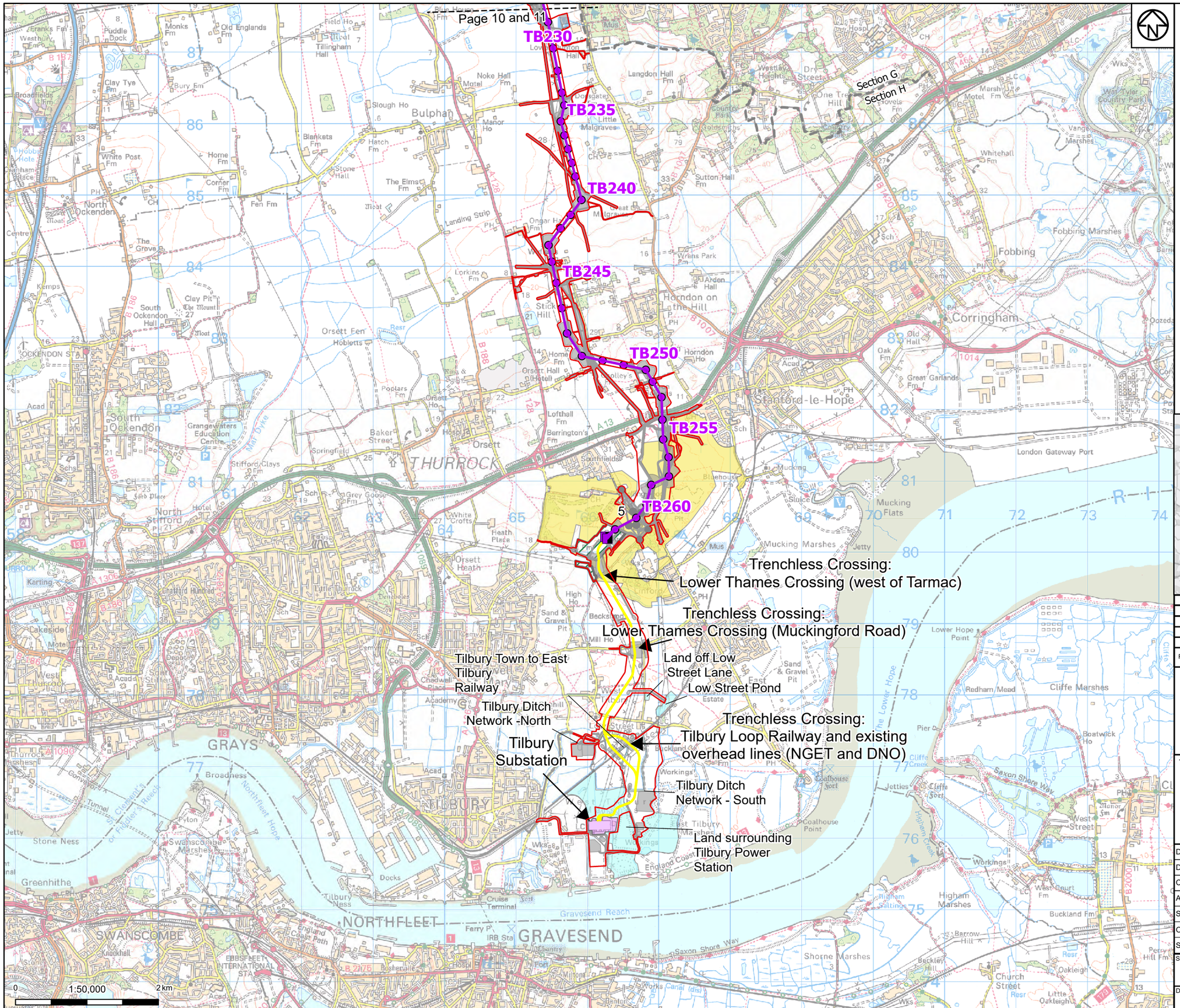

Draft order limits

Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Existing substation
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

Habitat Suitability Assessment Locations

Reptile Survey Locations

5

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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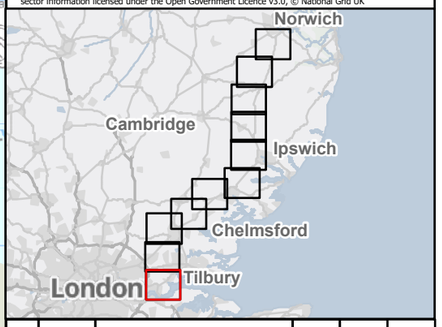

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	SB	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Title:

Figure A.8.3.2 - Ecology and Biodiversity - Reptile Survey Locations
Page 11 of 11

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Annex B: Reptile Non-statutory Designated Sites

Site	Distance and Direction to draft Order Limits	Summary
Section A		
Swardeston Common CWS	1.16 km West	Reptiles not noted within citation, but desk study highlighted the presence of common lizard (large population) and grass snake in proximity, so the CWS is considered likely to support them.
The Carrs Woodland CWS	1.85 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of common lizard (large population) and grass snake in proximity, so the CWS is considered likely to support them.
Mulbarton Common CWS	0.964 km North	Reptiles not noted within citation, but desk study highlighted the presence of slow worm in proximity, so the CWS is considered likely to support them.
Street Plantation and Bracon Hall Lake CWS	1.32 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of slow worm in proximity, so the CWS is considered likely to support them.
Smockmill Common CWS	1.31 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of slow worm in proximity, so the CWS is considered likely to support them.
Muir Lane Meadow CWS	1.36 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Eagle Farm Pond CWS	0.808 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Tas Pond CWS	1.10 km South	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Bunwell Fen CWS	0.786 km South	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Brick Kiln Lane, Bunwell Hill CWS	Within the draft Order Limits	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.

Site	Distance and Direction to draft Order Limits	Summary
Section B		
The Marsh CWS	0.235 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Wortham Long Green CWS	0.472 km West	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Burgate Great Green CWS	0.641 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Gittin Wood CWS	1.57 km North	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Thrandeston Marsh CWS	0.666 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and adder in proximity, so the CWS is considered likely to support them.
Railway Meadows CWS	0.910 km East	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Topcroft Farm Meadows CWS	1.89 km West	Reptiles not noted within citation, but desk study highlighted the presence of slow worm in proximity, so the CWS is considered likely to support them.
Ash Plantation CWS	0.505 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Gipping Little Wood CWS	0.946 km Southwest	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Guidepost Plantation CWS	1.07 km West	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Forrold Meadow CWS	1.31 km East	Citation notes that grass snake has been previously recorded within the site.
RNR 169	1.34 km West	Reptiles not noted within citation, but desk study highlighted the presence of slow worm in proximity, so the CWS is considered likely to support them.

Site	Distance and Direction to draft Order Limits	Summary
RNR 211	1.11 km West	Reptiles not noted within citation, but desk study highlighted the presence of slow worm in proximity, so the CWS is considered likely to support them.
RNR 212	0.626 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of slow worm in proximity, so the CWS is considered likely to support them.
Creeting St Mary Meadows CWS	0.404 East	Reptiles not noted within citation but records of grass snake in proximity so likely supports reptiles.
Fen Alder Carr CWS	0.206 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Creeting St Mary Churchyard CWS	0.698 km East	Citation notes that slow worm have been recorded within the site.
River Gipping (Sections) CWS	Within the draft Order Limits	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and slow worm in proximity, so the CWS is considered likely to support them.
Keyfield Groves CWS	0.121 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and slow worm in proximity, so the CWS is considered likely to support them.
Suffolk Business Park Meadow – Formerly EEB CWS	0.856 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and slow worm in proximity, so the CWS is considered likely to support them.
Flordon Road Grassland CWS	1.11 km West	Citation describes the site as providing a rich habitat for reptiles.
Little Newton Wood CWS	0.074 km Northeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and slow worm in proximity, so the CWS is considered likely to support them.
Great Newton Wood CWS	Within the draft Order Limits	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and slow

Site	Distance and Direction to draft Order Limits	Summary
		worm in proximity, so the CWS is considered likely to support them.
Lion Inn Meadow and Chalk Pit CWS	1.69 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and slow worm in proximity, so the CWS is considered likely to support them.
Chalkeith Road Meadow CWS	1.78 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and slow worm in proximity, so the CWS is considered likely to support them.
Bushey Ley Farm (Arable Fields) CWS	Within the draft Order Limits	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Miller's Wood CWS	Within the draft Order Limits	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Bullen Wood CWS	Within the draft Order Limits	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Bramford Meadows CWS	1.17 km Northeast	Citation states that the site supports slow worm, grass snake and common lizard.
Hazel Wood CWS	0.865 km East	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and slow worm in proximity, so the CWS is considered likely to support them.
Chantry Park, Beechwater and Meadow CWS	1.23 km East	Citation states that a reptile survey (in 2011) found an exceptional population of grass snake and that 1300 slow worm and common lizard were translocated into the site in 2014.
Section C		
Sproughton Park CWS	Within the draft Order Limits	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Squire`s Wood CWS	0.129 km North	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and adder in proximity, so the CWS is considered likely to support them.

Site	Distance and Direction to draft Order Limits	Summary
Long Wood CWS	0.461 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and adder in proximity, so the CWS is considered likely to support them.
Tom`s / Broadoak Wood CWS	0.838 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and adder in proximity, so the CWS is considered likely to support them.
Raydon Great Wood CWS	0.134 km West	The citation states that its large size, habitat variation and structural diversity provide habitat opportunities for a wide range of wildlife including reptiles.
Hadleigh Railway Walk CWS	0.270 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and adder in proximity, so the CWS is considered likely to support them.
Water Farm Meadow CWS	0,970 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the CWS is considered likely to support them.
Wasses Marshes CWS	0.0531 km North	Reptiles not noted within citation, but desk study highlighted the presence of slow worm in proximity, so the CWS is considered likely to support them.
Cophedge Wood LWS	1.50 km West	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the LWS is considered likely to support them.
Ash Wood LWS	1.43 km West	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the LWS is considered likely to support them.
Section D		
High Woods LWS	1.53 km South	The citation notes that the site supports grass snake and common lizards.
Kiln Wood LWS	0.212 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake and common lizard in proximity, so the LWS is considered likely to support them.
Section E and F:	No non-statutory designated cited reptiles in their citation, nor did the desk study show records in close proximity.	
Section G		
Little Burstead	0.00223 km North	Citation notes that the site supports common lizard.

Site	Distance and Direction to draft Order Limits	Summary
Common LWS		
Gun Hill Place LWS	0.00110 km Southeast	Citation notes that the site supports adder, grass snake and slow worm.
Section H		
Low Street Pit LWS	0.0793 km East	Reptiles not noted within citation, but desk study highlighted the presence of adder, grass snake, common lizard, and slow worm in proximity, so the LWS is considered likely to support them.
Tilbury Power Station LWS	Within the draft Order Limits	Citation states SC16 Hotspots for Reptile Diversity as part of its selection criteria. The site is noted because sites supporting all four Essex reptile species are rare and because the adder population here is especially large.
Tilbury Marshes LWS	0.0619 km Southwest	Reptiles not noted within citation, but desk study highlighted the presence of adder and slow worm in proximity, so the LWS is considered likely to support them.
West Tilbury Church LWS	0.00379 km West	Reptiles not noted within citation, but desk study highlighted the presence of adder in proximity, so the LWS is considered likely to support them.
West Tilbury Hall LWS	0.0521 km West	Reptiles not noted within citation, but desk study highlighted the presence of adder in proximity, so the LWS is considered likely to support them.
Broom Hill LWS	0.371 km North	Reptiles not noted within citation, but desk study highlighted the presence of adder in proximity, so the LWS is considered likely to support them.
Hob Hill and Sandy Lane Pit, Chadwell St Mary LWS	0.995 km Northwest	Reptiles not noted within citation, but desk study highlighted the presence of adder in proximity, so the LWS is considered likely to support them.
Linford Pit LWS	Within the draft Order Limits	Reptiles not noted within citation, but desk study highlighted the presence of adder, grass snake, common lizard, and slow worm in proximity, so the LWS is considered likely to support them.
Rainbow Wood and Ashen Shaw LWS	Within the draft Order Limits	Reptiles not noted within citation, but desk study highlighted the presence of adder, grass snake, common lizard, and slow worm in proximity, so the LWS is considered likely to support them.

Site	Distance and Direction to draft Order Limits	Summary
Mucking Heath Complex, Southfields LWS	Within the draft Order Limits	Citation notes that this site has a good population of adder, common lizard, and slow worm.
Linford Wood LWS	0.543 km Southeast	Reptiles not noted within citation, but desk study highlighted the presence of adder and slow worm in proximity, so the LWS is considered likely to support them.
Buckingham Hill LWS	Within the draft Order Limits	Reptiles not noted within citation, but desk study highlighted the presence of adder, common lizard, and slow worm in proximity, so the LWS is considered likely to support them.
Thurrock Thameside Nature Park, Mucking LWS	0.841 km Southeast	Citation notes that this site is of great importance for its reptile population, with a large adder population being particularly notable.
Mucking Creek Wetlands LWS	0.786 km East	Citation notes that the site supports adder, grass snake and common lizard.
Warren Lakes LWS	1.50 km East	Reptiles not noted within citation, but desk study highlighted the presence of adder, and grass snake in proximity, so the LWS is considered likely to support them.
Victoria Road Grassland, Stanford-le-Hope LWS	0.758 km Northeast	Citation notes that the site supports grass snake, common lizard, and slow worm.
Fell-me-down Shaw LWS	1.14 km East	Reptiles not noted within citation, but desk study highlighted the presence slow worm, so the LWS is considered likely to support them.
Goldsmith's Meadow LWS	1.46 km Northeast	Reptiles not noted within citation, but desk study highlighted the presence of grass snake in proximity, so the LWS is considered likely to support them.

Annex C: Projects with no Supporting Information

Planning Portal	Local Planning Authority Project
South Norfolk Council (2023)	2023/1095 Land North of Hickling Lane
Chelmsford City Council (2023)	None
Essex County Council (2023)	None
Babergh and Mid Suffolk District Councils (2023)	DC/21/02958 Greybarn Solar Energy Farm DC/23/01208 Eastern Gateway (Former Sugar Beet Factory) DC/23/01638 Land East of The Constable Country Medical Centre DC/21/06346 Land North West of Moores Lane DC/23/01385 Land West of Blacksmiths Lane DC/23/01642 The Old Rectory The Green Hartest DC/21/02867 Land North of A143 DC/23/02362 Marsh Lane Solar Farm At Land North of Lion Road
Basildon Borough Council (2023)	21/01765/FULL Highways Land Dunton Road 22/00141/TPOBAS Ford Research and Engineering Centre 19/00981/FULL Dunroamin Gardiners Close 19/00290/FULL Little Blunts Farm 17/01229/FUL 2 The Nazeing
Braintree District Council (2023)	22/01585/FUL 16 Old Road 18/00102/LBC Rivenhall Place
Brentwood Borough Council (2023)	23/00456/FUL Land At Margaretting Hall Estate 21/01666/OUT Broadfields Innovation and Business Park 19/00986/S191 South Essex Golf and Country Club 20/00688/ADV South Essex Golf and Country Club 18/01598/AGR Land Adj Junction of Old Church Lane and Wash 19/00603/CAT Murcocks Farm 18/00966/FUL 63 Coxtie Green Road Pilgrims Hatch 19/01338/FUL Fryerning Fisheries
Tendering District Council (2023)	22/00916/FUL Old Trowel and Hammer Waterhouse Lane 22/00121/FUL 32 Brennan Road 18/01289/FUL 71 Brooklands and Land Fronting
Thurrock Council (2023)	19/00052/CV National Power PLC Tilbury Power Station 19/01276/CV Rainbow Shaw Quarry 22/01604/NMA Essex Wildlife Trust Thameside Nature Park

Planning Portal	Local Planning Authority Project
	21/00249/DVOB Land West of Butts Lane
	22/00042/DVOB DP World Development London Gateway Drive
	22/00461/NMA Thameside Nature Park
	21/00834/FUL Carbis Bay High Road
	22/00121/FUL 32 Brennan Road
	22/01242/CONDC 13 Loewen Road
	22/00538/FUL Land North of Wharf Road
	22/00667/FUL Thames Industrial Park
	20/01281/FUL Anglian Water Pumping Station
	19/01804/FUL Thames Enterprise Park

Annex D: Projects that De-scoped Reptiles

District	Local Planning Authority Project
South Norfolk Council (2023)	2022/0867 Construction and operation of Energy Balancing Infrastructure (EBI) (Ørsted, 2022) 2021/2495 Bloy's Grove Solar Farm (Engena, 2021) 2021/1072 Land off Marsh Lane (Wild Frontier Ecology, 2021) 2018/0872 Land East of Norwich Road (Wild Frontier Ecology, 2018)
Babergh and Mid Suffolk District Councils (2023)	DC/20/05587 Great Bricett Business Park (Castle Hill Ecology, 2020) DC/21/06672 Bury St Edmunds to Colchester Pipeline Scheme (Strategic Pipeline Alliance, 2021) DC/19/05169 Land off Upper Street (Skilled Ecology Consultancy Ltd, 2019) DC/18/05313 Land On The South Side of Bildeston Road (The Landscape Partnership, 2018) DC/21/06273 Land off Old Station Road and Glebe Way (Framlingham Environmental, 2020) DC/21/04933 Howard and Kooij Nurseries (Huckle Ecology, 2021) DC/20/04125 Land to south of Church Farm (Headland Archaeology, 2020) DC/22/00683 Land South of Tye Lane (Otnei, 2022) DC/17/03568 Great Bricett Business Park (Castle Hill, 2017) DC/20/05895 Land To The South of Church Farm (Enso Energy, 2022a) DC/21/00060 Land To The East of The Channel (Enso Energy, 2022b) DC/21/02073 Land South East of Back Lane (Geosphere Environmental, 2020) DC/22/01530 Land At Woodlands Farm (Arcus, 2022) 21/02042/EIASCR Land adjoining Ipswich Road and Wick Lane (JCTR Ltd, 2021)
Essex[1]	22/01324/EIASO Chelmsford Garden, Community (Lichfields, 2022) (NB: it was noted that survey was to be conducted between July and September 2023) 21/02252/FUL Land South of Vandyke (Greenlight Environmental Consultancy, 2021) 21/03735/FUL Land West of Park Road (Places Services, 2015) 23/00803/FUL Coggeshall Hall Farm Yard (T4 Ecology Ltd, 2023) 22/00860/FUL Cressing Equestrian, Cressing Farm (T4 Ecology Ltd, 2022) 20/00592/OUT Land to The North of Wick Lane (Delta Simons, 2020) ESS/01/18/CHL Sheepcotes Farm (Susan Deakin Ecology, 2017) CC/CHL/14/20/SPO Chelmsford Northeast Bypass (CNEB) (Jacobs U.K. Limited, 2020) (NB: reptile survey was recommended) 20/00911/FULL Land South of Dunton Road (Practical Ecology Ltd, 2023) 20/00005/SCR Land South West of Rivenhall Oaks Golf Course (Andrew Martin Planning, 2020)

[1] Chelmsford City Council (2023), Essex County Council (2023), Basildon Borough Council (2023), Braintree District Council (2023), Brentwood Borough Council (2023) and Tendering District Council (2023)

District	Local Planning Authority Project
	21/00850/OUT Land West of Boars Tye Road (Geosphere Environmental, 2021b) 22/00683/FUL Martells Quarry (MHE Consulting, 2022)
Thurrock Council (2023)	18/00549/SCO Tilbury Energy Centre (RWE, 2018) 23/00549/DCOAPP Thurrock Flexible Generation Plant (RPS, 2023) 12/00571/CV Cory Waste Management (Enovert South Limited, 2018) 21/00781/SCR Gothards Field Rear of The George and Dragon East (Iceni Projects Limited, 2021) 22/00948/FUL Pipeline Borough Boundary to Horndon on the Hill (ARUP, 2022) 19/01524/SCR Langdon Hills Golf and Country Club (Iceni Projects Limited, 2019) 22/00812/SCR Thurrock Hydrogen Plant (RPS, 2022) 21/02110/FUL Land Adjacent 39 and 41 and to the South of St Johns Road (The Ecology Co-operation, 2021) 20/00592/OUT The Springhouse (T4 Ecology Ltd, 2019)

Annex E: Habitat Suitability Assessment

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Section A	
Semi natural habitat Dunston	Extensive area of semi-natural habitat extending from the Dunston to Norwich railway line. Includes Dunston Hills, Dunston Common, Diane's Wood, Greenacres, Jayne's Wood, Commonclose Plantation, Susan's Wood, Stokelane Plantation and The Grove. Surveys undertaken in support of the Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects (in 2021) included sections of this site and identified the presence of common lizard (low population) and slow worm (good population). Desk study also highlighted the presence of grass snake (from 2009) within 2km. Good suitability habitat and the presence of common lizard and slow worm has historically been confirmed within sections of the site. There is a low likelihood that the site supports grass snake and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4 (criteria is presented on Image A8.3.1).
Wood adjacent to Hickling Lane	An unnamed woodland and associated rank grassland that extends adjacent to Hickling Lane from the Dunston to Norwich railway line. Surveys undertaken in support of the Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects (in 2021) included two sections of this site and identified the presence of slow worm (low population). Poor suitability habitat. The presence of slow worm has historically been confirmed within sections of the site. There is a low likelihood that the site supports common lizard and negligible likelihood that it supports grass snake or adder. Not considered to have the potential to qualify as a Key Reptile Site.
Brick Kiln Lane Solar Farm	The site appears to comprise an area of rank grassland (between and around the solar panels) with hedgerows and Page's Plantation to the south. There are records of slow worm within 2km of the site. Habitats are considered to be of moderate suitability. There is a moderate likelihood that the site supports slow worm, low likelihood this it supports common lizard and negligible likelihood that it supports grass snake or adder. Not considered to have the potential to qualify as a Key Reptile Site.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Woodlands off Long Lane	Comprises three woodland blocks, connecting hedgerows and ditches. There are records of slow worm within 2km of the site. Habitats are considered to be of poor suitability. There is a moderate likelihood that the site supports slow worm, low likelihood this it supports common lizard and negligible likelihood that it supports grass snake or adder. Not considered to have the potential to qualify as a Key Reptile Site.
Upper Grove Wood	Comprises Upper Grove Woodland, two unnamed woodland blocks and connecting hedgerows and ditches. There are records of slow worm within 2km of the site. Habitats are considered to be of poor suitability. There is a moderate likelihood that the site supports slow worm, low likelihood this it supports common lizard and negligible likelihood that it supports grass snake or adder. Not considered to have the potential to qualify as a Key Reptile Site.
Tributary of River Tas	Comprises a tributary of River Tas and associated semi-natural habitats (woodland, scattered trees and scrub, ditches, hedgerows, and field margins), including Flordon Common SSSI and Flordon Meadow (west and east) CWS. Flordon Common is reported to support grass snake, common lizard, and slow worm in low densities but there are no records of reptiles within 2km of the site. Habitats are considered to be of good suitability and there is a moderate likelihood that the site supports grass snake, slow worm and common lizard, and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Dismantled Wymondham and Forncett Branch Line	Comprises a section of the Dismantled Wymondham and Forncett Branch Line which has since colonised with trees and scrub. Good connectivity with Bayes Meadow and Hapton Common CWSs. There are no records of reptiles within 2km of the site. The habitats are considered to be of good suitability. There is a low likelihood that the site supports slow worm, common lizard and grass snake, and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Stickfer Lane	A narrow corridor comprising an unnamed watercourse (tributary of the River Tas) and associated riparian woodland, scrub, and rank grassland. Good connectivity with Hapton Common and Bayes Meadow CWSs. There are records of grass snake within 2km of the site. The habitats are considered to be of good suitability for reptiles. There is a low likelihood that the site supports slow worm, common lizard and grass snake, and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Tabernacle Lane	Comprises a sewage treatment works and associated grassland and woodland/scrub. Good connectivity with Brocks Watering CWS. There are records of grass snake within 2km of the site. The habitats are considered to be of good suitability for reptiles. There is a moderate likelihood that the site supports grass snake, low likelihood that it supports slow worm and common lizard and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1.
Bunwell Wood	Comprises Bunwell Wood CWS and associated grassland and woodland/scrub. Good connectivity with Brocks Watering CWS. There are records of grass snake within 2km of the site. The habitats are considered to be of good suitability for reptiles. There is a moderate likelihood that the site supports grass snake, low likelihood that it supports slow worm and common lizard and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1.
River Tas Valley	Comprises River Tas and associated semi-natural habitats (woodland, scattered trees and scrub, ditches, hedgerows, and field margins), including Brick Kiln Lane, Bunwell Hill CWS. Has good connectivity to Carlton Rode Fen CWS. There are records of grass snake (from 2013) within the site. The habitats are considered to be of exceptional suitability for reptiles. There is a high likelihood that the site supports grass snake, low likelihood it supports slow worm and common lizard, and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Carleton Rode Fen	Comprises grassland, woodland, wetland (River Tas corridor), scrub, hedgerow, and Carlton Rode Fen CWS. Good connectivity with River Tas Valley. There are records of grass snake within 2km of the site. The habitats are considered to be of exceptional suitability for reptiles. There is a high likelihood that the site supports grass snake, low likelihood it supports slow worm and common lizard, and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Shelfanger	Includes Shelfanger Meadows SSSI, Westbrook Green and agricultural land within a valley of an unnamed watercourse. There are records no records of reptiles within 2km of the site. Exceptional suitability habitat, where there is a moderate likelihood that the site supports grass snake, low likelihood that it supports slow worm and common lizard and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Section B:	
Wortham Ling and Royden Fen	Extensive area of suitable habitat associated with the River Waveney and including Royden Fen LNR and part of Wortham Ling SSSI. There are no records of reptiles within 2km of the site; however, (the wider) Wortham Ling has good connectivity to records of adder, grass snake and slow worm. The habitats are considered to be of exceptional suitability for reptiles, where there is a moderate likelihood that the site supports grass snake, slow worm and common lizard and low likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1, 2, 4 and 5.
Goodrich Park Palgrave	Includes Goodrich Park Palgrave, c. 22 ha of historic park land, and adjacent agricultural land that does not appear to be intensively managed. There are records of grass snake and adder within 2km of the site. The habitats are considered to be of poor suitability for reptiles where there is a moderate likelihood that the site supports grass snake, low likelihood that it supports slow worm and common lizard and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Rookery Farm	Wetland corridor centred around an unnamed watercourse with ponds, scrub, and rank grassland. There are records of grass snake and adder within 2km of the site. Good suitability habitat where there is a moderate likelihood that the site supports grass snake, low likelihood that it supports slow worm and common lizard and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Seethings Wood	Wetland corridor centred around a tributary of Upper Waveney with Seethings Wood, an unnamed woodland and agricultural land that does not appear to be intensively managed. There are records of grass snake and adder within 2km of the site. The habitats are considered to be of good suitability for reptiles where there is a moderate likelihood that the site supports grass snake, low likelihood that it supports slow worm and common lizard and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Big and Whitmore's Woods	Comprises Big Wood, Whitmore's Wood, associated grassland, and a wide field margin that connects the woodlands. There are no records of reptiles within 2km of the site. The habitats are considered to be of good suitability for reptiles where there is a low likelihood that the site supports grass snake, slow worm and common lizard and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1.
Diss to Stowmarket Railway	Comprises a section of the Diss to Stowmarket railway line and adjoining semi-natural habitat, including Thornham Estate Woods (ancient and semi-natural woodland), three other unnamed woodlands, an unnamed watercourse corridor and agricultural land that does not appear to be intensively managed. There are no records of reptiles within 2km of the site but adder, grass snake and slow worm have been recorded in proximity of the railway line at a greater distance. The habitats are considered to be of good suitability for reptiles, where there is a low likelihood that the site supports all four species of reptile. Potentially qualifies as a Key Reptile Site based on all criteria.
Elm Pollard and Jessies Wood	Two areas of plantation woodland associated with Wickham Road. Elm Pollard (to the north) contains an unnamed watercourse and a pond. There are records of slow worm within 2km of the site. The habitats are considered to be of poor suitability for reptiles. There is a low likelihood that the site supports slow worm and grass snake and a negligible likelihood that it supports common lizard and adder. Not considered likely to qualify as a Key Reptile Site.
Old Farm	Area of isolated young plantation on rank grassland. There are no records of reptiles within 2km of the site and the habitats are considered to be of poor suitability for reptiles. There is a low likelihood that the site supports slow worm and common lizard and a negligible likelihood that it supports grass snake and adder. Not considered likely to qualify as a Key Reptile Site.
A14 Soft Estate	Northern and southern soft estate of A14 comprising mosaic of trees, scrub and grassland and creating an extensive corridor (although the A14 will inhibit movements from north to south). Good connectivity with Fen Alder Carr LNR and Creeting St Mary Meadows CWS which form part of an extensive area of semi-natural vegetation where grass snake have been recorded. There are records of slow worm and grass snake within 2km of the site. The habitats are considered to be of poor suitability for reptiles. There is a low likelihood that the site supports grass snake, slow worm and common lizard and a negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
River Gipping Valley	The River Gripping Valley is a wide non-intensive agricultural corridor with wide field margins and multiple smaller watercourses and ditches. It contains a section of the River Gipping CWS and Stowmarket to Ipswich Railway (both creating a wildlife corridor through this area). The desk study identified multiple records of grass snake and slow worm within (associated with the river and railway corridors) and in proximity of the site. The habitats within the site are considered to be of good habitat suitability for reptiles and there is a high likelihood that this site supports grass snake and slow worm, a low likelihood that it supports common lizard and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Tributary of the River Gipping	This site comprises the tributary of the River Gipping, Hascott Hill LNR/SSSI, multiple woodland blocks (including Ash Covert, Wellfield Covert, Lodgefield Row, Great Newton Wood, and Lower Wood) and interspersed rough grassland and areas of scattered scrub. The desk study identified records of grass snake and slow worm within with site which is well connected to multiple records of the same species within the River Gipping Valley site. The habitats within the site are considered to be of exceptional habitat suitability for reptiles and there is a high likelihood that this site supports grass snake and slow worm, a low likelihood that it supports common lizard and negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Middle Farm Lakes	A small, isolated site with three angling lakes and associated semi-natural habitats, including grassland, scrub, and woodland. The desk study identified no records of reptiles within 2km of the site. The habitats within the site are considered to be of poor habitat suitability for reptiles and there is a low likelihood that the site supports grass snake and negligible likelihood that it supports adder, slow worm, and common lizard. Not considered likely to qualify as a Key Reptile Site.
Middle Wood and Tollemache Hall Grove	Comprises Middle Wood SSSI and nearby Tollemache Hall Grove and the desk study identified records of grass snake within 2km of the site. Good habitat suitability for reptiles and there is a moderate likelihood that the site supports grass snake. There is negligible likelihood that it supports adder, slow worm, and common lizard. Not considered likely to qualify as a Key Reptile Site.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Lovetofts Farm	A relatively small and isolated area of non-intensively managed farmland with woodland block, hedgerow, and scattered trees. The desk study identified no records of reptile within 2km of the site. Poor suitability habitat where there is a low likelihood that the site supports grass snake. There is negligible likelihood that it supports adder, slow worm, and common lizard. Not considered likely to qualify as a Key Reptile Site.
Round Wood	Comprises Round Wood ancient semi-natural woodland and an area of non-intensively managed farmland. The desk study identified records of grass snake within 2km of the site. Good suitability habitat where there is a low likelihood that the site supports grass snake. There is negligible likelihood that it supports adder, slow worm, and common lizard. Not considered likely to qualify as a Key Reptile Site.
Section C	
Sproughton Park	Comprises an extensive area of non-intensively managed farmland and associated woodland, scrub, and rough grassland, Sproughton Park CWS and Hintlesham Fisheries. Common lizard was recorded on a woodpile within the site during a Project field survey (26/04/2023). Anecdotal evidence grass snake and slow worm were also provided on the same date by the land manager; multiple records of both species are present locally. Exceptional suitability habitat. Common lizard presence has been confirmed and there is a high likelihood that the site supports grass snake and slow worm. There is negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Spring Brook	Spring Brook corridor, comprising multiple woodland blocks, scattered trees and scrub and non-intensively managed farmland. The desk study identified records of grass snake, common lizard, and slow worm within 2km of the site. Good suitability habitat, where there is a moderate likelihood that the site supports grass snake, common lizard, and slow worm. There is negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Dismantled Hadleigh Railway	The site comprises a section of the extensive dismantled railway corridor and connected woodlands (including The Woodlands and Binny's Wood) and riparian corridor of an unnamed watercourse. Well connected to additional areas of semi-natural vegetation in the wider landscape including the locations of records of adder, grass snake and slow worm. The latter was recorded during a Project field survey (02/05/2023) on a trackway field margin that extends between sections of the site. Good habitat suitability for reptiles with a high likelihood of supporting adder, grass snake and slow worm and a low likelihood of supporting common lizard. Potentially qualifies as a Key Reptile Site based on all criteria.
Dewlands Farm	Site comprises Higham Meadow CWS, two disused pits and a mosaic of woodlands (Soddom and Gomorrah, Timber Hill Wood, and Rough Hill), scrub, rank grassland, a tributary of the River Brett. Good connectivity with the wider landscape where grass snake and slow worm have been recorded within 2km. Exceptional habitat suitability for reptiles with a high likelihood of supporting grass snake and slow worm and a low likelihood of supporting common lizard and adder. Potentially qualifies as a Key Reptile Site based on all criteria.
Higham Lodge	Site comprises a mosaic of woodlands, scrub, rank grassland and ponds within the grounds of Higham Lodge. Good connectivity with the wider landscape and slow worm have been recorded within 2km. Good habitat suitability for reptiles with a high likelihood of supporting slow worm, a low likelihood of supporting grass snake and common lizard and a negligible likelihood of supporting adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Bush Hills	Site comprises a complex of connected plantation woodlands within pasture associated with Bobbitts Hall farm. Connectivity with the wider landscape is limited to defunct hedgerows but the site does connect with the Higham Lodge site and slow worm have been recorded within 2km. Poor habitat suitability for reptiles with a low likelihood of supporting slow worm and grass snake and a negligible likelihood of supporting adder and common lizard. Not considered likely to qualify as a Key Reptile Site.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
River Stour Corridor	Site comprises the River Stour, its riparian corridor and associated areas of wetlands, rough grasslands, and woodlands (including Gutter Wood, Church Wood, Gun Hill Wood, New Plantation and Hobbs). The site also includes St Mary's Churchyard, Langham Hall, The Coombs, and Gun Hill Grassland LWS's, sections of the River Box and River Brett, and a large wetland area named Black Barn. The site is well connected to the wider landscape via the River Stour, River Box and River Brett and the sympathetically managed Langham Hall Estate. Wasses Marshes CWS is also situated immediately north. Adder, common lizard, and slow worm have been recorded within 2km of the site within habitats connected to the site. Exceptional habitat suitability for reptiles with a high likelihood of supporting common lizard and slow worm and a low likelihood of supporting grass snake and adder. Potentially qualifies as a Key Reptile Site based on all criteria.
Black Brook	The site comprises Black Brook and its riparian corridor (partially designated an LWS), and associated woodlands (including Sprike's Grove, and The Grove), rough grasslands, wetlands, and a large irrigation reservoir. Well connected to the wider landscape. Grass snake, adder and common lizard were recorded within 2km to the east, although connectivity is reduced to these records due to the presence of the A12. Exceptional habitat suitability for reptiles with a high likelihood of supporting grass snake and common lizard, a moderate likelihood of supporting slow worm and a low likelihood of supporting adder. Potentially qualifies as a Key Reptile Site based on all criteria.
Woodland south of Orchard House	Site comprises of an isolated woodland and small plantation situated directly adjacent to the A12 within an agricultural area. Common lizard has been recorded within 2km of the site but with minimal connectivity. Poor habitat suitability for reptiles with a low likelihood for common lizard, and a negligible likelihood for grass snake, adder, and slow worm. Not considered likely to qualify as a Key Reptile Site.
Parney Heath	Site comprises an area of parkland habitat, woodland blocks, and patches of rough grassland. The site also includes a small pond, connected to a ditch that cuts through the whole of the site. Moderate connectivity to the wider landscape via hedgerows and the Black Brook riparian corridor (which extends to the north of the site). Common Lizard has been recorded within the site, as well as grass snake and adder within 2km of the site. Good suitability habitat with a high likelihood of common lizard, a moderate likelihood of grass snake, and a low likelihood of adder and slow worm. Potentially qualifies as a Key Reptile Site based on criteria 1, 2 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Dedham Road	Small, isolated strip of woodland adjacent to Denham Road (B1029). Grass snake and common lizard have been recorded within 2km of the sight; however, these locations are unconnected to the site. Poor habitat suitability with a negligible likelihood of grass snake, adder, common lizard, and slow worm. Not considered likely to qualify as a Key Reptile Site.
Colchester to Manningtree Railway	Site comprises a section of the Colchester to Manningtree Railway Line which creates a narrow corridor of rough grassland and scrub (on both sidings) through an otherwise intensively managed area. The railway corridor is to areas of semi-natural vegetation including Shir Burn Wood and Meadow LWS to the north east and Manor House Meadow and Springhead Corner Meadow LWSs to the south west. Hedgerows provide limited connectivity to the Home Farm Reservoir site. Grass snake has been recorded within 2km of the site. Good habitat suitability with a moderate likelihood of grass snake and a low likelihood of common lizard and slow worm. There is a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Home Farm Reservoir	An 8-acre irrigation pond that is used recreationally for angling and is surrounded by grassland, woodland, and scrub. Somewhat isolated with limited connectivity to the Colchester to Manningtree Railway corridor via a hedgerow. The immediate surroundings of the site comprises heavily extensively managed grassland and agricultural land. Grass snake has been recorded within close proximity (less than 500m) of the site, connected via hedgerows. Good suitability habitat with a high likelihood of grass snake, a low likelihood of common lizard and slow worm, and a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Mayfields Farm	Small woodland strip bordering a managed/grazed grassland and small patch of rough grassland with scattered scrub. The site is poorly connected to the wider landscape, limited to a couple of defunct hedgerows. Small, scattered parcels of woodland and Home Farm Reservoir are in close proximity to the site; however, connectivity to these locations is poor. Grass snake has been reported in close proximity to the site (less than 100m), connected via one of the limited hedgerows. Poor suitability habitat with a high likelihood of grass snake presence, and a negligible likelihood for adder, common lizard, and slow worm. Not considered likely to qualify as a Key Reptile Site.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Badley Hall	Site comprises a small area of managed grassland enclosing two sections of fenced scrub and surrounded by mixed woodland. Situated within an intensively managed area, the site has poor connectivity via hedgerow and other small, thin strips of woodland to the north and south. During a Project field survey (26/04/2023), grass snake was recorded within a connecting hedgerow (40m north of the site). Poor suitability habitat with a high likelihood of grass snake presence, and a negligible likelihood for adder, common lizard, and slow worm. Not considered likely to qualify as a Key Reptile Site.
Martell's Quarry	The site comprises disturbed ground, managed grassland and woodland/scrub habitat that support two reservoirs and two ponds. Connection to the wider landscape is moderate and subject to change as much of the surrounding land is disturbed by quarrying activities. Grass snake has been recorded within 2km of the site. Good suitability habitat with a moderate likelihood for grass snake, common lizard and slow worm, and a low likelihood for adder. Potentially qualifies as a Key Reptile Site based on criteria 1, 2 and 4.
Coronation Cottages	A large wetland area (reservoir) surrounded by a thin woodland and rough grassland strip. Situated adjacent south the Martell's Quarry site with similar connectivity to wider landscape. Grass snake has been recorded within 2km of the site. Good suitability habitat with a moderate likelihood for grass snake, common lizard and slow worm, and a low likelihood for adder. Potentially qualifies as a Key Reptile Site based on criteria 1, 2 and 4.
Fen Lane	Isolated reservoir with thin band of scrub and scattered trees on its banks. No records of reptiles were reported within 2km of the site. Poor habitat suitability with a low likelihood of grass snake and a negligible likelihood of adder, common lizard, and slow worm. Not considered likely to qualify as a Key Reptile Site.
Ardleigh Reservoir	The site comprises part of Ardleigh Reservoir, its riparian corridor, and associated areas of wetlands (including a series of smaller adjacent reservoirs/ponds), rough grasslands and woodlands. The site is well connected to wider landscape, via the reservoir continuing south of the site, and then round to the west. Ardleigh Reservoir Grassland LWS and Ardleigh Reservoir Wood LWS are also situated adjacent south. Grass snake and common lizard have been recorded with 2km, within habitats well connected to the site. Exceptional suitability habitat with a high likelihood of grass snake and common lizard and a low likelihood of adder and slow worm. Potentially qualifies as a Key Reptile Site based on all criteria.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Section D	
Redhouse Farm	The site comprises of a combination of grassland (varying level of management), woodland, scrub and includes Harrow Wood LWS. Largely isolated with limited connectivity to the wider area via hedgerows. No reptiles have been recorded within 2km of the site. Good suitability habitat, with a moderate likelihood of grass snake, low likelihood of common lizard and slow worm, and a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4
Otters Brook Cottage	The site comprises Black Brook, its riparian corridor, woodland, plantation (including Horkesley Plantation), rough grassland and scrub. The site also includes a series of ponds and reservoirs. The site is well connected to the wider landscape to the south and west. No reptiles have been recorded within 2km of the site. Exceptional suitability habitat with a moderate likelihood of grass snake, common lizard and slow worm, and a low likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1, 2 and 4.
Old House Road	The site comprises a field of managed grassland and a small area of woodland/parkland type habitat. The site is well connected to wetland, rough grassland, and woodland to the south but elsewhere connection to the wider landscape is limited. No records of reptiles are within 2km of the site. Poor suitability habitat with low likelihood of common lizard and slow worm, and a negligible likelihood of grass snake and adder. Not considered likely to qualify as a Key Reptile Site.
Newhouse Farm	A large, isolated garden enclosed by mature hedgerow and trees. Common lizard has been recorded within 2km of the site. Poor habitat suitability with a low likelihood of common lizard, and a negligible likelihood of grass snake, adder, and slow worm. Not considered likely to qualify as a Key Reptile Site.
Westwood Home Farm	The site comprises connected woodland parcels, grassland (varying degrees of management), scrub, hedgerows, and wetland areas (including a pond and a reservoir). The site also includes Slough Grove LWS, and a ditch network that passes through the area, continuing north. Situated within an intensively managed landscape but with good connectivity to the north. Common lizard has been recorded within 2km of the site. Good suitability habitat with a high likelihood of common lizard, a moderate likelihood of grass snake and slow worm, and a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1,3 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Grove Lodge	A large wetland area (reservoir) with rough grassland, scrub, small areas of woodland and a ditch network. The majority of the adjacent landscape is arable; however, there is a moderate connection to the wider landscape through the ditch network which continues to the north, east and south. To the south, the site is connected to the Highfield Farm site. Common lizard has been recorded within 2km of the site. Good suitability habitat with a high likelihood of grass snake and common lizard, moderate likelihood of slow worm, and negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1,3 and 4.
Highfield Farm	The site resembles parkland type habitat with a pond, scrub, woodland, and areas of grassland. A ditch network runs north to south through the site connecting with the Grove Lodge and Coney Byes Farm sites. Grass snake has been recorded within 2km of the site. Good suitability habitat with a high likelihood of grass snake and common lizard, moderate likelihood of slow worm, and negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1,3 and 4.
Coney Byes Farm	An extensive area of rough grassland, hedgerows, scrub, woodland, and a ditch network that extends further south connecting with the River Colne. Multiple LWS are situated within the site: Wood near Fordham Place, West Bergholt Alderwoods, Hillhouse Wood and West Bergholt Hall Church. Stitching Wood LWS is also situated adjacent east, as well as Spring Wood LWS and Grove Wood LWS to the south. Grass snake has been reported on the boundary of the site and common lizard within 2km. Exceptional suitability habitat with a high likelihood of grass snake and common lizard, a moderate likelihood of slow worm and a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1, 3 and 4.
Colne Valley	An extensive area of connected semi-natural habitats, including the River Colne riparian corridor, Fordham Bridge Meadow LWS and a large area of young, open plantation woodland associated with Fordham Hall Estate. The site is well connected to the wider landscape; grass snake and slow worm have been recorded within 2km. Exceptional suitability habitat that has a moderate likelihood of supporting grass snake, slow worm and common lizard and a negligible likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Marks Tey	Comprises woodland, rough grassland, hedgerows, scrub, and wetland areas including the Roman River and its riparian corridor, a reservoir, and a small pond. The site also includes the Chappel and Wakes Colne to Mark's Tey railway line, Stonefield Strip LWS, Church House Wood LWS, Marks Tey Brick Pit LWS and Marks Tey Brick Pit SSSI. The area is well connected to the wider landscape via the railway and river corridors. Slow worm was recorded within 2km of the site. Exceptional suitability habitat with a high likelihood of grass snake, common lizard and slow worm, and a low likelihood of adder. Potentially qualifies as a Key Reptile Site based on all criteria.
Little Tey House Farm	The site comprises a large plantation woodland centred around the Roman River and includes wide hedgerow or wooded field boundaries that extend to the south and connect with additional areas of woodland and grassland. The river and hedgerow/wooded field boundaries provide connectivity through an otherwise intensively managed arable area. No reptiles have been recorded within 2km of the site. Good suitability habitat, with a low likelihood of grass snake, common lizard and slow worm, and a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1.
Section E	
Coggleshall Hall Farm	An extensive area associated with the River Blackwater and including woodland, rough grassland, scrub, hedgerows, and other wetland features (including The Rise fishery, and a smaller reservoir). The site also includes Coggeshall Hall Farm LWS. The site is well connected to the wider landscape via the River Blackwater continuing. Coggeshall Hall Farm LWS also continues out of the site to the south east. Grass snake and common lizard have been recorded with 2km of the site. Exceptional suitability habitat with a high likelihood of grass snake and common lizard, a moderate likelihood for slow worm, and a low likelihood of adders. Potentially qualifies as a Key Reptile Site based on all criteria.
Monk's Farm	A small, largely isolated area of plantation woodland and scrubby ditch. Grass snake and common lizard have been recorded within 2km of the site. Poor suitability habitat with a low likelihood of grass snake and common lizard, and a negligible likelihood for adder and slow worm. Considered unlikely to qualify as a Key Reptile Site.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Porters Farm	Site contains the River Blackwater, its riparian corridor, woodland (including Landerfield Spring), rough grassland, scrub, and other wetland features (including two ponds, one named Fish Pond). The site is well connected to the wider landscape via the River Blackwater and there are multiple LWS within close proximity to the site: Upney Wood, Storey's Wood, Barrowfield Wood and Rivenhall Thicks. Grass snake, common lizard and slow worm have been recorded within 2km of the site. Exceptional suitability habitat with a high likelihood of grass snake, common lizard and slow worm, and a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1, 3 and 4.
Cressing to Witham Railway	A c.25- 45m wide corridor of rough grassland and scrub associated with the railway line and areas of connected woodland. Created an extensive wildlife corridor and grass snake, common lizard, and slow worm have been recorded within 2 km of the site. Good habitat suitability with a high likelihood of common lizard and slow worm, a moderate likelihood of grass snake, and a low likelihood of adder. Potentially qualifies as a Key Reptile Site, based on all criteria.
River Brain	An extensive riparian corridor and associated areas of woodland, rough grassland, scrub, and a small wetland area (reservoir). A small section of this area is associated with Faulkbourne Hall Gardens and the site is well connected to the wider landscape. Grass snake and common lizard have been recorded within 2 km of the site. Exceptional suitability habitat with a high likelihood of grass snake and common lizard, a moderate likelihood of slow worm, and a low likelihood of adder. Potentially qualifies as a Key Reptile Site based on all criteria.
Fairstead Road	An area of grassland with a sparse plantation and a wooded riparian corridor associated with an unnamed tributary of the River Ter. Limited connectivity with the wider landscape. Slow worm has been recorded within 2km of the site. Poor habitat suitability with a low likelihood of common lizard and slow worm and a negligible likelihood of grass snake and adder. Considered unlikely to be a Key Reptile Site

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Section F	
River Ter	The site comprises the River Ter and associated areas of woodland, rough grassland, hedgerow, scrub, and other wetland areas such as a reservoir. The site also includes part of the River Ter SSSI and Lowley's Farm Meadow LWS. Straw Brook Plantation LWS is also situated adjacent to west and St Mary the Virgin, Great Leighs LWS to the east. The site is well connected to the wider landscape. Grass snake and common lizard have been recorded within 2km. Exceptional suitability habitat with a high likelihood of grass snake and common lizard, a moderate likelihood of slow worm and a low likelihood of adder. Potential qualifies as a Key Reptile Site based on all criteria.
River Chelmer	The sites comprises a section of the River Chelmer and associated, rough grassland, scrub, and woodland; Whites Plantation which is also part of the Langley Deer Park LWS (which covers a much larger area to the north east of the site). The site is well connected to the wider landscape. Grass snake and slow worm have been recorded within 2km. Good suitability habitat with a high likelihood of grass snake and slow worm, a moderate likelihood of common lizard, and a low likelihood of adder. Potentially qualifies as a key reptile site based on all criteria.
River Can and Former Brittons Hall Farm Landfill Site	The site is a reclaimed landfill site (previously Brittons Hall Farm Landfill site), restored into a local nature park with public access through bridleways. It consists of rough grassland, woodland (including over 100-year-old ash trees), scrub, and wetland areas including a lake and pond. The River Can passes through the site to the west. The site is moderately connected to the wider landscape through the River Can and hedgerows/field boundaries. Grass snake has been recorded within the site, and slow worm within 2km. Good suitability habitat with a high likelihood of grass snake, common lizard and slow worm, and a negligible likelihood of adder. Potentially qualifies as a key reptile site based on criteria 1, 3 and 4.
Chelmsford Compressor Station	The site contains wetland habitat (a reservoir and a ditch), woodland, grassland, and hedgerows with limited connectivity to the wider landscape. Grass snake and common lizard have been recorded within 2km of the site. Good suitability habitat with a moderate likelihood of grass snake, common lizard and slow worm, and a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.
Land off Roxwell Road	An area of rough grassland with scrub, woodland, and a pond, with limited connectivity to the wider landscape. Grass snake has been recorded within 2km of the site. Good suitability habitat with a moderate likelihood of grass snake, common lizard and slow worm, and a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1, 3 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Willowmere Lake and Associated Habitat	A network of woodland with a wetland area (named Willowmere Lake) connected via a series of wide hedgerows and woodland strips, that surround agricultural land and Writtle college campus. The site is fairly connected to the wider landscape and grass snake has been recorded within 2km of the site. Good suitability habitat with a high likelihood of grass snake, a low likelihood of common lizard and slow worm, and a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1, 3 and 4.
Writtlepark and Associated Woodlands	An extensive area containing multiple local wildlife sites (including Great/Little Edney Woods LWS, King Wood LWS, Writtlepark Woods LWS and James's Spring LWS), connected by hedgerows and a ditch network, alongside woodland, rough grassland, and wetland areas. The site is well connected to the wider landscape and other areas of semi-natural vegetation including multiple LWS that are present locally. All four reptile species have been recorded within 2km of the site. Exceptional suitability habitat with a high likelihood of grass snake, common lizard and slow worm, and a moderate likelihood of adder. Potentially qualifies as a Key Reptile Site based on all criteria.
Section G	
Ingatestone to Chelmsford Railway	The c.30m wide railway corridor with rough grassland and scrub sidings, an associated reservoir and pond situated around St Margaret's Church. The site is well connected to the wider landscape and two local wildlife sites situated adjacent to the south: Rock Wood LWS and Spring Wood LWS. Adder, common lizard, and slow worm have been recorded within 2km of the site. Good suitability habitat with a high likelihood of common lizard and slow worm, and a low likelihood of grass snake and adder. Potentially qualifies as a Key Reptile Site based on all criteria.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
River Wid Corridor	The site comprises a section of the River Wid, two unnamed tributaries of the River Wid, Clapgate Wood LWS, Mountnessing Hall Woods LWS, young woodland plantation associated with Hawthorn Cottages and habitats associated with a water recycling centre. An extensive area of connected semi-natural habitats, including the River Colne riparian corridor, Fordham Bridge Meadow LWS and a large area of young, open plantation woodland associated with Fordham Hall Estate. The site is well connected to the wider landscape via the River Wid and railway line; grass snake, common lizard and slow worm have been recorded within 2km and adder has been recorded within Norsey Wood LNR, which is c. 5km away but well connected to the site via a railway corridor. Exceptional suitability habitat that has a moderate likelihood that the site supports grass snake, slow worm and common lizard and a low likelihood that it supports adder. Potentially qualifies as a Key Reptile Site based on all criteria.
Shenfield to Billericay Railway	Site comprises a c. 20-45m wide railway corridor with rough grassland, scrub, and wooded sidings. Round Wood LWS is situated directly south, and Clapgate Wood directly north, and the corridor is connected to Hutton Country Park LWS, Cock Wood/Collins's Shaw LWS, and Arnold's Wood Complex. Grass snake, common lizard and slow worm have been recorded within 2km of the site. Good suitability habitat with a high likelihood of common lizard and slow worm, and a low likelihood of grass snake. There is a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1, 3 and 4.
Oakleigh Farm	Site consists of a large pond surrounded by rough grassland, shrub, and woodland, directly adjacent to an equine livery business. The site is rather isolated, surrounded by grazed or managed grassland, or agricultural land. Grass snake, common lizard and slow worm have been recorded within 2km of the site. Good suitability habitat with a moderate likelihood of grass snake, common lizard and slow worm, and a negligible likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Bladenwood Farm	An extensive network of woodlands connected by hedgerows and thin woodland strips. Woodlands include James Wood LWS, Bluntswall Wood LWS, Bluntswall Shaws LWS, Primstock LWS, Little Bladen's Wood LWS, Blind Lane LWS and Bladen's Wood LWS. The site also includes areas of rough grassland, and multiple, small areas of wetland. Hedgerows connect the site to other areas of semi-natural vegetation including Hall Wood, Ingrave LWS, Sutton Shaw LWS, High Field Wood LWS, St Margarets Wood and Lane LWS, Parkhill Wood Meadow LWS, Park Hill Wood LWS and Long Shaw and Round Wood woodlands. Grass snake, common lizard and slow worm have been recorded within 2km of the site. Good suitability habitat with a high likelihood of common lizard and slow worm, a moderate likelihood of grass snake, and a low likelihood of adder. Potentially qualifies as a Key Reptile Site based on all criteria.
Section H	
Dunton Hills Family Golf Centre	A golf course containing heavily managed grassland, rough grassland, multiple areas of wetland (varying from a large lake to small ponds), a ditch bisecting the site, and areas of woodland. The site has connectivity to the wider landscape via the adjacent West Horndon to Laindon railway line and hedge and ditch networks. Grass snake has been recorded on the site, as well as adder, common lizard, and slow worm within 2km. Exceptional suitability habitat with a high likelihood of grass snake, common lizard and slow worm, and a moderate likelihood of adder. Potentially qualifies as a Key Reptile Site based on all criteria.
West Horndon to Laindon Railway	A c. 40-60m wide railway corridor with rough grassland, scrub, and woodland sidings. The site is situated adjacent to the Dunton Hills Family Golf Centre site and connect with suitable habitat on Bernard's Farm and Langdon Complex LWS (both situated to the west). All four reptile species have been recorded within 2km of the site. Good suitability habitat with a moderate likelihood of grass snake, common lizard and slow worm, and a low likelihood of adder. Potentially qualifies as a Key Reptile Site based on criteria 1, 2 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Semi-natural Habitats between Orsett and Linford	The land situated between Orsett and Linford comprises an extensive area of semi-natural vegetation including sections of the North Thames Estuary and Marshes SSSI extension interest area, Orsett Golf Course and multiple LWSs (Linford Pit, Rainbow Wood and Ashen Shaw, Linford Wood, Mucking Heath, Buckingham Hill). Habitats presents include wetlands, woodlands, scrub, open mosaic habitats, ancient heathlands and unimproved grasslands and the area is well connected to the wider landscape via Tilbury Town to East Tilbury Railway which connects with additional LWS and areas of semi-natural vegetation to the east. Adder were recorded within two separate locations (both on 09/08/2023) within 300m of the site during a Project field survey and the desk study identified multiple records of all four reptiles within this site. Two sections of this site were also surveyed by LTC in 2018 and 2019 (see National Highways, 2022b). The LTC survey separated the land into several survey areas in proximity of the draft Order Limits and survey areas N16 and N30 were of relevance for this site: N16 – situated in the southwest corner of Orsett Golf Course. Reptile presence was recorded as follows: adder (none), grass snake (none), common lizard (low population size class) and slow worm (low). N30 – situated to the south of the site adjacent to Tarmac Linford Bagging Plant, this survey area was reported as KRS and reptile presence was recorded as follows: adder (none), grass snake (none), common lizard (low population size class) and slow worm (good). The habitats within the site are of exceptional habitat suitability for reptiles and there is a high likelihood that this site supports all four species. Potentially qualifies as a Key Reptile Site based on all criteria.
Land off Low Street Lane	Approximately 0.67ha of scrub habitat within a highly arable area. No reptile records were identified within the site itself, but it had some (albeit limited) connectivity with the Low Street Pond site that supports low populations of all reptile species. The habitats are of good habitat suitability and there is a moderate likelihood that this site supports all four reptile species. Potentially qualifies as a Key Reptile Site based on criteria 1, 2 and 4.

Site Name / Reference	Assessment, Suitability Evaluation and Likelihood of Presence
Low Street Pond	Large pond surrounded with areas of rough grassland, trees, and scrub. Bound to the south by the Tilbury Town to East Tilbury Railway (and thus well connected to the wider area) with Low Street Pit LWS situated further south. Surveyed by LTC in 2017 (see National Highways, 2022b). This survey separated the land into several survey areas in proximity of the draft Order Limits and the Low Street Pond site was referenced N14. N14 was reported as KRS and reptile presence was recorded as follows: adder (low population status), grass snake (low; from incidental findings), common lizard (low) and slow worm (low). The habitats within the site are of exceptional suitability for reptiles and there is a high likelihood that this site supports all four species. Potentially qualifies as a Key Reptile Site based on criteria 1, 2 and 4.
Tilbury Town to East Tilbury Railway	The railway line created an c. 25m wide corridor of typical railway sidings (comprising a mosaic of scrub, grassland, ruderal and open ballast) that extended through the draft Order Limits and connecting multiple areas of semi-natural habitat (including Land surrounding Tilbury Power Station and Low Street Pit LWS) through a predominately agricultural landscape. All four reptile species have been recorded in proximity of the railway line. The habitats are of exceptional habitat suitability and there is a high likelihood that this site supports all four reptile species. Potentially qualifies as a Key Reptile Site based on all criteria.
Tilbury Ditch Network	Unnamed ditch network that extends through arable fields to the north Tilbury Power Station. Separated into two parts by the Tilbury Town to East Tilbury Railway site, the site creates a c.15-20m corridor that provides connectivity between the Land surrounding Tilbury Power Station, Tilbury Town to East Tilbury Railway and Low Street Pond sites. Grass snake was recorded within the site during a Project field survey (28/07/2023). LTC (see National Highways, 2022b) also reported an incidental grass snake record within this site and TFGB (see RPS, 2019a) surveyed sections of the site (named Areas C and F), recording all four reptile species in low numbers. The habitats are of poor habitat suitability and there is confirmed presence of grass snake and a high likelihood that this site supports the other three reptile species. Potentially qualifies as a Key Reptile Site based on all criteria.

Annex F: Reptile Incidental Sightings

Incidental record	Date	Description of incidental record	Latitude	Longitude
I1	26/04/2023	Common lizard seen on woodpile	52.05041793	1.07578477
I2	26/04/2023	Adult grass snake	51.92275763	1.00859438
I3	02/05/2023	Adult male slow worms found under matting	52.01424154	1.03232484
I4	09/08/2023	Adult adder	51.49362243	0.40901305
I5	09/08/2023	Adult adder	51.49433705	0.41062254
I5	18/08/2023	Slow worm under pieces of corrugated metal	51.48481976	0.39738605
I7	28/07/2023	Small grass snake basking in the sun	51.46963449	0.39672307

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Appendix 8.4: Breeding Bird Report

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The Great Grid Upgrade

Norwich to Tilbury

Norwich to Tilbury

Preliminary Environmental Information Report - Volume III

Appendix 8.4: Breeding Bird Report

April 2024

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1. Introduction

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1. Introduction

1.1 Project Background

1.1.1 This report has been produced as an appendix to Chapter 8: Ecology and Biodiversity in Volume I, for the Norwich to Tilbury Project (referred to as 'the Project').

1.1.2 The Project (formerly known as East Anglia Green Energy Enablement ((GREEN)) would facilitate the transfer of power from the East Anglia region to the rest of the National Electricity Transmission System (NETS) thereby enabling connection of offshore wind generation, nuclear power generation and interconnectors which are expected into East Anglia by 2035.

1.1.3 As described in Chapter 1: Introduction in Volume I, the Project has been broken down into eight sections based largely on local authority boundaries. The eight sections are described below and referred to throughout this report:

- 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
- Section G: Brentwood Borough Council and Basildon Borough Council
- Section H: Thurrock Council

1.1.4 Further details of the Project are included within Chapter 4: Project Description in Volume I.

1.2 Ecological Background

1.2.1 The ecological background and scope of the breeding bird surveys is set out in the Environmental Impact Assessment (EIA) Scoping Report (National Grid, 2022). It was anticipated that a range of habitats within the land required for the construction of the Project would provide suitable habitat to support breeding bird activity and particularly those associated with farmland habitat.

1.2.2 The general approach to impact assessment for breeding birds is to ensure that the Project results in an increase in area of better-quality habitat than that affected by the Project and ensure that these habitats are well connected to the wider landscape. This would be achieved through the following mitigation:

- Avoiding permanent effects to habitats of perceived value where possible
- Reinstating habitats affected in areas of temporary habitat loss to equal or better condition than existing

- Improving the quality and availability of ecological networks across the Project

1.2.3 The requirement for breeding bird surveys was based on the results of a preliminary desk-based assessment, focusing on suitable habitat within the land required for construction largely associated with the underground cabling, CSE compounds and the EACN Substation. The extent of survey was defined by the outcome of a two staged screening exercise looking at:

i. Sites of known importance for breeding birds

ii. Areas of potential importance for breeding birds

1.2.4 Ahead of the PEIR the outcome of the two stages below was presented to Natural England as part of the technical note 'Ecology – Survey methodology for breeding birds, bats and hazel dormouse' (Arcadis, 2023). Natural England have agreed that the approach to breeding bird surveys is acceptable although have not commented specifically on survey locations.

1.3 Brief and Objectives

1.3.1 Arcadis Consulting (UK) Limited were commissioned by National Grid to establish a baseline for breeding birds through the completion of survey work. The objectives were:

- Undertake a desk study for breeding birds, looking at existing data
- Complete a robust breeding bird survey
- Assemble a list of bird species recorded and their breeding status (confirmed, possible, or not considered to be breeding)
- Provide an estimate of the likely number of territories / colonies of breeding bird species of conservation concern

1.3.2 The results of the breeding bird desk study and survey work (April to June 2023) have been included within this report. Further surveys are scheduled for April to June 2024. The survey findings will be used to inform the impact assessment and proposed mitigation for breeding birds across the Project. The impact assessment and mitigation will be included within the Ecology and Biodiversity Chapter of the Environmental Statement (ES) following the completion of the baseline surveys.

2. Relevant Legislation and Policy

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2. Relevant Legislation and Policy

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 and policy is provided in Table A8.4.1.

2.2 Legal Compliance

2.2.1 The following legislation (Table A8.4.1) has been considered with regard to the methodology included within this report.

Table A8.4.1 - Legal Compliance

Legislation	Details
Convention on Wetlands of International Importance Especially as Waterfowl Habitat (1971)	An international treaty created to ensure the conservation and sustainable management of wetlands, through the designation of Ramsar sites and international cooperation between contracting parties such as the UK government. The Contracting Party responsible for the site must ensure the protection of wintering bird populations, implementing appropriate measures, such as controlling invasive species and maintain suitable water levels.
The Wildlife and Countryside Act 1981, as amended (WCA) (HMSO, 1981)	The Act is the main mechanism for legislative protection of wildlife in England. It gives protection to native species (particularly threatened species), their resting places and places of shelter by making it an offence to kill, injure, take, damage, destroy, sell, or possess them (with exceptions). Under the Wildlife and Countryside Act 1981 (as amended) all wild birds are protected from killing and injury, and their nests and eggs protected from taking, damage and destruction whilst in use. Additional protection is extended to species listed under Schedule 1 of the Act, meaning it is also an offence to disturb these species at or near the nest, or whilst they have dependent young during the breeding season.
The Natural Environment and Rural Communities (NERC) Act 2006 (HMSO, 2006)	The NERC Act 2006 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. Forty-nine bird species are s41 listed species and as such identified as Species of Principal Importance (SPI)

Legislation	Details
Directive 2009/147/EC of The European Parliament and of the council of 30 November 2009 on the conservation of wild birds (Directive 2009/147/EC)	The Bird Directive establishes a legal framework across Europe, enforcing the establishment of SPAs in member states of the European Union, to protect bird species. The directive prohibits activities such as deliberate killing, capture, and disturbance of bird species during their breeding, rearing, and migration periods.
Conservation of Habitats and Species Regulations 2017, as amended ('Habitats Regulations') (HMSO, 2019)	The Regulations require authorities on behalf of the Secretary of State to maintain a list of sites which are important for either habitats or species (Special Areas if Conservation (SACs) and Special Protection Areas (SPAs)) and to provide protection for these sites through designation, planning, and other controls. The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licences by the appropriate authorities (Natural England in England). Licences may be granted for several purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on the favourable conservation status of the species concerned.
The Environment Act 2021 (HMSO, 2021a)	In line with the 25 Year Plan for the Environment (HM Government, 2018), new development should identify and pursue opportunities for securing measurable net gains for biodiversity and for the wider environment. The Environment Act 2021 introduces a mandatory requirement for 10% biodiversity net gain for new developments to ensure that they enhance biodiversity and create new green spaces for local communities to enjoy. Integrating biodiversity net gain into the planning system will provide a step change in how planning and development is delivered. There is also a strong focus on delivering environmental net gain. This would preferably be achieved onsite, however there are options to deliver these gains offsite and this would be demonstrated via the Statutory Biodiversity Metric calculation tool.

2.3 Planning Policy

2.3.1 Chapter 8: Ecology and Biodiversity in Volume I provides further details of relevant planning policy.

3. Methodology

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3. Methodology

3.1 Study and Survey Area

Study Area

3.1.1 The following study areas were used to inform the methodology and establish the baseline as part of the breeding bird desk study (refer to Figure A8.4.1: Study Area of Breeding Bird Desk Study in Annex A):

- Individual records of breeding bird species and non-statutory sites of ornithological interest – within the draft Order Limits and up to 2 km from the boundary
- Statutory designated sites of ornithological importance for breeding birds – within the draft Order Limits and up to 2 km from the boundary
- National Site Network and Ramsar Sites of ornithological importance – within the draft Order Limits and up to 20 km from the boundary

3.1.2 National site networks are a combination of the highest protected sites for habitats and species. In the UK, national site networks include SACs and SPAs. Ramsar sites are not included in the UKs national site network, but many of these sites share similar boundaries to SACs and SPAs.

Survey Area

3.1.3 Within the scoping report (National Grid, 2022) the survey area for breeding birds was to comprise a 200 m buffer from the draft Order Limits. Following a review of the design presented at statutory consultation, a 200 m buffer from the key areas of effects such as cable easement, CSE compounds and substations was considered more appropriate to inform impact assessment.

3.1.4 Within the survey area, a walked transect was devised to ensure surveyors were able to survey within 50 m of all suitable breeding habitat that may be affected by the Project, where practically possible. This included hedgerows, arable land, woodland, scrub, wetland, and grassland. The survey area and transects are presented in Figure A8.4.2 Breeding Bird Survey Areas, in Annex A.

3.2 Desk Study

3.2.1 A desk study for breeding birds was undertaken in February2023 to include records of all bird species (considered to be associated with breeding behaviour or recorded during the breeding season) within the draft Order Limits and a 2 km search area extending from the boundary, recorded within the last 10 years as per the national guidance (DEFRA, 2024). Records were provided by the following sources:

- British Trust for Ornithology (BTO) – Wetland and Estuaries Bird Survey (WeBS)
- Royal Society for the Protection of Birds (RSPB)
- Essex Field Club (EFC)

- Norfolk Biodiversity Information Centre (NBIC)
- Suffolk Biodiversity Information Service (SBIS)

3.2.2 The desk study was used to identify sites of known importance for breeding birds where there is the potential for negative effects because of the Project. Any such sites would be included for further survey.

3.2.3 To identify the locations of sites of potential importance for breeding birds (i.e. areas which are considered to have potential to support notable species such as those listed Schedule 1 of the Wildlife and Countryside Act (HMSO, 1981), or red or amber listed species on the Birds of Conservation Concern list (Stanbury *et al*, 2021); or which may support notable assemblages of common birds) within the survey area (see section 3.1) and that are potentially subject to negative effects; a review of the following information sources was undertaken:

- Aerial photography and Ordnance Survey mapping
- Phase 1 habitat data
- Discussions with local consultees

3.3 Survey Methodology

3.3.1 The surveys followed Bird Survey Guidelines (Bird Survey & Assessment Steering Group, 2021), a formal version of the Common Bird Census (CBS) (Marchant, 1983) which was run by the British Trust for Ornithology (BTO) between 1962 and 2000. The outcome of which provides a sufficient level of confidence when describing the breeding bird community present.

3.3.2 A total of six breeding bird surveys were completed for two transect routes within the study area between April and June 2023, to inform an evaluation of habitats within the survey area. Each transect took one morning to complete. Given one of the potential effects that may arise from the Project would comprise both permanent and temporary loss of habitat, territory (registration) mapping techniques were undertaken (Bibby *et al*, 2000).

3.3.3 Breeding bird surveys encompassed all areas of land required for the Project, to establish the breeding bird community present and the inclusion of any sensitive ornithological features. This survey area was expanded by a further 200 m (beyond the boundary of the draft Order Limits) to account for bird territories that may be potentially exposed to disturbance.

3.3.4 Figure A8.4.2: Breeding Bird Survey Area in Annex A shows the survey area, the area covered in 2023 (with the specific transect routes taken) and the areas that are to be surveyed in 2024 to complete the baseline.

3.3.5 Survey visits were undertaken in the early morning, commencing at dawn during periods of good visibility and suitable weather conditions. Each of the survey visits lasted between four and five hours where surveyors walked slowly, observing all suitable habitat along the transect route whilst looking and listening for birds. To minimise bias (as birds may be active at different times of day in different areas) and in accordance with good practice guidance (Bibby *et al*, 2000) the start points, and direction of the route walked was varied between surveys.

3.3.6 The locations of birds seen and heard were mapped with reference to the standard BTO two letter codes and activity symbols. Where breeding activity was observed, this was recorded in accordance with the following categories:

- Non-breeder (NB) – birds observed flying over, considered to be on migration or a summering non-breeder
- Possible breeding (PoB) – birds observed singing or present in suitable habitat in breeding season
- Probable breeding (PrB) – a pair observed in suitable habitat, territorial behaviour observed in the same place on at least two separate occasions, or by many individuals simultaneously on one day, or birds observed visiting a probable nest site, showing courtship or display behaviour in suitable breeding habitat or nest building
- Confirmed breeding (CB) – nest containing eggs or young seen or heard, adults observed carrying faecal sac or food, feigning injury as a distraction display or entering or leaving a nest site in circumstances indicating an occupied nest, a used nest or eggshells found or recently fledged or downy young recorded (showing evidence of dependency on adults)

3.3.7 Surveyors only recorded the breeding activity of birds that are Red or Amber listed within the Birds of Conservation Concern (BoCC; Stanbury *et al*, 2021) and those species that are listed under Schedule 1 of the WCA (HMSO, 1981). Birds that did not meet the above criteria were noted as part of a general species list for the area.

Barn Owl

3.3.8 All trees within the draft Order Limits have been assessed (where access was available) for their potential to support barn owl. Further survey work will be undertaken between April and September 2024 to determine any potential or confirmed breeding sites for barn owl. The results of the barn owl survey work will be presented in the ES.

3.4 Dates of Survey and Personnel

3.4.1 Lead surveyors were experienced ornithologists and competent at undertaking breeding bird surveys. Dates of the surveys and weather conditions are presented in Table A8.4.2.

Table A8.4.2 - Norwich to Tilbury 2023 Breeding Bird Survey Information

Survey Visit	Date	Weather Conditions
1	5 April 2023	Rain – 0, Wind – Calm, Visibility – Good, Cloud cover – 66 to 99%
	6 April 2023	Rain – Had rained before survey and some showers during, Wind – Breezy, Visibility – Poor/Fair, Cloud cover – 66 to 99%
2	27 April 2023	Rain – 0, Wind – Calm, Visibility – Good, Cloud cover – 33 to 66%
	28 April 2023	Rain – Wet ground, Wind – Calm, Visibility – Poor/Fair, Cloud cover – 66 to 99%

Survey Visit	Date	Weather Conditions
3	10 May 2023	Rain – 0, Wind – Calm, Visibility – Unknown, Cloud cover – 80%
	11 May 2023	Rain – 0, Wind – Light breeze, Visibility – Good, Cloud cover – 80%
4	25 May 2023	Rain – 0, Wind – Calm, Visibility – Unknown, Cloud cover – 50%
	26 May 2023	Rain – 0, Wind – Calm, Visibility – Unknown, Cloud cover – 50%
5	6 June 2023	Rain – 0, Wind – Light breeze, Visibility – Fine, Cloud cover – Cloudy
	7 June 2023	Rain – 0, Wind – Light breeze, Visibility – Fine, Cloud cover – Cloudy
6	22 June 2023	Rain – Unknown, Wind – Calm, Visibility – Unknown, Cloud cover – 50%
	23 June 2023	Rain – Unknown, Wind – Calm, Visibility – Unknown, Cloud cover – 10%

3.5 Notes and Limitations

3.5.1 Whilst every effort has been made to record all bird species present, some species are more difficult to detect due to the nature of their ecology (for example, crepuscular species) or their general behaviour (quiet and more secretive). There is a possibility that some species went undetected during surveys. However, as this is a factor that applies to all bird survey types it is not considered to place a significant constraint upon the interpretation of the results for the surveys.

3.5.2 Due to access restrictions, not all the survey area was surveyed in 2023. Surveys were undertaken within a section of study area 2 (see Annex A) in 2023. Figure A8.4.2: Breeding Bird Survey Area in Annex A, identifies the areas that were surveyed in 2023 and the areas proposed to survey in 2024.

4. Results

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4. Results

4.1 Overview

4.1.1 Breeding bird surveys, as discussed within Section 3 above were undertaken between April and June 2023 at specific locations along the Project. Only data gathered between September 2022 and September 2023 has been included within this report. Further survey results obtained beyond September 2023 shall be reported within the ES.

4.2 Desk Study Results

Habitat Suitable for Breeding birds

4.2.1 The Project passes through predominantly arable farmland, with areas of grassland and woodlands mainly occurring along river valleys that cross the Project. Field boundaries are typically formed by hedgerows, which are likely to support breeding farmland species, with more densely packed populations likely to be present in the smaller fields. Wetland areas are concentrated around river valleys such as the River Stour that provide excellent connectivity throughout the wider landscape.

National Site Network and Ramsar Sites of Ornithological Importance

4.2.2 Twenty-eight National Site Network Sites/ Ramsar sites of ornithological importance were identified within 20 km of the draft Order Limits. These are presented in the wintering / passage bird report (Appendix 8.5: Wintering/Passage Bird Report in Volume III).

Statutory Designated Sites with Ornithological Interest

4.2.3 Six statutory designated sites with ornithological interest (five Sites of Special Scientific Interest; SSSI and one proposed SSSI) were identified within 2 km of the draft Order Limits, extended to include several national sites more than 2 km from the draft Order Limits at the request of Natural England. These are listed in in Table A8.4.3 and shown on Figure 8.1: Statutory Sites Designated for Biodiversity in Volume II.

Table A8.4.3 – Statutory Designated Sites with Ornithological Interest within 2 km of the draft Order Limits (including sites outside 2 km requested by Natural England).

Names of site	Project Section	Designation	Distance and Direction from draft Order Limits
North Thames Estuary and Marshes Proposed SSSI	Section H	SSSI	Within draft Order Limits
Langdon Ridge	Section G	SSSI	0.0679km east
South Thames Estuary and Marshes	Section G	SSSI	1.80 km south
Hintlesham Woods	Section C	SSSI	1.52 km north-west
Cattawade Marshes	Section C	SSSI	3.07 km east
Stour Estuary	Section C	SSSI	3.47 km north-east

Non-statutory Designated Sites of Ornithological Interest

4.2.4 Three non-statutory County Wildlife Sites (CWS) specifically mentioned breeding birds as a feature of interest were identified within 2 km of the draft Order Limits, these are listed in Table A8.4..4 their locations are shown on Figure 8.2: Non-Statutory Sites Designated for Biodiversity in Volume II.

Table A8.4.4 – Non-statutory Designated Sites with Ornithological Interest within 2 km of the draft Order Limits

Names of site	Project Section	Designation	Distance and Direction from draft Order Limits
River Waveney	A and B	CWS	Within draft Order Limits
River Gipping	B	CWS	Within draft Order Limits
Sproughton Park	C	CWS	Within draft Order Limits

Individual Records of Breeding Birds

4.2.5 Overall, 139 species of breeding birds were recorded within the study area comprising 23,312 records of 145,171 individuals. The breeding species recorded within each Project section have been presented in the tables in Annex B: Desk Study Results.

Areas of Potential Importance for Breeding Birds

4.2.6 Seven potential survey areas for breeding birds were identified based on the desk study information above with perceived impact pathways. A 200 m buffer was applied to key areas of effects such as cable easement, cable sealing end (CSE) compounds and substations to create these survey areas.

4.2.7 The survey areas are illustrated on Figure A8.4.2: Breeding Bird Survey Areas in Annex A. Initial scoping was based on a desk-based assessment including a review of aerial

photographs taken from a fixed-winged drone (in 2022 a high-quality imagery fixed-wing survey was completed by APEM across the Scoping Report Corridor[1] using a drone) and the perceived variety of farmland habitats in these areas.

4.2.8 The potential survey areas were then subject to a more detailed desk-based assessment utilising relevant information from nearby third-party reports (i.e., bird survey information and documents relating to other nearby Nationally Significant Infrastructure Projects (NSIPs) and planning applications).

4.2.9 The detailed desk study highlighted that insufficient information was available for the selected survey areas and breeding surveys were therefore undertaken in 2023, with surveys to be completed in 2024 to inform the impact assessment.

4.2.10 The habitats and breeding bird assemblage associated with Site 7 (Tilbury) are well studied as follows:

- Lower Thames Crossing (LTC) – this proposed new road connecting Kent, Thurrock and Essex included an extensive study area (including but extending beyond West Tilbury to the northwest and south) within which ecological surveys were conducted. Breeding bird surveys were undertaken between 2017 and 2020 and are detailed within Appendix 8.7 of the LTC Environmental Statement (National Highways, 2022)
- Thurrock Flexible Generation Plant – which comprises the construction and operation of Gas Reciprocating engines to the south of West Tilbury. Breeding bird surveys were conducted in 2018 and 2019 and these are provided in Appendix 9.1 of the project Environmental Statement (RPS, 2018)

4.2.11 Surveys conducted in support of Tilbury Energy Centre (RWE, 2017) and Tilbury2 (Port of Tilbury London Limited, 2017) also provide context for breeding bird assemblages within Site 7. However, due to the age of the data and the changing landscape in this area because of development breeding bird surveys are to be undertaken in 2024 to inform the impact assessment for the Project.

4.3 Survey Results

4.3.1 Part of Site 4 was the only area that was surveyed in 2023, location shown in Figure A8.4.2: Breeding Bird Survey Areas, in Annex A.

4.3.2 In total 82 bird species were recorded on, or flying over, the survey area during the breeding bird surveys. Of the 82 species recorded, 55 were considered of conservation value as Red or Amber listed BoCC (Stanbury *et al*, 2021) or listed under Schedule 1 of the WCA (HMSO, 1981). Twenty-seven of these species were considered to hold breeding or possible breeding territories within the survey area. A list of the bird species recorded, and their conservation status is provided in Annex C: Survey Results.

4.3.3 The birds were recorded in each of the conservation categories listed below. It should be noted that these categories are not exclusive, and some species are listed within more than one conservation category.

- Four Cetti's warbler (*Cettia cetti*) confirmed breeding territories were recorded within the survey area. This species is listed on Schedule 1 of the WCA (HMSO, 1981)

[1] The Scoping Report Corridor refers to the preferred corridor as reported in the Corridor and Preliminary Routing and Siting Study and presented at non-statutory consultation in 2022

- Twelve Red listed BoCC were recorded. These held 46 confirmed breeding territories and 30 possible breeding territories within the survey area, see below for further information on the individual species
- Fourteen Amber listed species BoCC were recorded. These held 112 confirmed breeding territories and 62 possible breeding territories within the survey area, see below for further information on the individual species

4.3.4 All birds recorded during the breeding bird surveys, along with their conservation value are presented in Annex C (Survey Results). Territory maps were produced to identify the confirmed and possible territories within the survey area (Bibby *et al*, 2020). The territories of 27 species are presented on Figure 8.4.3: 2023 Breeding Bird Survey Territories, in Annex A.

Summary of Territory Mapping

Sedge warbler (Acrocephalus schoenobaenus)- Amber listed

4.3.5 One confirmed sedge warbler territory was identified through the breeding bird surveys. This territory was located along the River Stour and associated riparian habitat.

Skylark (Alauda arvensis)- Red Listed SPI

4.3.6 Thirty confirmed and 10 possible skylark territories were identified through the breeding bird surveys. All territories were located within arable land or rough grazing habitat.

Mallard (Anas platyrhynchos)-Amber Listed

4.3.7 Six confirmed mallard territories were identified through the breeding bird surveys. All the mallard territories were located within proximity to the River Stour, associated with the connecting pools and wetland habitat.

Swift (Apus apus)-Red Listed

4.3.8 One possible swift territory was identified through the breeding bird surveys. The territory was located at the western extent of Stratford St Mary where nesting opportunities are likely present in nearby dwellings. This area also connects with the River Stour and associated wetland habitat where ample foraging resources were present.

Cetti's warbler- WCA Schedule 1

4.3.9 Four confirmed Cetti’s warbler territories were identified through the breeding bird surveys. All territories were located adjacent to the River Stour, located within suitable wetland habitat just as reed beds.

Greenfinch (Chloris chloris)- Red Listed

4.3.10 Three confirmed and six possible greenfinch territories were identified through the breeding bird surveys. Territories were identified within mixed farmland habitats that supported hedgerows, field margins and woodland.

Stock dove (Columba oenas)-Amber Listed

4.3.11 Two possible stock dove territories were identified through the breeding bird surveys. Territories identified were within woodland (Primrose Wood and an unidentified woodland between the River Stour and Higham Road).

Woodpigeon (Columba palumbus)- Amber Listed

4.3.12 Twenty-five confirmed and 13 possible woodpigeon territories were identified through the breeding bird surveys. Territories were identified across mixed farmland habitats that supported hedgerows, field margins and woodland.

Rook (Corvus frugilegus)- Amber Listed

4.3.13 Eight confirmed rook territories were identified through the breeding bird surveys. All territories encompassed woodlands.

Cuckoo (Cuculus canorus)- Red Listed SPI

4.3.14 Two confirmed and one possible cuckoo territory were identified through the breeding bird surveys. All territories were located along the River Stour and connected wetland habitat.

Common whitethroat (Curruca communis)- Amber Listed

4.3.15 Twelve confirmed and eleven possible common whitethroat territories were identified through the breeding bird surveys. These territories were in a variety of habitats comprising wetland, woodland, hedgerows, and arable field margins.

House martin (Delichon urbicum)-Red Listed

4.3.16 One confirmed house martin territory was identified through the breeding bird surveys. The territory was identified between School Lane and Higham Road, North of Stratford St Mary (Section C), encompassing various large agricultural buildings and farmland habitats.

Yellowhammer (Emberiza citronella)-Red Listed SPI

4.3.17 Four confirmed and three possible yellowhammer territories were identified through the breeding bird surveys. These territories contained hedgerows, scrub, and arable field margins.

Reed bunting (Emberiza schoeniclus)-Amber Listed SPI

4.3.18 Three confirmed reed bunting territories were identified through the breeding bird surveys. All territories were located within wetland habitat directly connected to the River Stour.

Kestrel (Falco tinnunculus)-Amber Listed

4.3.19 One confirmed kestrel territory was identified through the breeding bird surveys. The territory encompassed a woodland and arable land between the woodland and the River Stour.

Moorhen (Gallinula chloropus)-Amber Listed

4.3.20 Five confirmed and one possible moorhen territory were identified through the breeding bird surveys. All territories were associated with the wetland habitat around the River Stour.

Linnet (Linaria cannabina)-Amber Listed SPI

4.3.21 Three confirmed and three possible linnet territories were identified through the breeding bird surveys. The territories were located across various habitats, comprising wetland, scrub, woodland, and hedgerows.

Nightingale (Luscinia megarhynchos)- Red Listed

4.3.22 One possible nightingale territory was identified through the breeding bird survey. The territory was located within an un-named woodland to the east of Green Lane, north of Stratford St Mary (Section C).

Yellow wagtail (Motacilla flava)-Red Listed SPI

4.3.23 One possible yellow wagtail territory was identified through the breeding bird surveys. The territory comprised woodland and arable land near Holton St Mary.

House sparrow (Passer domesticus)- Red Listed SPI

4.3.24 One confirmed house sparrow territory was identified through the breeding bird surveys. The territory contained residential properties and gardens on the corner of Whalebone Corner and Rectory Road, south-west of Stratford St Mary (Section C).

Redstart (Phoenicurus phoenicurus)-Amber Listed

4.3.25 One possible redstart territory was identified through the breeding bird surveys. The territory comprised wetland and woodland adjacent to the River Stour.

Dunnock (Prunella modularis)-Amber Listed SPI

4.3.26 Seven confirmed and eight possible dunnock territories were identified through the breeding bird surveys. These territories were in a variety of habitats comprising wetland, woodland, hedgerows, and arable field margins.

Shelduck (Tadorna tadorna)-Amber Listed

4.3.27 Two confirmed shelduck territories were identified through the breeding bird surveys. Both territories encompassed an area of wetland, arable and scrubland adjacent to the River Stour.

Wren (Troglodytes troglodytes)-Amber Listed

4.3.28 Thirty-two confirmed and 13 possible wren territories were identified through the breeding bird surveys. These territories were in a variety of habitats comprising wetland, woodland, hedgerows, and arable field margins.

Song thrush (Turdus philomelos)-Amber Listed SPI

4.3.29 Ten confirmed and 12 possible song thrush territories were identified through the breeding bird surveys. These territories were in a variety of habitats comprising wetland, woodland, hedgerows, and arable field margins.

Mistle thrush (Turdus viscivorus) Red Listed

4.3.30 Two confirmed and three possible mistle thrush territories were identified through the breeding bird surveys. All territories encompassed large areas of woodland.

Lapwing (Vanellus vanellus)-Red Listed SPI

4.3.31 One possible lapwing territory was identified through the breeding bird surveys. The territory comprised an area of grazed pasture and wetland habitat to the north-east of the River Stour.

5. Summary

nationalgrid

5. Summary

5.1.1 The results of the territory mapping reveal a range of bird species that are typically associated with farmland habitats. As expected, the River Stour and immediate surroundings supported a diverse range of species due to the variety of habitats available and good connectivity to the wider landscape (including the coast and further habitats inland). The numbers and distribution of territories were typical of rural Essex/Suffolk, the species assemblage and number are of no more than local value.

5.1.2 Surveys will continue in 2024 and full results will be issued within the ES.

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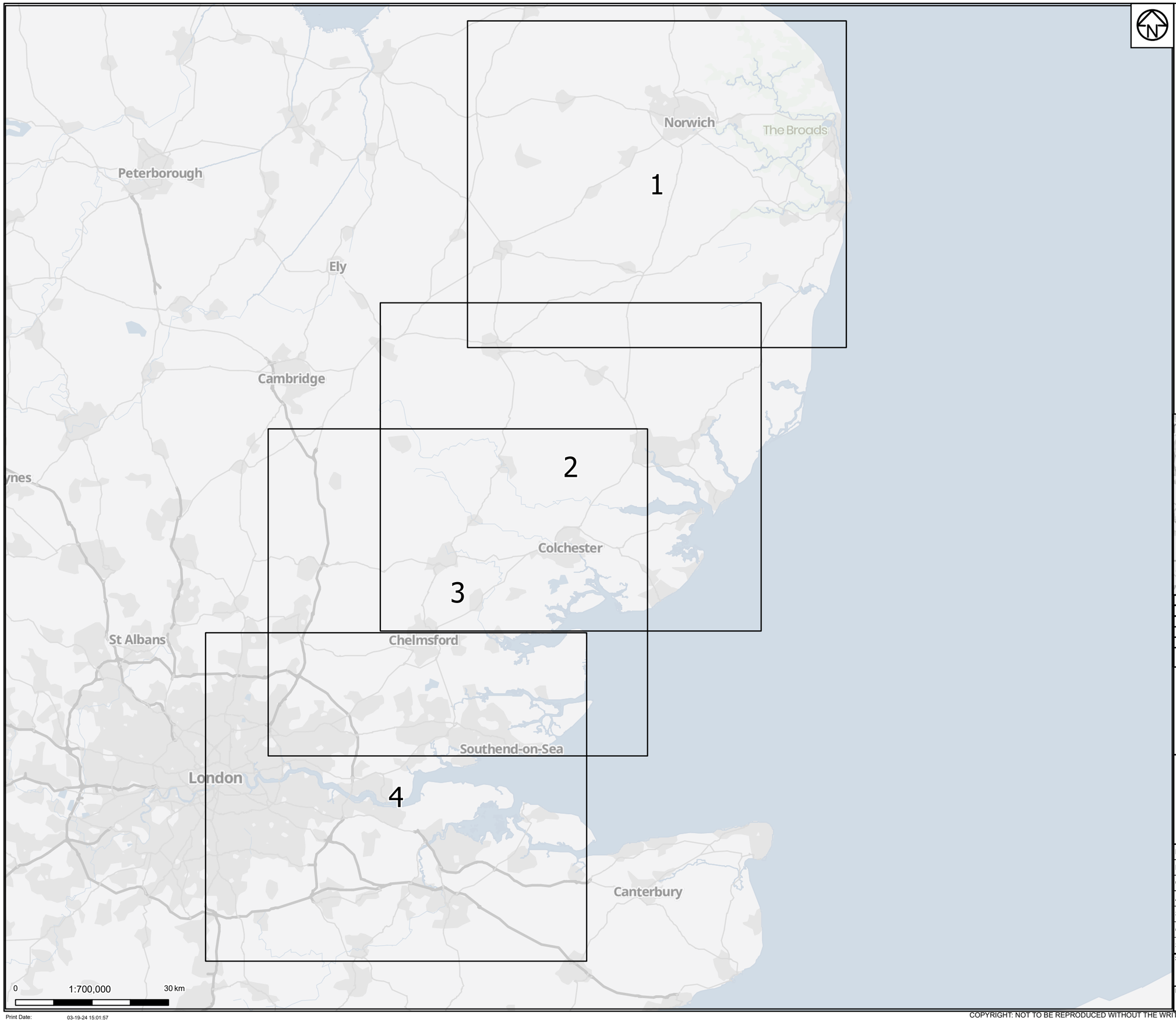
Annex A: Figures

Figure A8.4.1: Study Area for Breeding Birds



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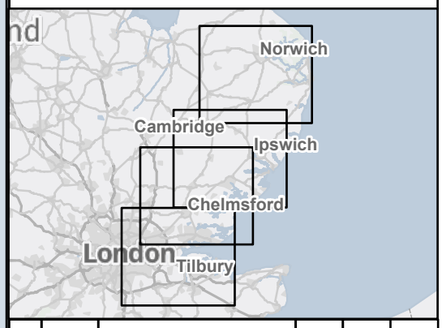

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A	April 2024	FOR STATUTORY CONSULTATION	KF	AF	KB

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PROJECT:
Norwich to Tilbury

Title:

Appendix 8.4.1 - Ecology and Biodiversity - Study Area of Breeding Bird Desk Study Overview

Designed	H. Smith	Date	April 2024
Drawn	K. Fischer	Date	April 2024
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Proposed substation extension

Norwich Main Substation

Broadland

Broadland

Breydon Water

Breckland

Redgrave & South Lopham Fens

Waveney Valley overhead line and Waveney Valley Alternative

Section A

Section B

Page 1 and 2

Outer Thames Estuary

Benacre to Easton Bavents

Minsmere-Walberswick

0 1:225,000 10 km

Legend

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment

Discipline specific constraints

- 2km Study Area
- 20km Study Area
- County Wildlife Sites
- Ramsar Sites
- Special Protection Areas

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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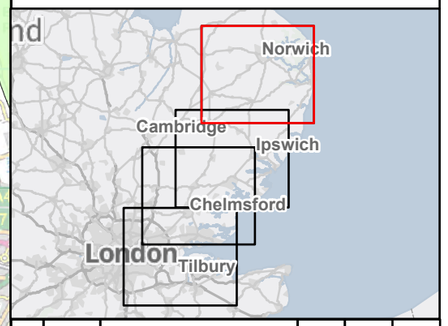

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Appendix 8.4.1 - Ecology and Biodiversity - Study Area of Breeding Bird Desk Study Page 1 of 4

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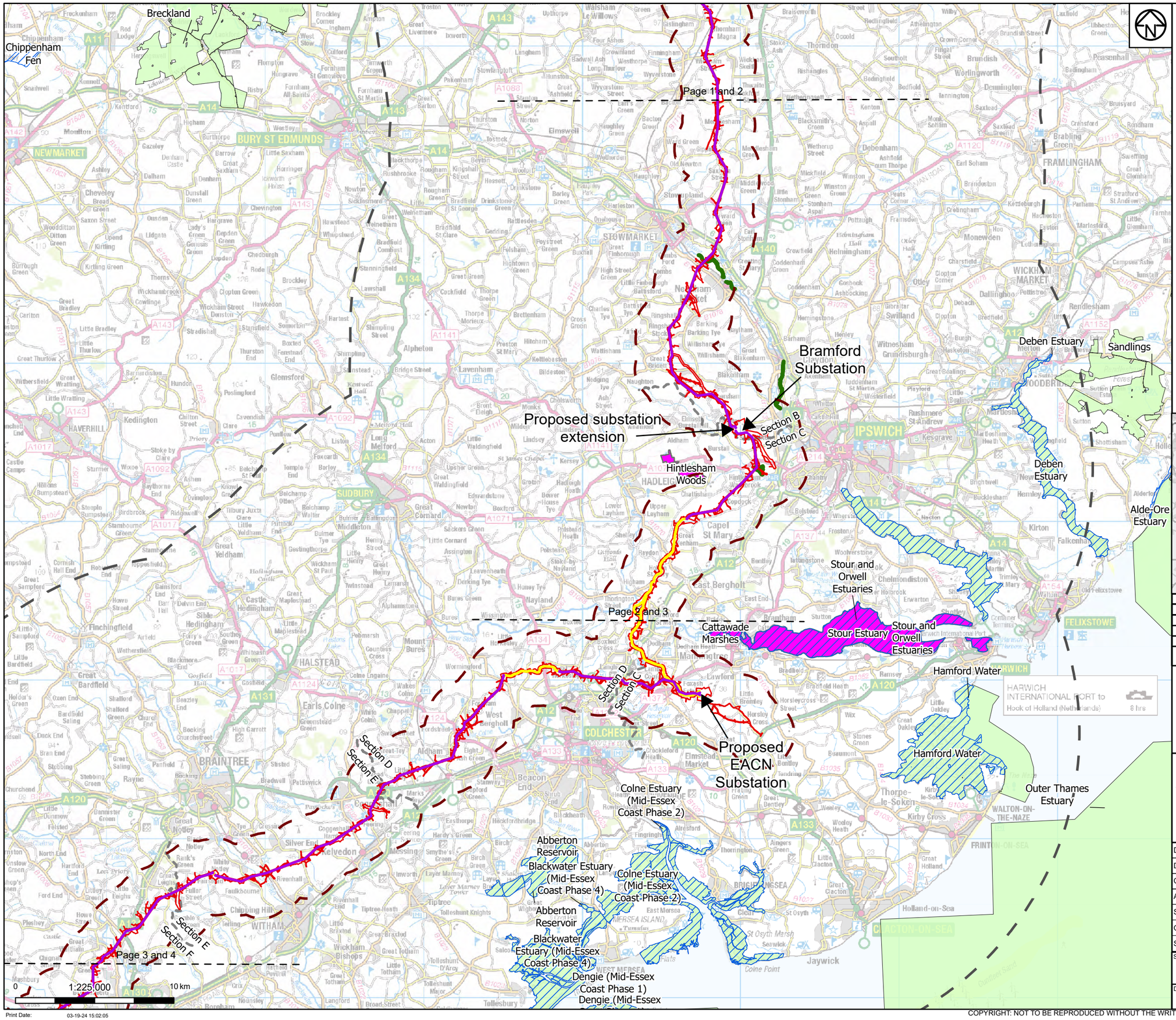

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- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed underground cable alignment

Discipline specific constraints

- 2km Study Area
- 20km Study Area
- County Wildlife Sites
- Ramsar Sites
- Sites of Special Scientific Interest
- Special Protection Areas

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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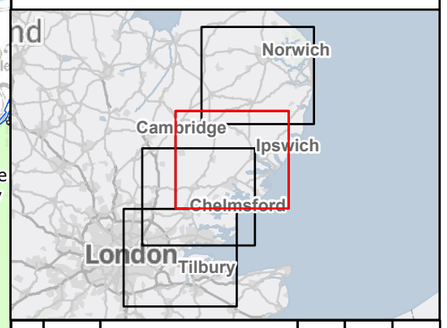

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Appendix 8.4.1 - Ecology and Biodiversity - Study Area of Breeding Bird Desk Study Page 2 of 4

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Proposed substation extension

Hintlesham Woods

Stour and Orwell Estuaries

Cattawade Marshes

Stour Estuary

Stour and Orwell Estuaries

Page 2 and 3

Section D

Section C

Proposed EACN Substation

Section D

Section E

Colne Estuary (Mid-Essex Coast Phase 2)

Abberton Reservoir

Abberton Reservoir

Colne Estuary (Mid-Essex Coast Phase 2)

Section E

Section F

Page 3 and 4

Blackwater Estuary (Mid-Essex Coast Phase 4)

Blackwater Estuary (Mid-Essex Coast Phase 4)

Dengie (Mid-Essex Coast Phase 1)

Outer Thames Estuary

Section F

Section G

Dengie (Mid-Essex Coast Phase 1)

Crouch & Roach Estuaries (Mid-Essex Coast Phase 3)

Crouch & Roach Estuaries (Mid-Essex Coast Phase 3)

Foulness (Mid-Essex Coast Phase 5)

Section G

Section H

Langdon Ridge

Benfleet and Southend Marshes

Benfleet and Southend Marshes

0 1:225,000 10 km

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Legend

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed underground cable alignment

Discipline specific constraints

- 2km Study Area
- 20km Study Area
- County Wildlife Sites
- Ramsar Sites
- Sites of Special Scientific Interest
- Special Protection Areas

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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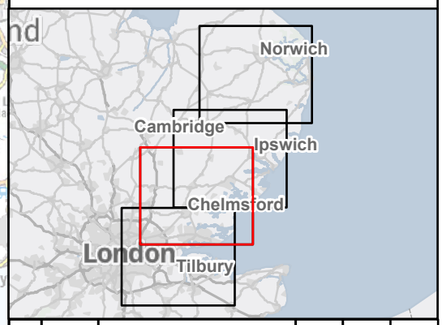

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Appendix 8.4.1 - Ecology and Biodiversity - Study Area of Breeding Bird Desk Study Page 3 of 4

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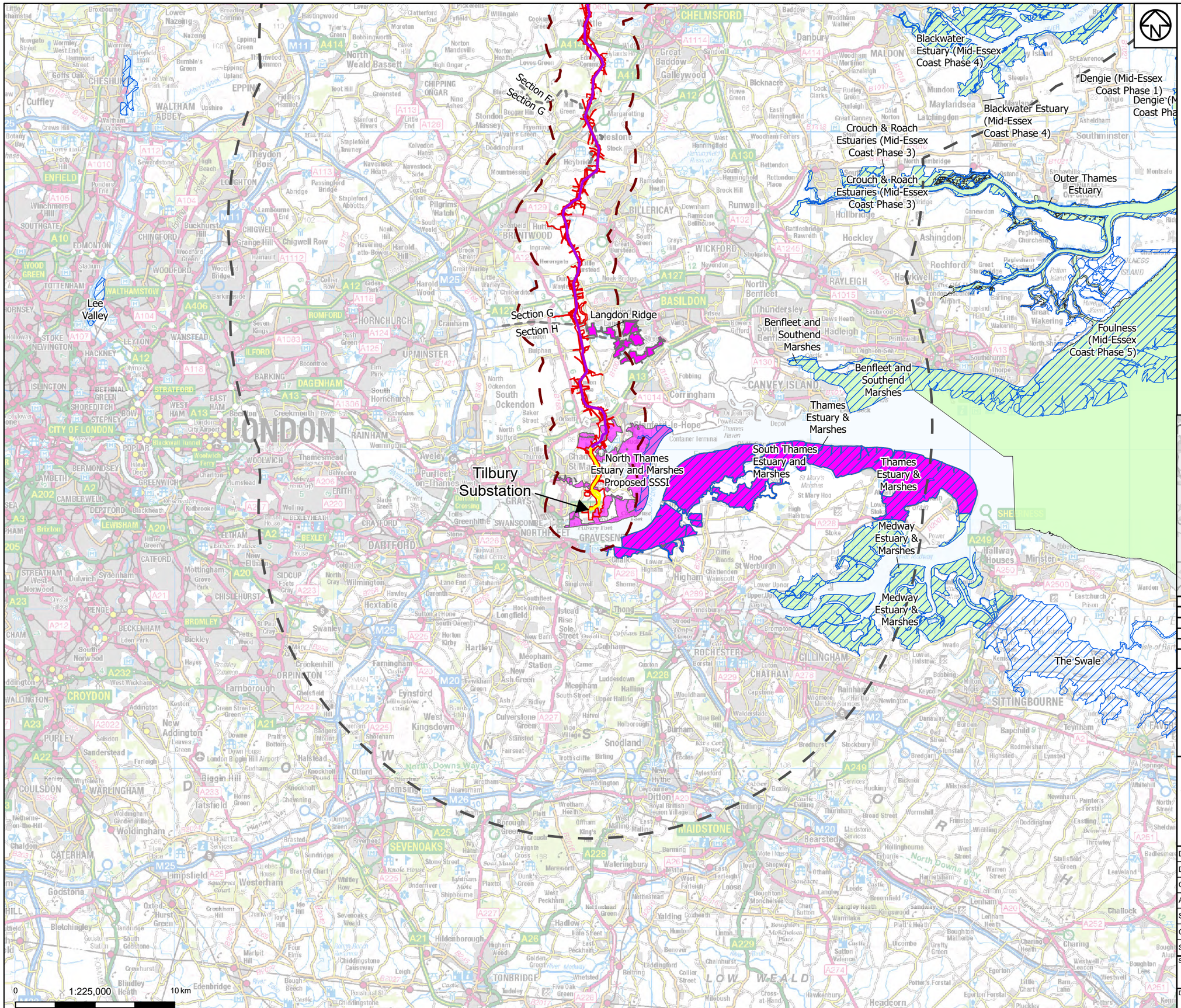

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- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
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Discipline specific constraints

- 2km Study Area
- 20km Study Area
- Ramsar Sites
- North Thames Estuary and Marshes Proposed SSSI
- Sites of Special Scientific Interest
- Special Protection Areas

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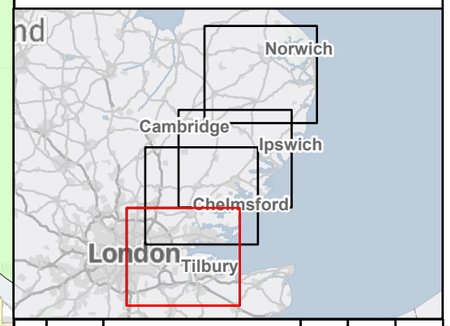

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Appendix 8.4.1 - Ecology and Biodiversity - Study Area of Breeding Bird Desk Study Page 4 of 4

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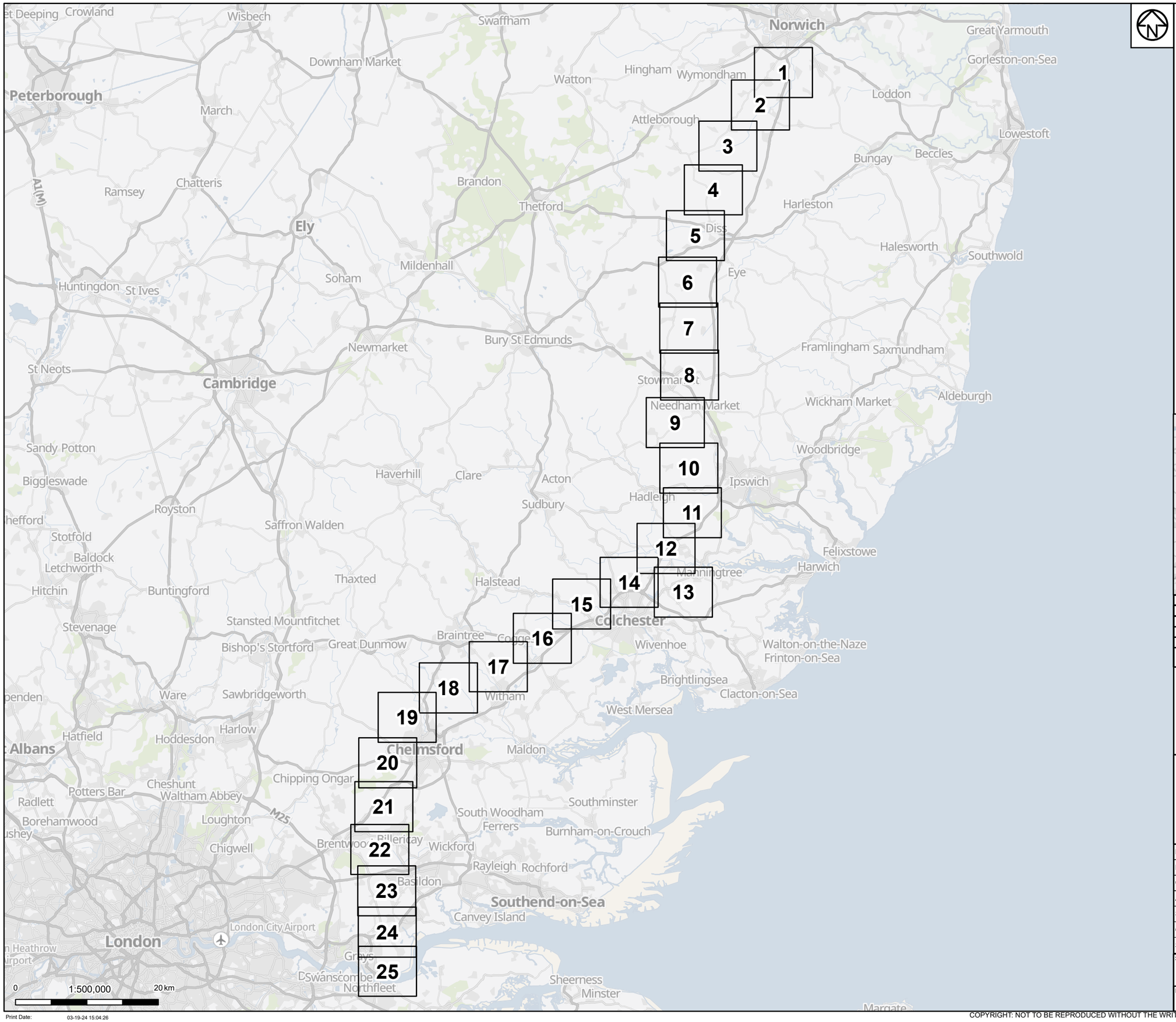
Figure A8.4.2: Breeding Bird Survey Areas



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PROJECT:
Norwich to Tilbury

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A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Overview

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Proposed substation extension

Norwich Main Substation

RG001

RG005

RG010

RG015

RG020

Page 1 and 2

0 1 km

1:25,000

Print Date: 03-19-24 15:04:30

- Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Existing substation
- Proposed substation extension
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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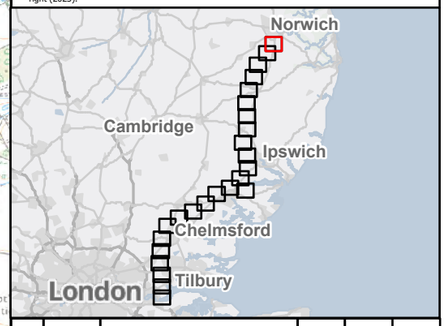

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas
Page 1 of 25

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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

Revision: A

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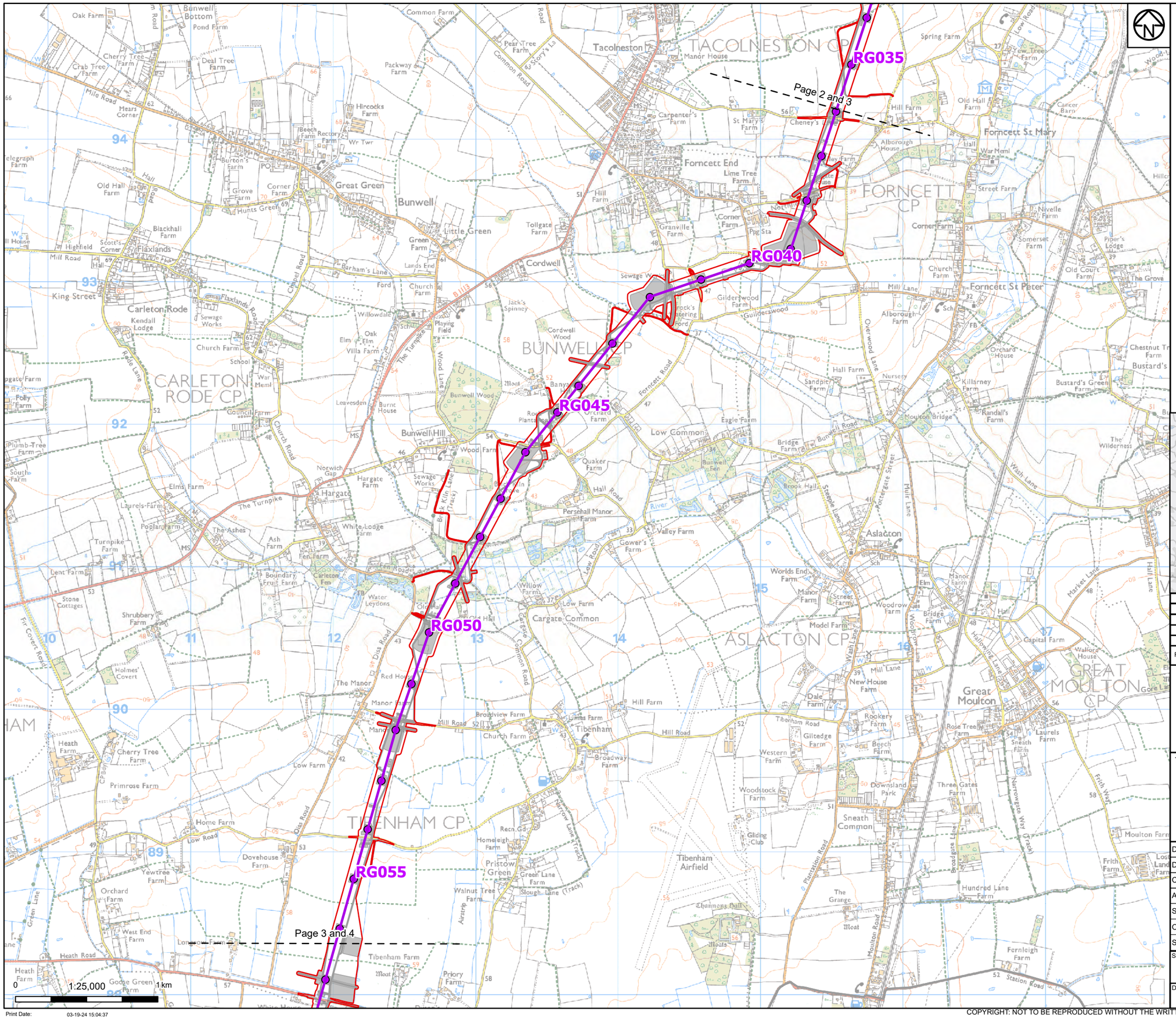
RG010
RG015
RG020
RG025
RG030
RG035
Page 1 and 2
Page 2 and 3
BRACON ASH CP
WRENINGHAM CP
ASHWELLTHORPE AND FUNDENHALL CP
FLORDON CP
THARSTON AND HAPTON CP
TASBURGH CP
NEWTON FLOTMAN CP
MULBARTON CP
TACOLNESTON CP
SOUTH NORFO
MORNING
Bracon Ash
Wreningham
Hethel
Fundenhall
Hapton
Flordon
Tasburgh
Newton Flotman
Saxlingham Thorpe
Tharston
Forncett St Mary
Toprow
Lower Tasburgh
Low Tharston
Hethel Thorn
Bracon Hall
Church Farm
Well Plantation
Bond's Green
Street Plantation
Corporation Farm
Penny's Green
Fir Grove
High House Farm
Wymondham Road
Hethel Road
Bridge House
Old Rectory Farm
Old Rectory Lane
Old Rectory (Track)
The Poplars
War Meml
Hill House
Nursery
Mill Lane
Mill Side
Gable End
Upper Grove Wood
Lodge Farm
Bracon Lodge
Mergate Farm
Sewage Ppg Sta
Mergate Hall
Hill Farm
Marsh Green
Woodlands
Newton Greenways
Church Nursery
Brickkiln Lane
Oak
Brick Kiln Farm
Greenway Plantation
Primrose Farm
The Rookery
Lodge Farm
Policeman's Wood
ROMAN ROAD
Dairy Farm
The Shrubbery
Shotesham Park
Meadow Cottage
Hillcrest Farm
Playing Field
Monk's Farm
The Firs
Church Farm
Newton Sides
Limekiln Plantation
Smockmill Common
Seven Acre Plantation
Whitefield's Grove
Cargate Lane
Lodge Farm
Sewage Works
Long Lane
Hall Farm
West End
Hill Farm
Foxhole Farm
Foxhole
Windy Lane
Ivy Farm
Gransville
Raintborpe Hall
Weir
Manor Farm
Sixlingham Lane
Mill Farm
Rectory
The Nurseries
Station Road
Flordon Common
Norwich Road
White Horse Cottage
Walk's Farm
Church Lane
Fundenhall
Rattee's Corner
Ppg Sta
The Grange
Bridge Farm
Hillside Farm
Fundenhall Road
Hapton Common
Hapton Hill
Ppg Sta
Bayes Farm
Low Barn Farm
Grove Farm House
L'Ecole
Brickkiln Lane
Whip's Lane
Street
Puddingpoke Barn
Norwich Road
Old Hall Farm
Turn Lane
The Manor
Loughen Common
Castaway Farm
Loughen Farm
Viaduct
Horsford Farm
Horsford Water
River Tas
The Mill
Valley Farm
Chamusca
Low Tharston
Long Lane
Greenway Lane
Parkes Lane
Low Road
Tew Tree Farm
Spring Farm
Wood Lane (Track)
Ivy Farm
Willow Farm
Church Road
Church Farm
Hall Farm
Brand's Lane
Shrublands
Tharston Hall
Model Farm
Cancer Barn
Old Hall Farm
Hill Farm
Carpenter's Farm
St Mary's Farm
Cheney's
Alborough House
Hall
War Meml
Tew Tree Farm
Little Tew Tree House
Highfields
Hillcrest
Picton
Church Lane
Hall Farm
Grey Gables
Hollies Farm
The Cedars
Lodge Farm
Hall Farm
Hall Farm
Hall



Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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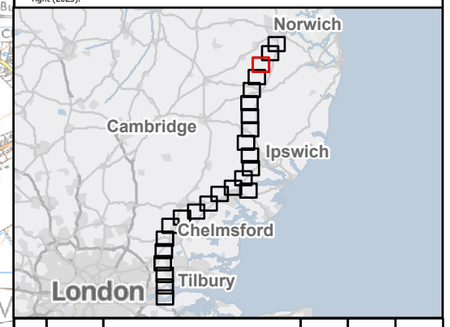

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

nationalgrid

PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 3 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

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RG055

Page 3 and 4

RG060

RG065

RG070

RG075

Page 4 and 5

WINFARTHING CP

SHELFANGER CP

BRESSINGHAM CP

GISSING CP

BURSTON AND SHIMPLING CP

0 1:25,000 1 km

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Draft order limits

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 4 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

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Waveney Valley Overhead Line

RG075

RG080

RG085

RG090

RG095

RG100

Page 4 and 5

Page 5 and 6

Section A

Section B

0 1:25,000 1 km

Print Date: 03-19-24 15:04:44

- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Breeding bird survey areas 2024
- Breeding bird transects 2024

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas
Page 5 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

Revision: A

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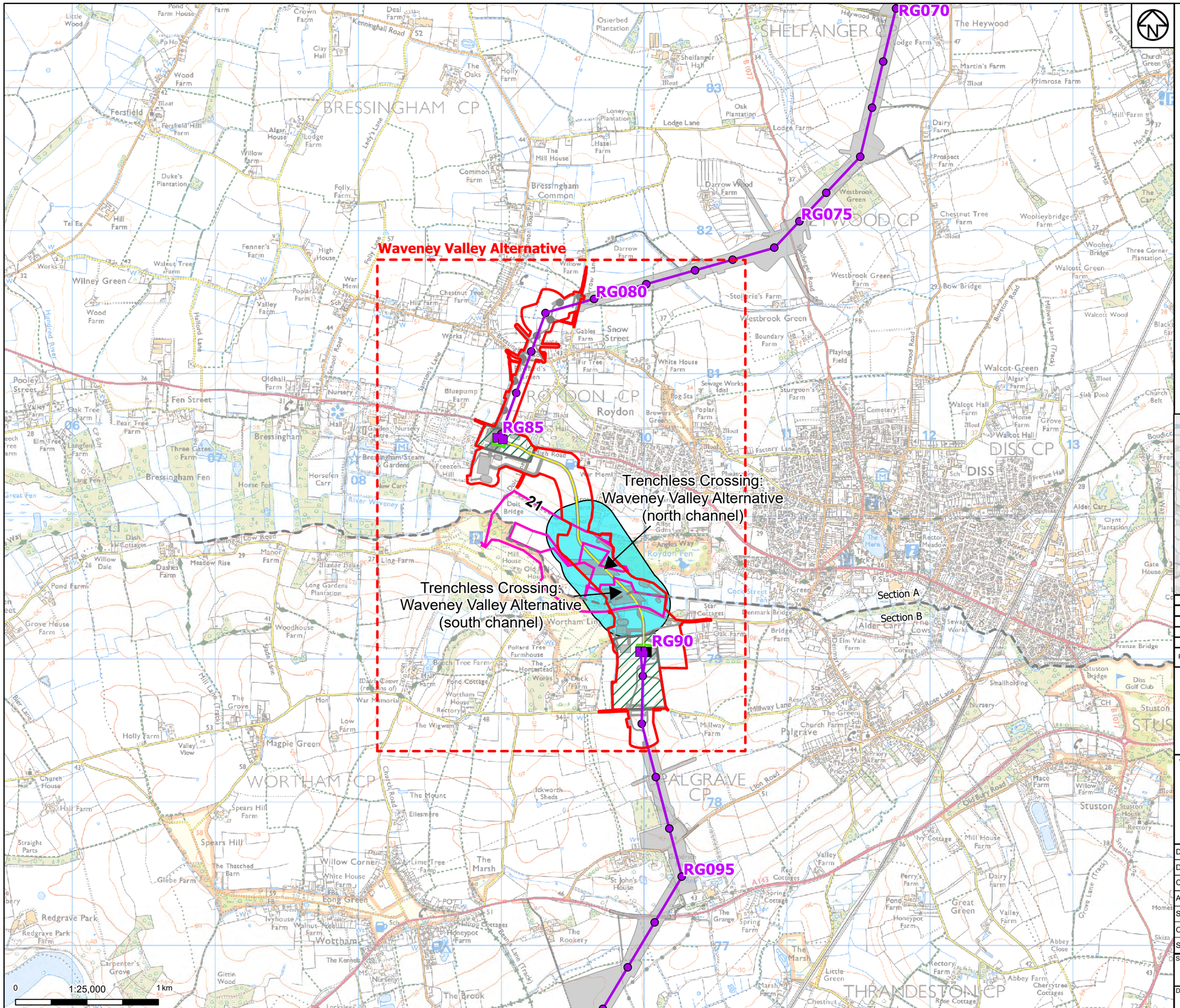

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- Draft order limits
- Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed low duty gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Breeding bird transects 2024
- Breeding bird survey areas 2024

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 5a of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

Revision: A

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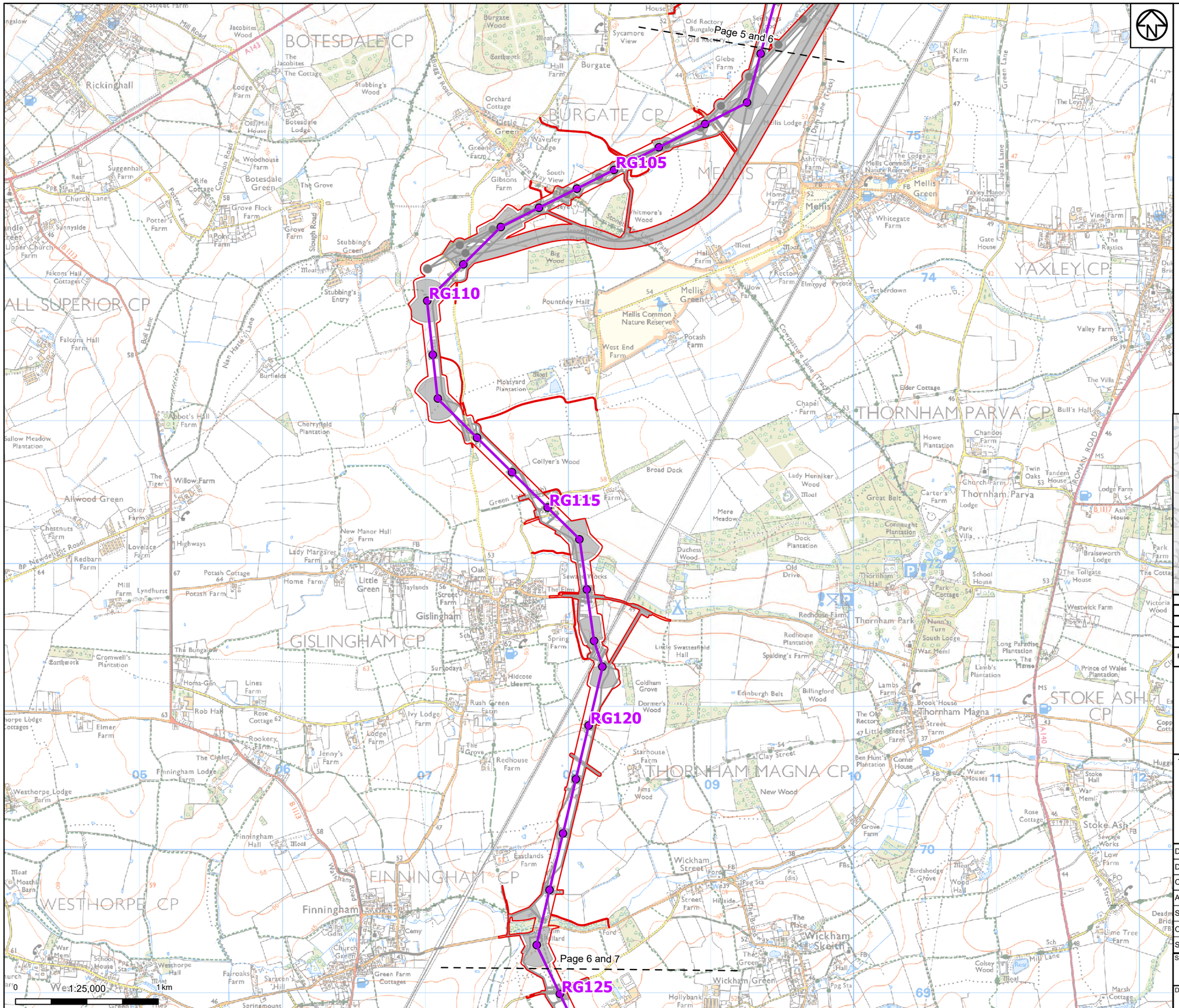

Draft order limits

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 6 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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Revision: A

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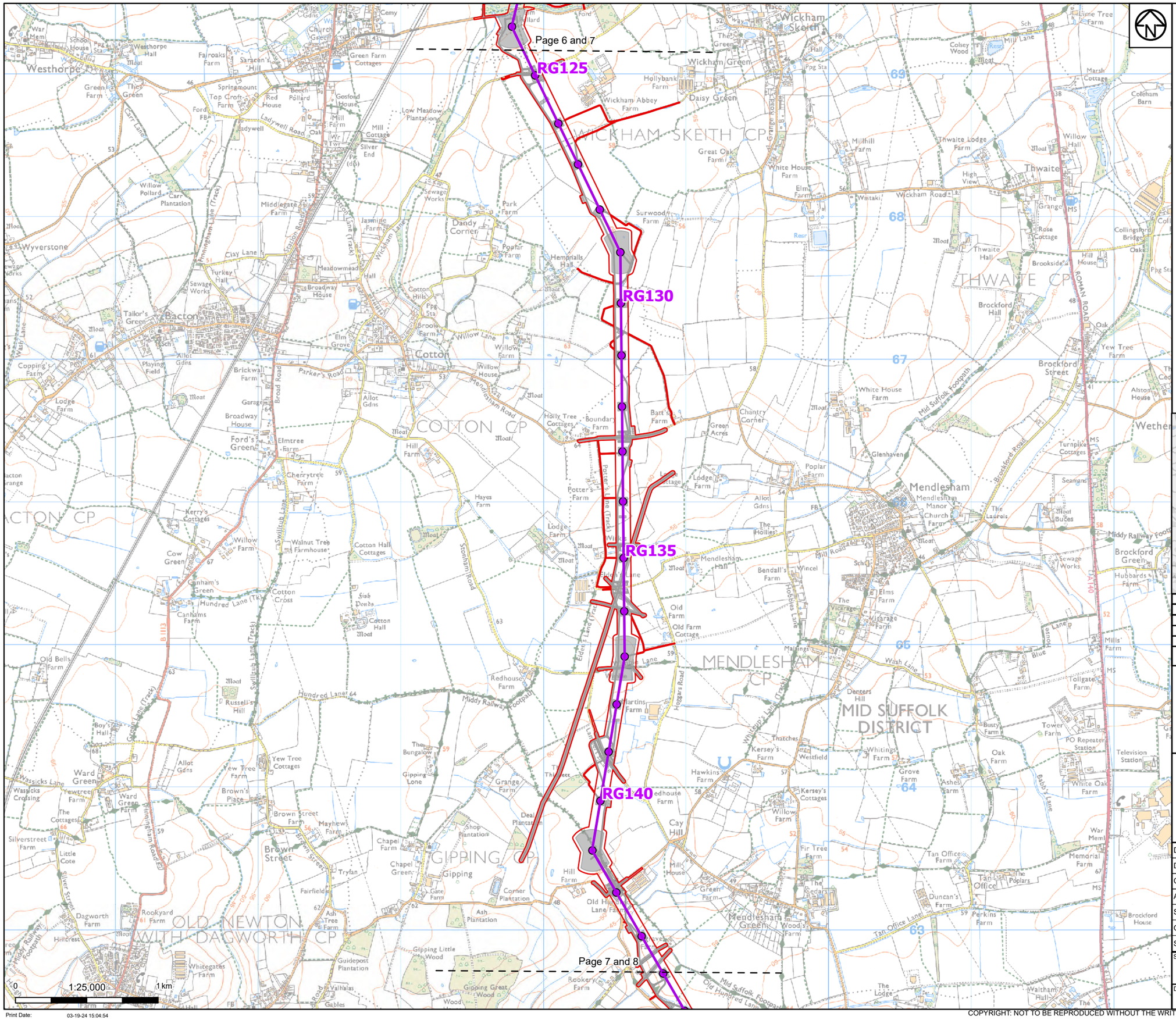

Draft order limits

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 7 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

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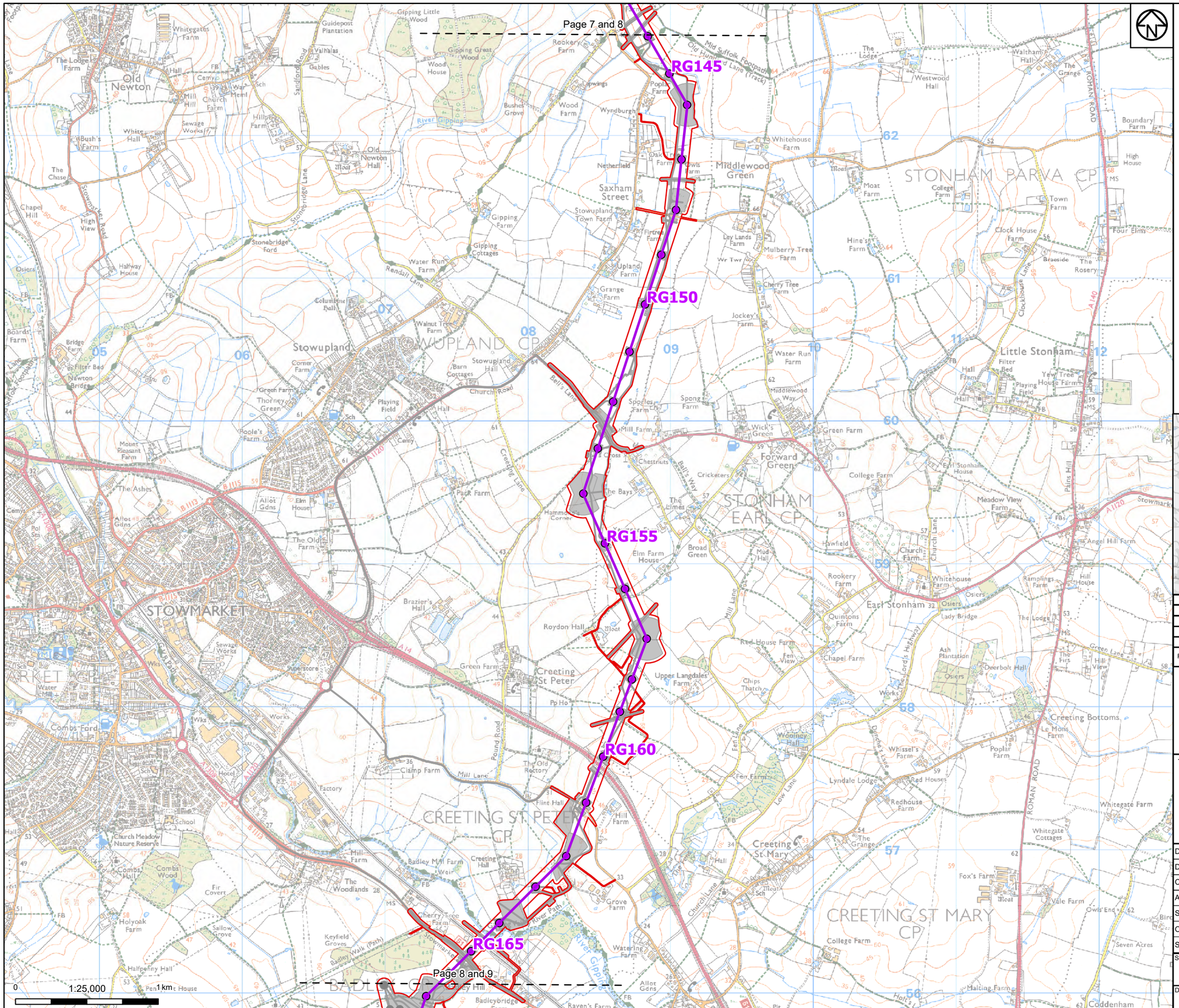

Draft order limits

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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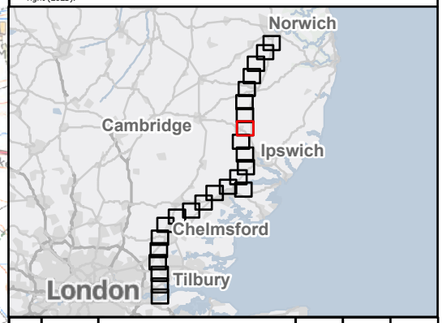

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A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 8 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:25,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

Revision: A

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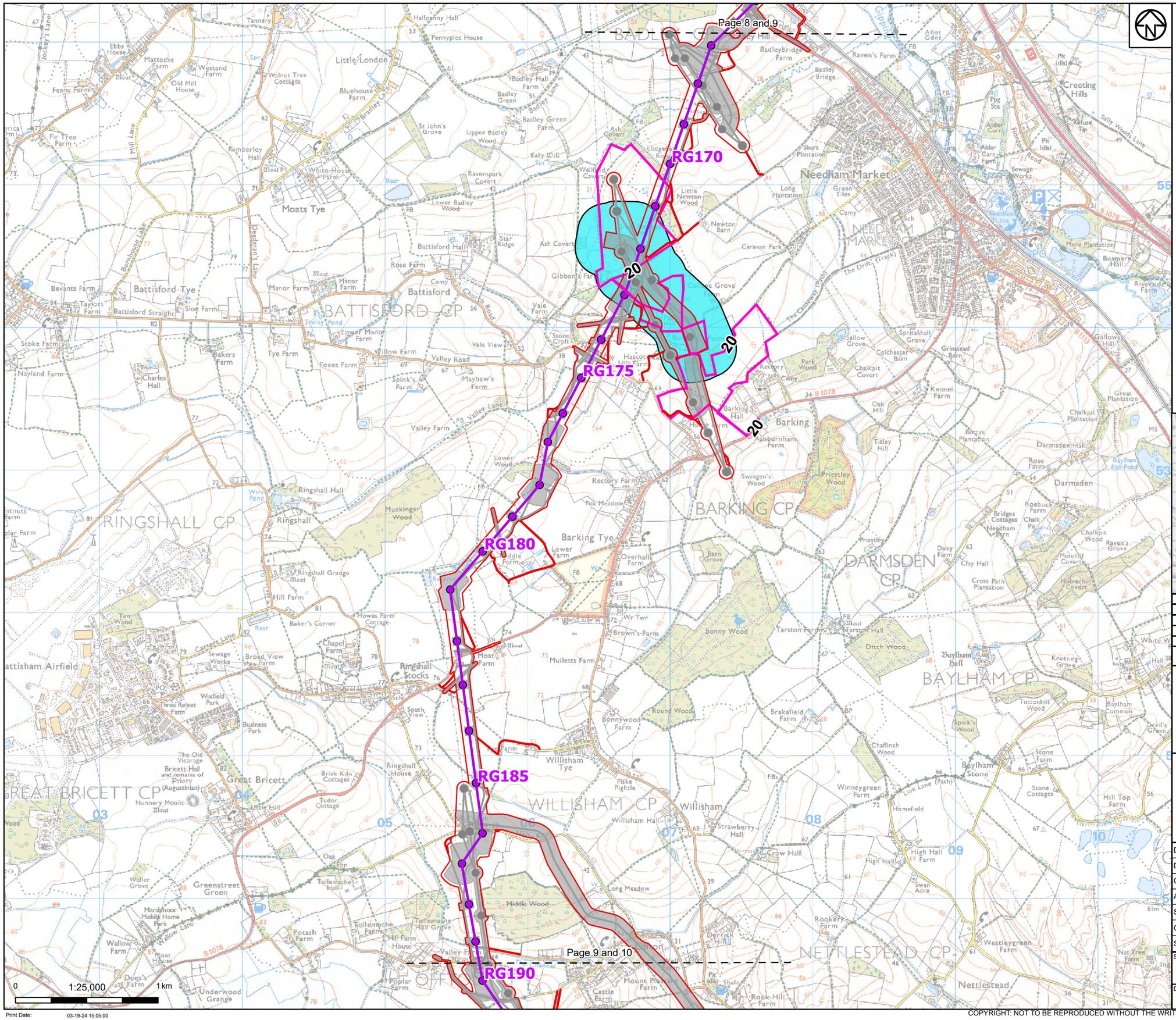

Print Date: 03-19-24 15:05:00

Draft order limits

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding bird survey areas 2024

Breeding bird transects 2024

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 9 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

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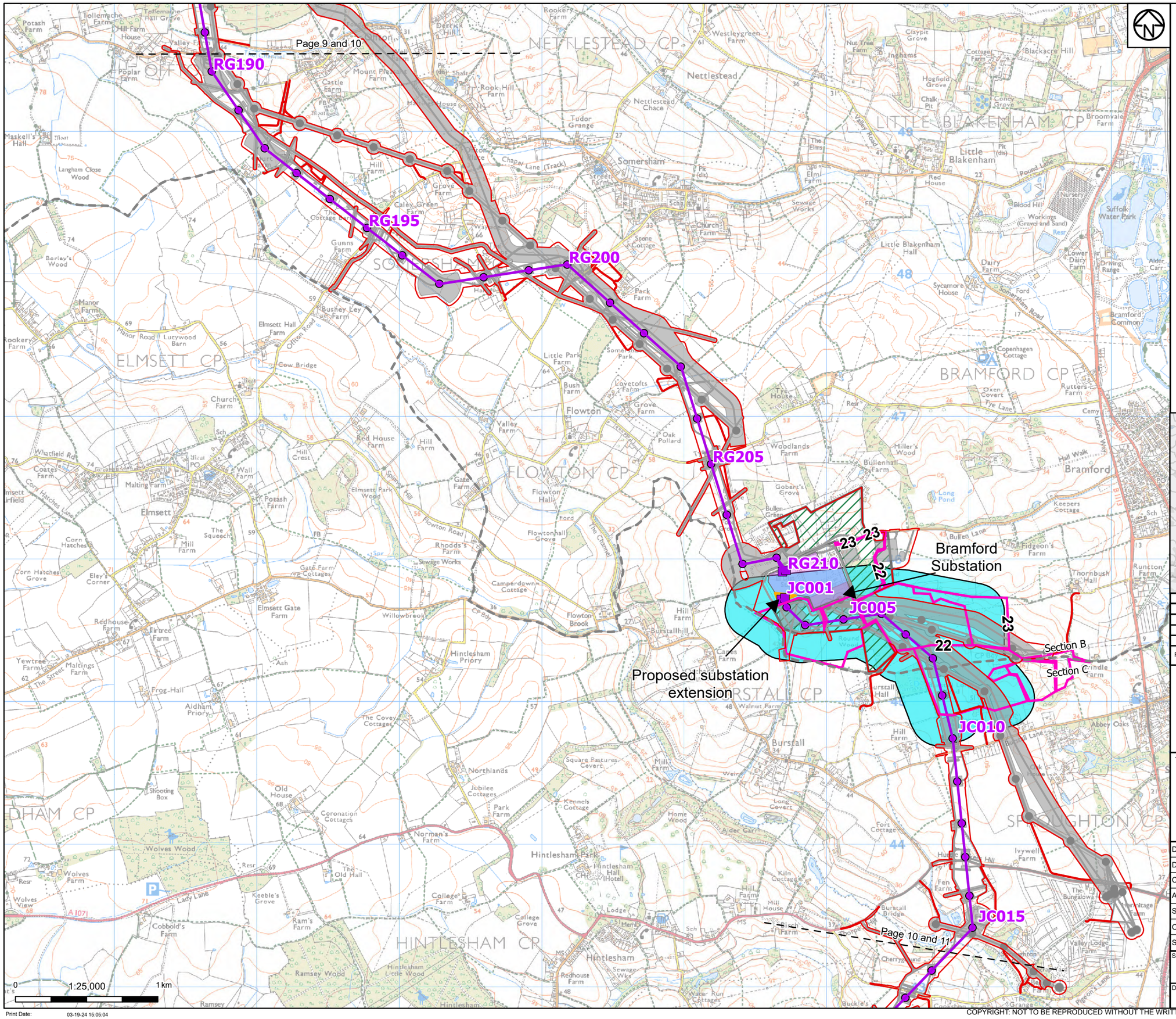

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed low duty gantry
Proposed pylon position
Existing substation
Proposed substation extension
Proposed environmental areas
Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding bird survey areas 2024
Breeding bird transects 2024

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas
Page 10 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

Revision: A

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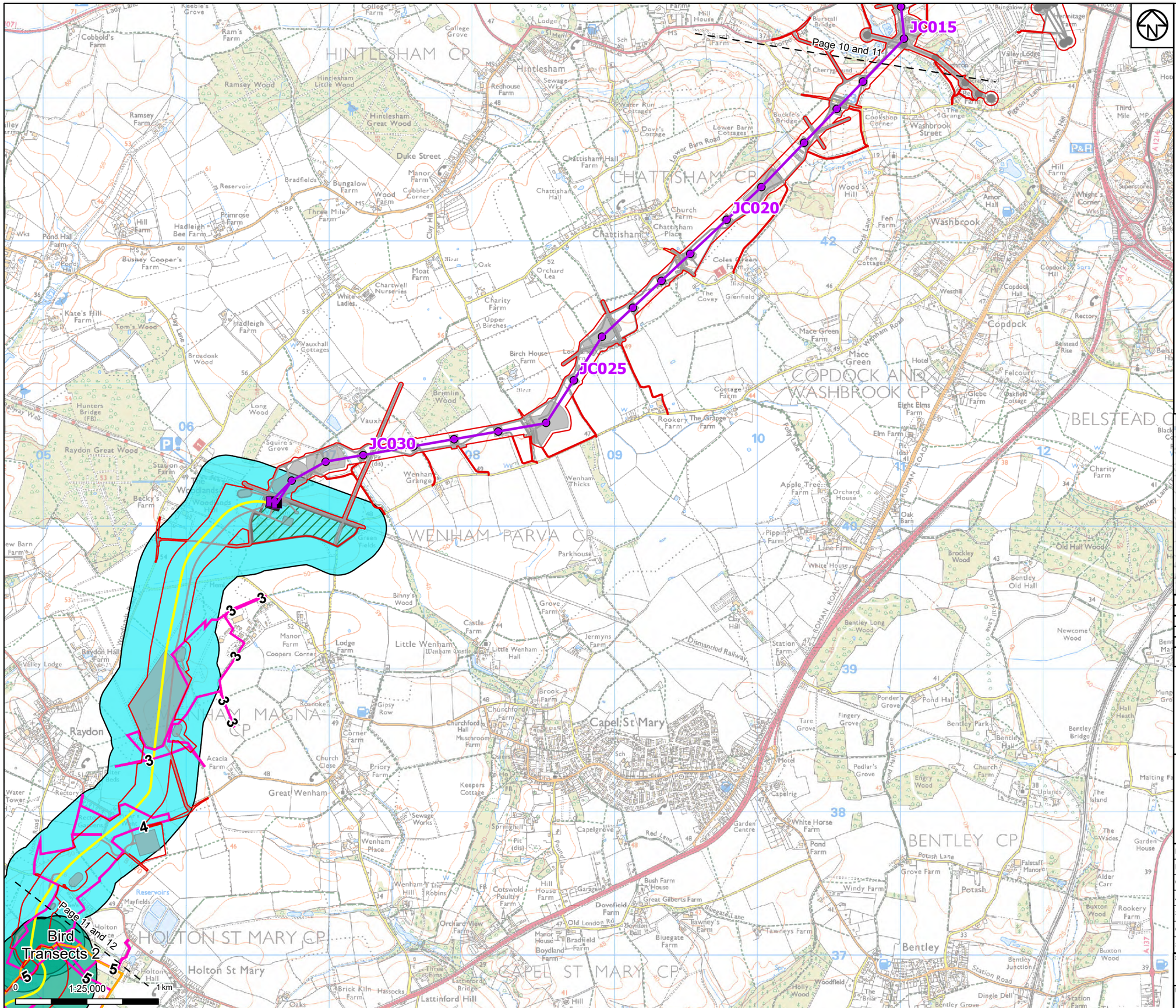

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Breeding bird survey areas 2023
- Breeding bird transects 2023
- Breeding bird survey areas 2024
- Breeding bird transects 2024

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 11 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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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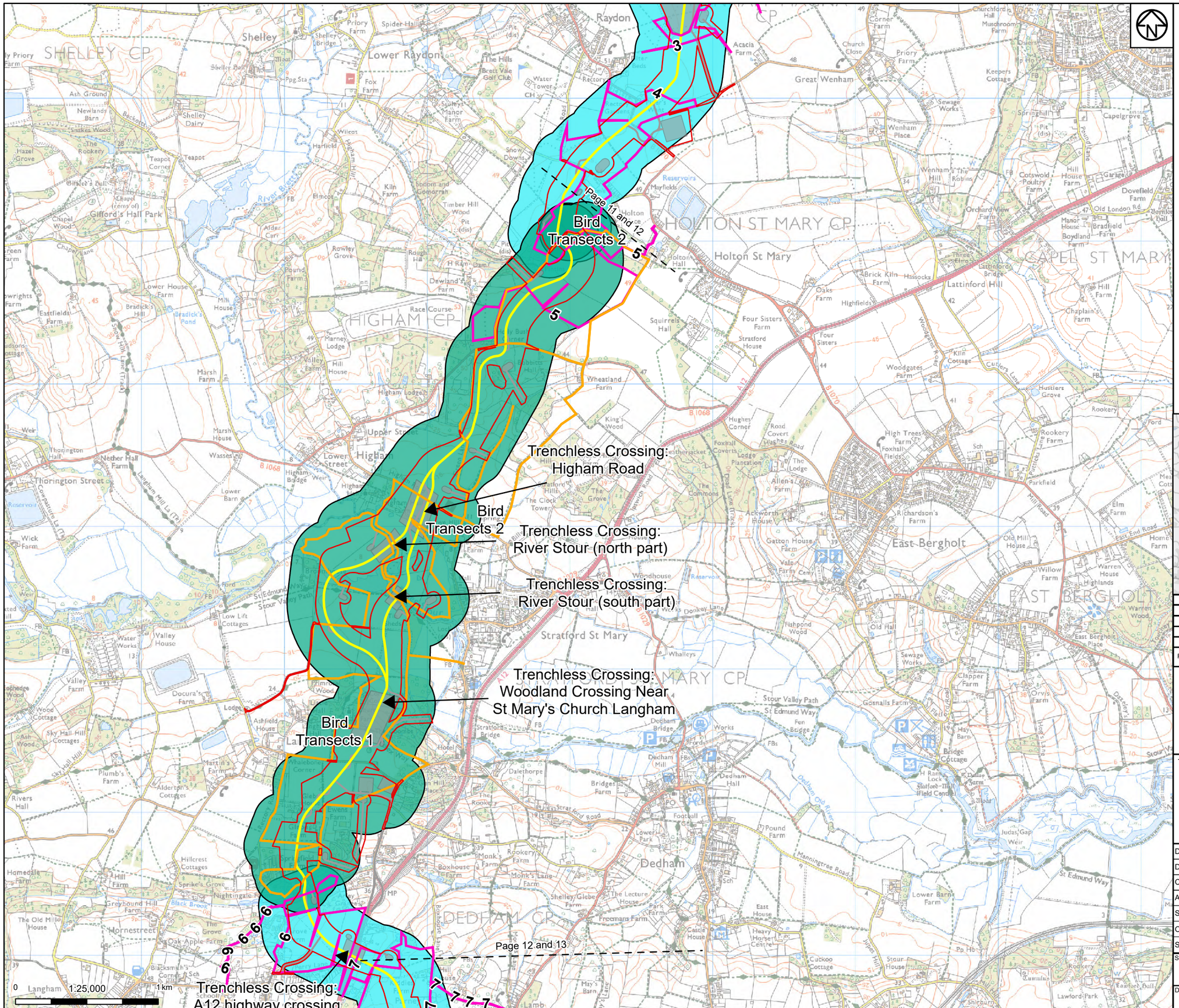

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding bird survey areas 2023

Breeding bird transects 2023

Breeding bird survey areas 2024

Breeding bird transects 2024

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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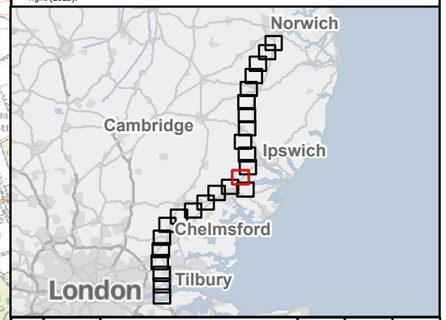

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A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 12 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

Revision: A

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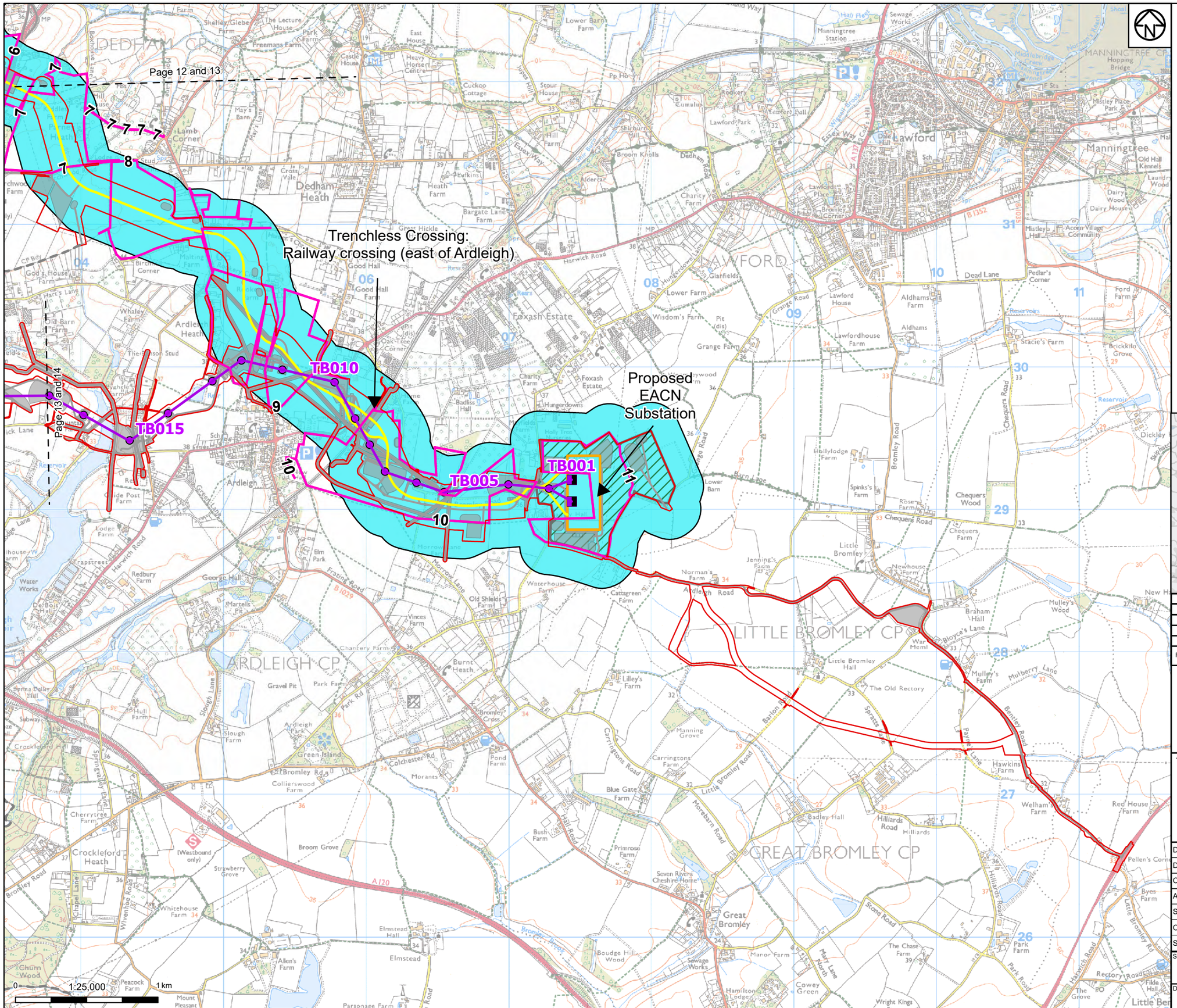

Draft order limits
Project sections

Proposed project design details

Proposed overhead line alignment
Proposed full line tension gantry
Proposed pylon position
Proposed underground cable alignment
Proposed EACN substation
Proposed environmental areas
Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding bird survey areas 2023
Breeding bird survey areas 2024
Breeding bird transects 2024

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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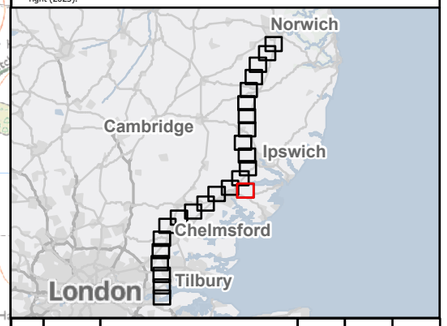

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

PROJECT:
nationalgrid
Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas
Page 13 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115
Revision: A

Print Date: 03-19-24 15:05:14

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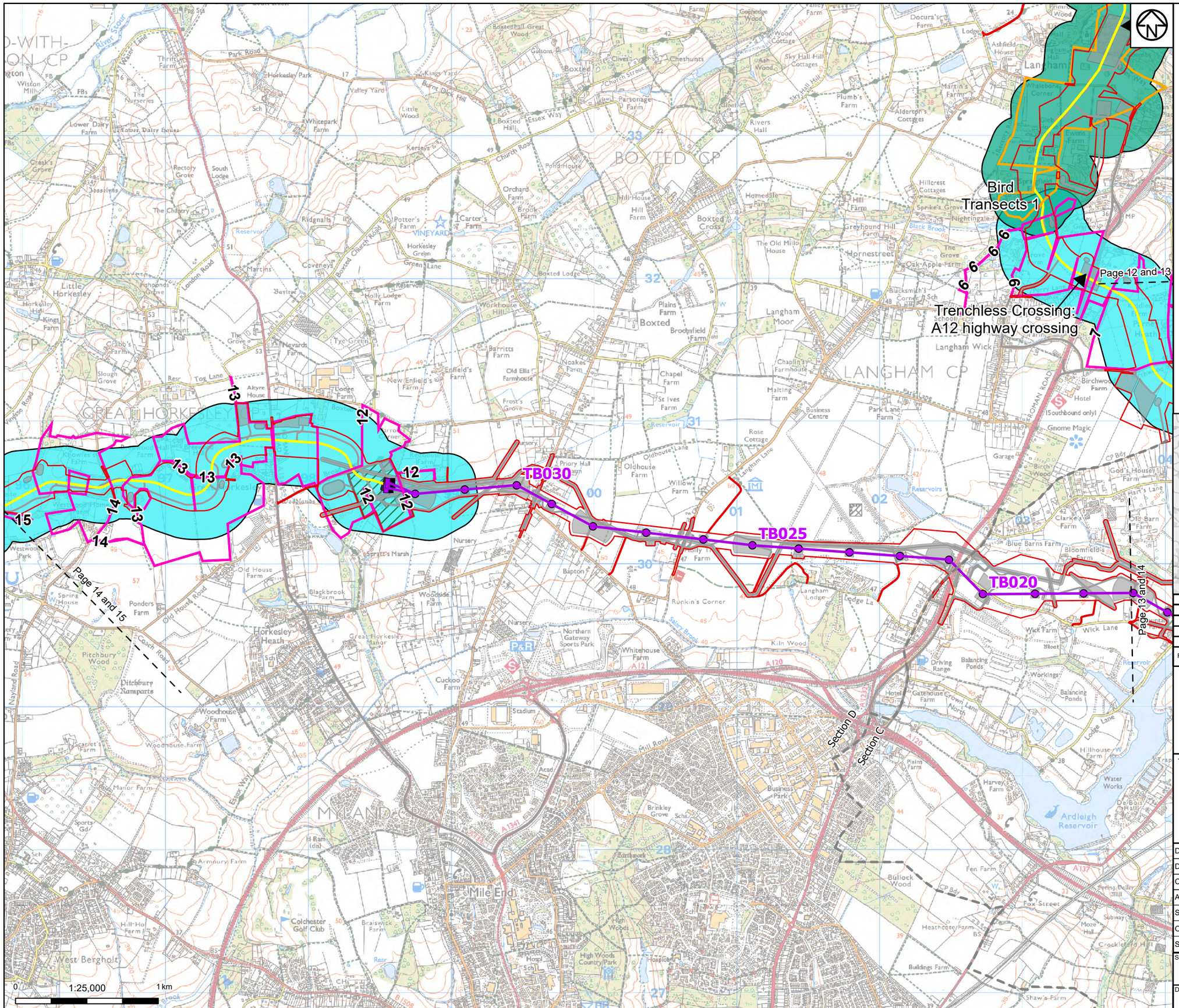

Draft order limits

Project sections

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Breeding bird survey areas 2023
- Breeding bird transects 2023
- Breeding bird survey areas 2024
- Breeding bird transects 2024

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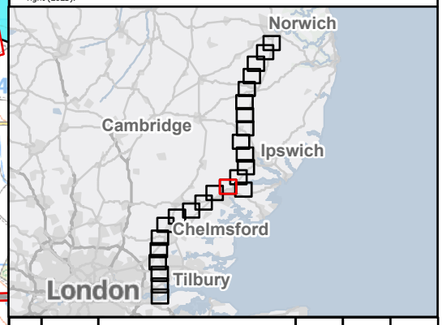

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A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 14 of 25

Designed	H. Smith	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

Revision: A

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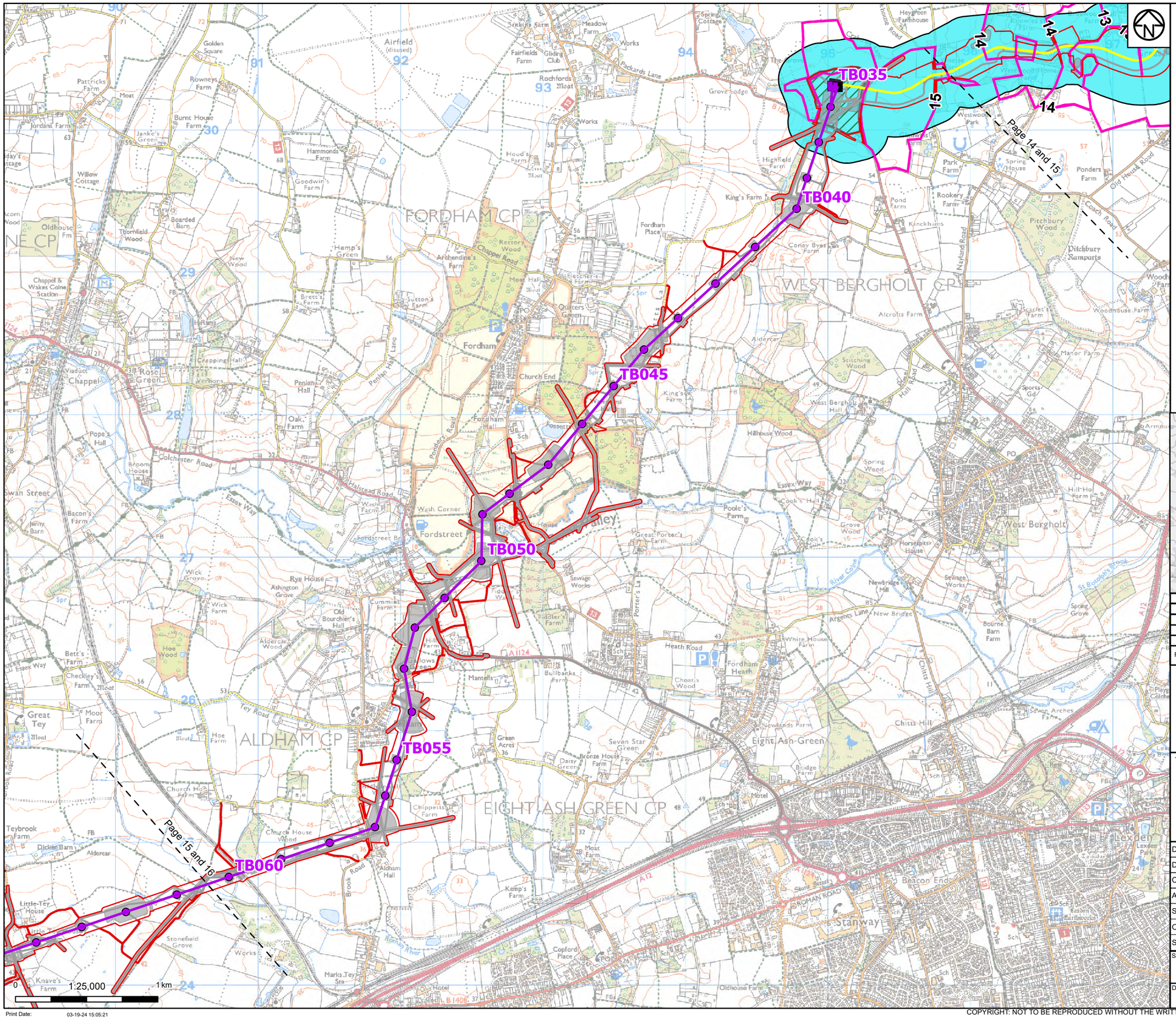

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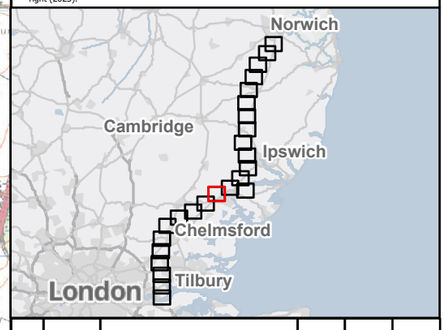

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 15 of 25

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Revision: A

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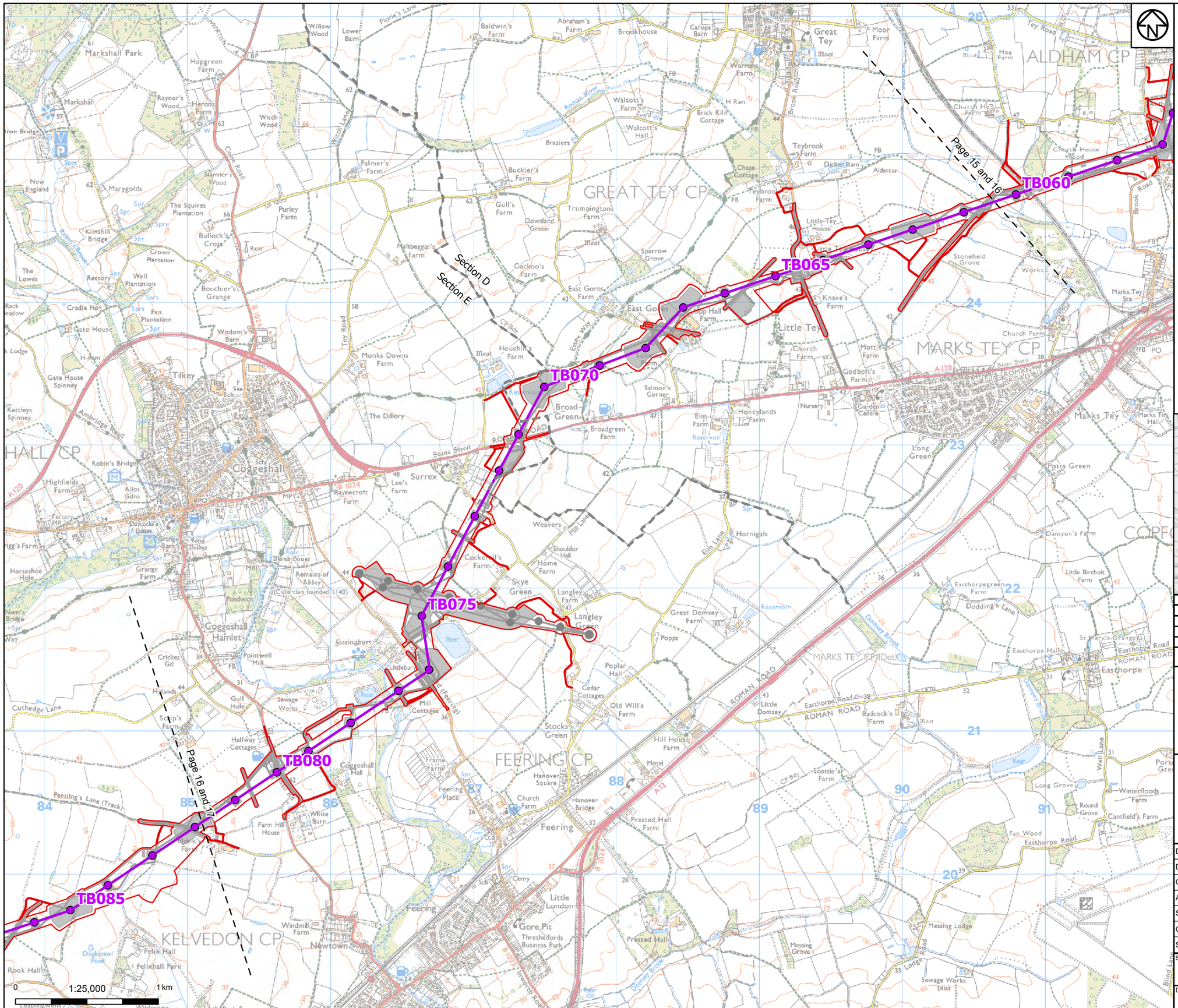
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KELVEDON CP
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Little Tey
Marks Tey
Coggeshall
Feering
Kelvedon
Tilkey
Broad Green
Langley Green
Stocks Green
Skye Green
Goggeshall Hamlet
Little London
Gore Pit
Easthorpe
Messing
Messing Lodge
Marks Tey Sta
Stone Street
ROMAN ROAD
A120
A12
B 1024
Tey Road
Coggeshall Road
Ambridge Road
Brook Road
Witch Lane
Elm Lane
Lodge Road
Well Lane
Blind Lane
Essex Way
Dodding's Lane
Easthorpe Road
Roman River
Domsey Brook
Markshall Park
Markshall
Hopgreen Farm
Raynor's Wood
Herons Farm
Witch Wood
Willow Wood
Lower Barn
Florie's Lane
Baldwin's Farm
Abraham's Farm
Brookhouse
Callops Barn
Moor Farm
Hoe Farm
Church Hoe Farm
Church House Wood
Warrens Farm
Walcott's Farm
Walcott's Hall
Brick Kiln Cottage
H Ram
Braziers
Palmer's Farm
Buckler's Farm
Gull's Farm
Dowland Green
Trumpington's Farm
Teybrook Farm
Chase Cottage
Dicken Barn
Aldercar
Little Tey House
Stonefield Grove
Sparrow Grove
Maltbeggar's Farm
Cuckoo's Farm
East Gores Farm
Upp Hall Farm
Knave's Farm
Houchin's Farm
Monks Downs Farm
Salmon's Corner
Broadgreen Farm
Elm Farm
Honeylands Farm
Church Farm
Mott's Farm
Godbolt's Farm
Garden Centre
Nursery
Long Green
Potts Green
Marks Tey Hall
Purley Farm
Bullock's Cross
Kilnshill Bridge
New England
Marygolds
The Squires Plantation
Crown Plantation
Well Plantation
Fen Plantation
The Lowes
Rectory
Cradle Hoo
Gate House
Gate House Spinney
Bouchier's Grange
Wisdom's Barn
Kettleys Spinney
Highfields Farm
Allot Gdns
Robin's Bridge
Raynecroft Farm
Lee's Farm
Surrex
The Dillory
Grange Farm
Grange Barn
Long Bridge
Horseshoe Hole
Nunn's Bridge
Pondwick
Remains of Abbey (Cistercian, founded 1140)
Monk House
Cricket Gd
Pointwell Mill
Seeringbury
Littlebury
Gull Hole
Sewage Works
Mill Cottages
Cuthedge Lane
Scrip's Farm
Halfway Cottages
Coggeshall Hall
Frame Farm
Feering Place
Church Farm
Hanover Square
Hanover Bridge
Motel
Hill House Farm
Old Will's Farm
Cedar Cottages
Poplar Hall
Prested Hall Farm
Prested Hall
Pantling's Lane (Track)
Farm Hill House
White Barn
Monk Farm
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Shoulder Hall
Home Farm
Cockerell's Farm
Langley Farm
Great Domsey Farm
Popps
Reservoir
Hornigals
Damyon's Farm
Easthorpegreen Farm
Little Birchott Farm
Little Domsey
Badcock's Farm
Scottie's Farm
Long Grove
Round Grove
Winterfloods Farm
Cantfield's Farm
Fan Wood
Porters Green
Sewage Works (dis)
Threshelfords Business Park
Windmill Farm
Newtown
Felix Hall
Felixhall Park
Rook Hall
Dog Kennel Pond
Wilderness
Leapingwells
Park Farm
Teybrook Farm
Dicken Barn
Aldercar
Chase Cottage
Little Tey House
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Church Farm
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Nursery
Long Green
Potts Green
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Little Birchott Farm
Dodding's Lane
Easthorpe Hall
St Mary's Grange (Ruins)
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Little Domsey
Badcock's Farm
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Long Grove
Round Grove
Winterfloods Farm
Cantfield's Farm
Fan Wood
Messing Lodge
Messing Grove
Sewage Works (dis)
Porters Green
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Well Lane
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Elm Lane
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Brook Road
Coggeshall Road
Witch Lane
Ambridge Road
Stone Street
ROMAN ROAD
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B 1023
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Easthorpe Road
Dodding's Lane
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Roman River
Braziers
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Dowland Green
Trumpington's Farm
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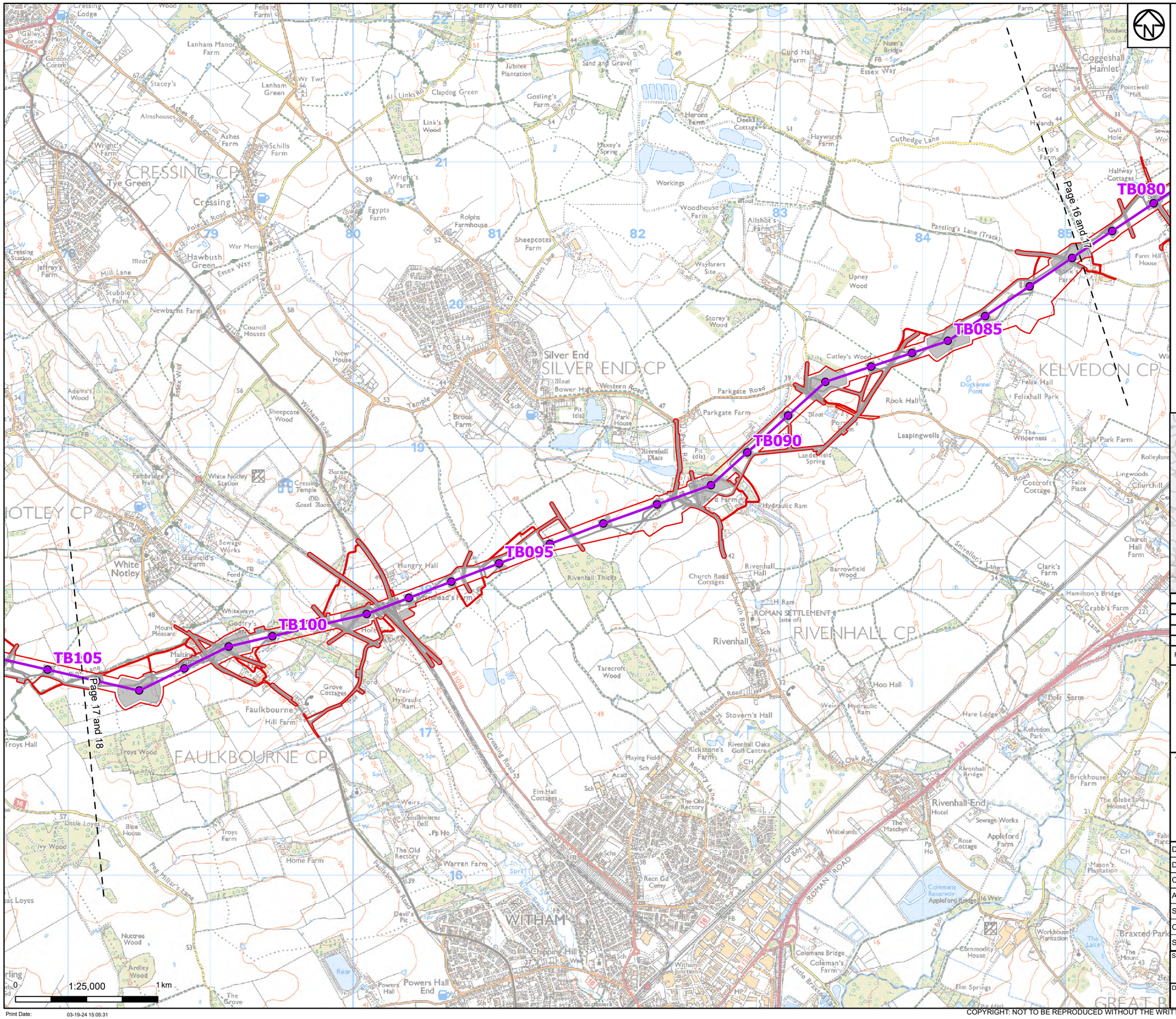
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FAULKBOURNE CP
WITHAM
Coggeshall Hamlet
Silver End
Rivenhall End
Tye Green
Hawbush Green
Cressing
Woodhouse Farm
Parkgate Farm
Rivenhall Oaks Golf Centre
Braxted Park
Essex Way
Cuthedge Lane
Pantling's Lane (Track)
Parkgate Road
Western Road
Rivenhall
ROMAN SETTLEMENT (site of)
ROMAN ROAD
Crossing Road
Church Road
Faulkbourne Road
Pegs Millar's Lane
Temple Lane
Mill Lane
Sheepcotes Lane
Ashes Road
Polecat Road
Church Road
Rickstone's Farm
Coleman's Farm
Appleford Bridge
Coleman's Bridge
Witham Junction
Hungry Hall
Whitehead's Farm
Faulkbourne Hall Farm
Grove Cottages
Maltings Lane
Stovern's Hall
Hoo Hall
Rivenhall Hall
Rivenhall Thicks
Barrowfield Wood
Tarecroft Wood
Troys Wood
Ivy Wood
Adams's Wood
Sheepcote Wood
Upney Wood
Storey's Wood
Cutley's Wood
Nuttree Wood
Ardley Wood
Rook Hall
Leapingwells
Felix Hall
Felixhall Park
Park Farm
Dogkennel Pond
Landfield Spring
Riverball Place
Bower Hall
Park House
Brook Farm
Warren Farm
Home Farm
Troys Farm
Faulkbourne Hall
Faulkbourne Dell
Powers Hall End
Chipping Hill
Elm Hall Cottages
Playing Field
Acad
Sch
Recn Gd
Cemy
Pp Ho
Liby
PO
Hydraulic Ram
Weir
Ford
Bridge
Barns
Temple
Old Court Room
Sewage Works
Commodity House
Workhouse Plantation
Coleman's Reservoir
Appleford Bridge
Rivenhall Bridge
Hare Lodge
Kelvedon Park
Brickhouse Farm
The Glebe House
Mason's Plantation
Rose Cottage
Appleford Farm
The Matchyn's
Whitelands
Hotel
Elm Springs
Cotcroft Cottage
Felix Place
Lingwoods
Churchill
Rolleylane
Church Hall Farm
Clark's Farm
Crabb's Farm
Hamilton's Bridge
Crabb's Lane
Chancer's Lane
Snivellers Lane
Hollow Road
Cricket Gd
Pointwell Mill
Gull Hole
Halfway Cottages
Farm Hill House
Scrip's Farm
Hylands
Curd Hall Farm
Nunn's Bridge
Essex Way
Herons Farm
Deeks Cottage
Haywards Farm
Allshot's Farm
Wayfarers Site
Maxey's Spring
Workings
Gosling's Farm
Jubilee Plantation
Sand and Gravel Pit
Clapdog Green
Link's Wood
Lanham Manor Farm
Lanham Green
Wright's Farm
Schills Farm
Ashes Farm
Egypts Farm
Rolphs Farmhouse
Sheepcotes Farm
Newbarns Farm
Council Houses
New House
Stubbles Farm
Jeffrey's Farm
Cressing Station
War Meml
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Sch
Liby
Pond
Moat
Spr
Wr Twr
Links Rd
Ch
Hall
Farm
Cottages
Lodge
Motel
Garden Centre
Galley's Corner
Long Green
Fells Farm
Ferry Green
Stacey's
Almshouses
Wright's Farm
Egypts Farm
Rolphs Farmhouse
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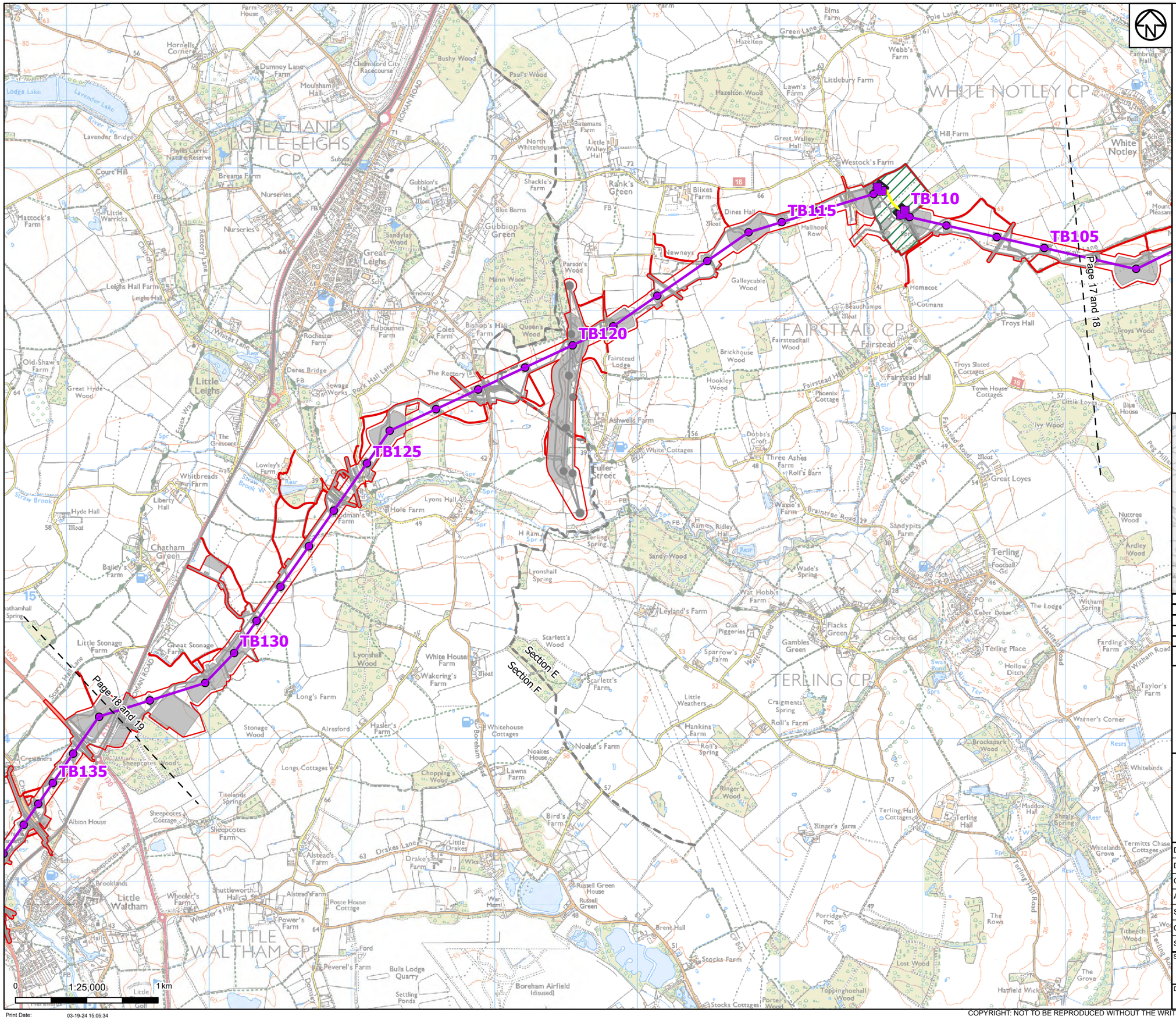

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A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

PROJECT:
nationalgrid Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 18 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
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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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115
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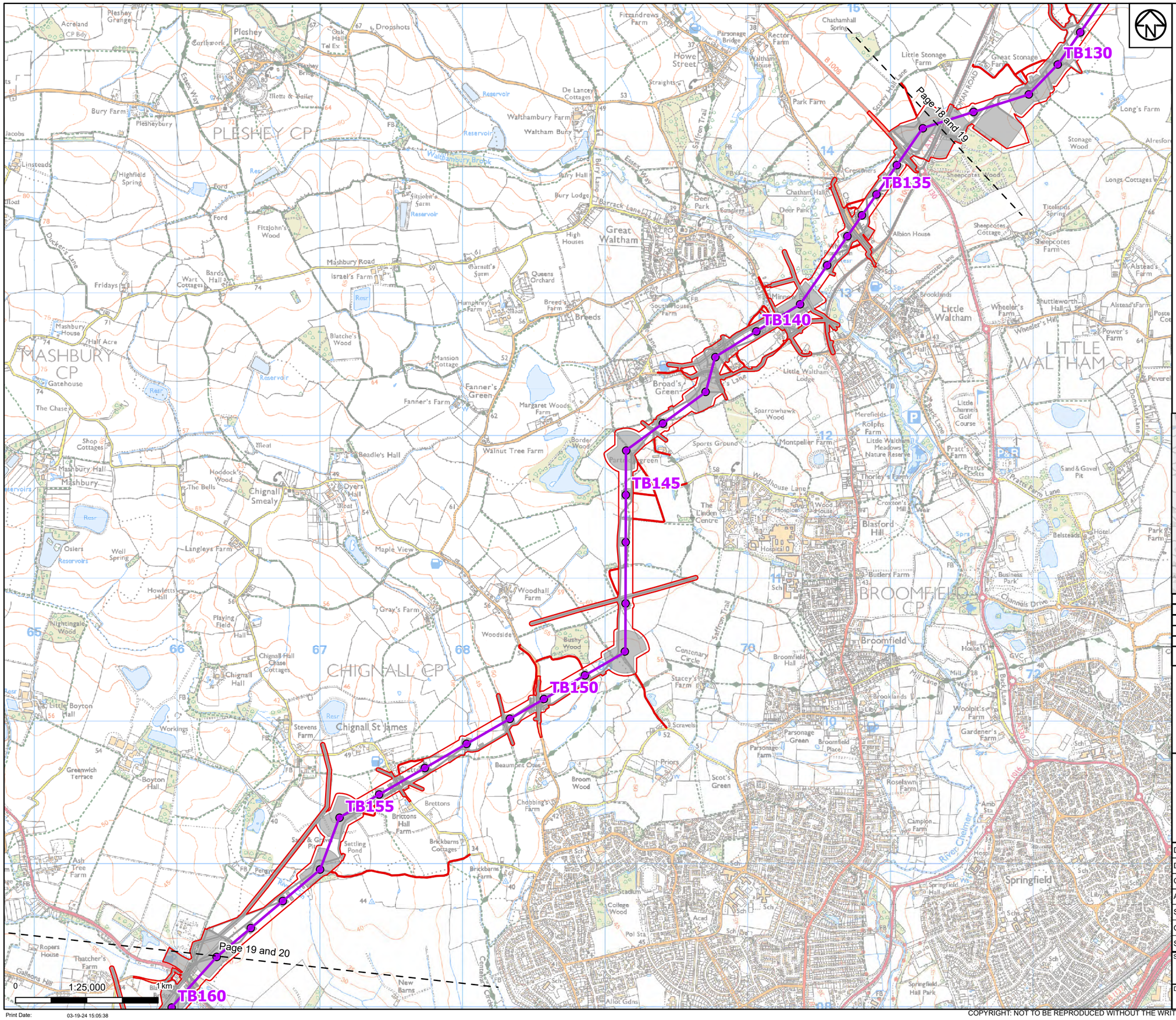

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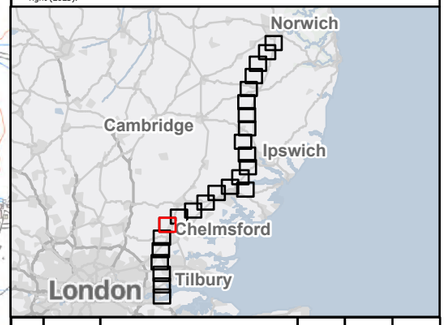

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PROJECT: Norwich to Tilbury

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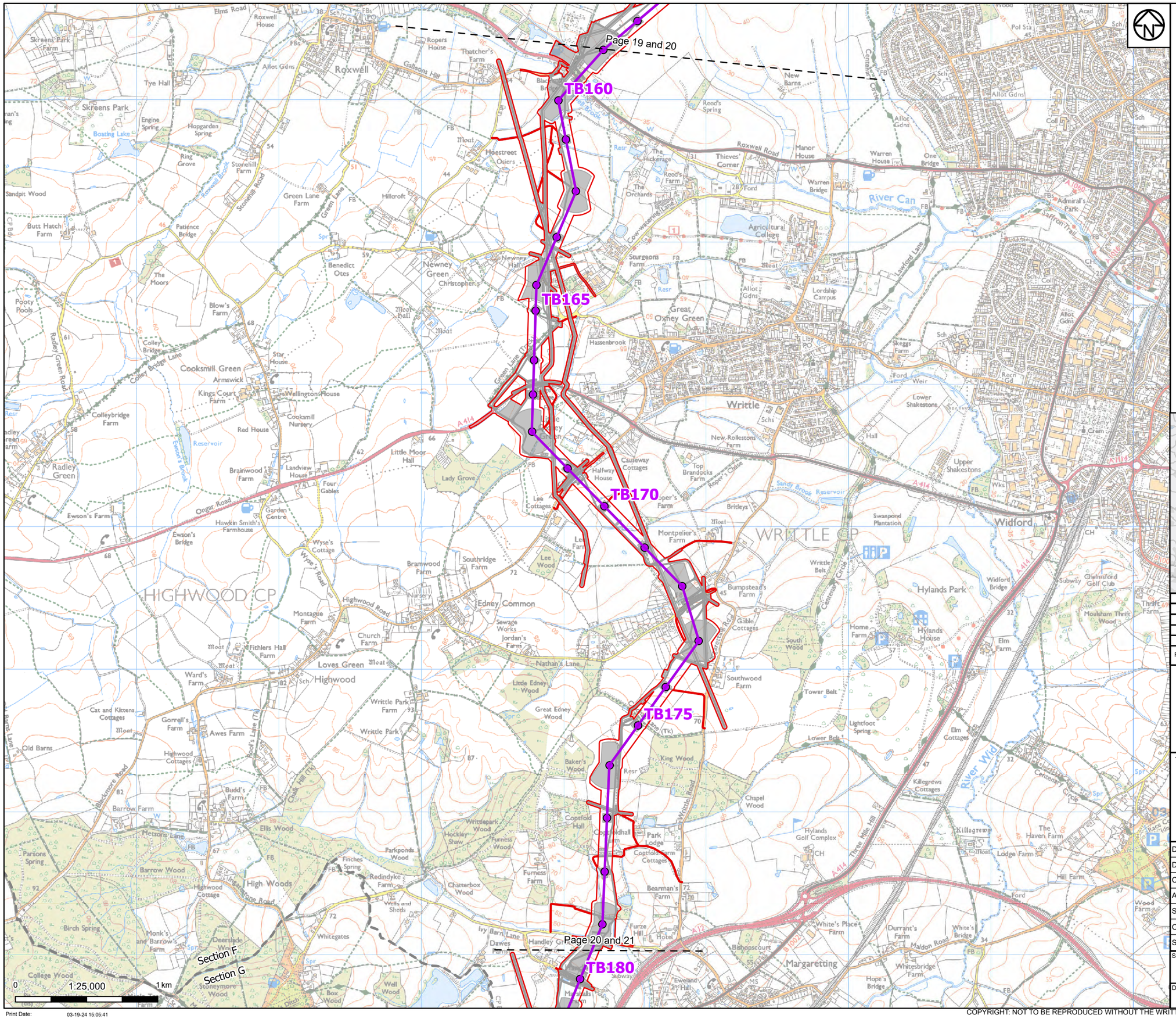

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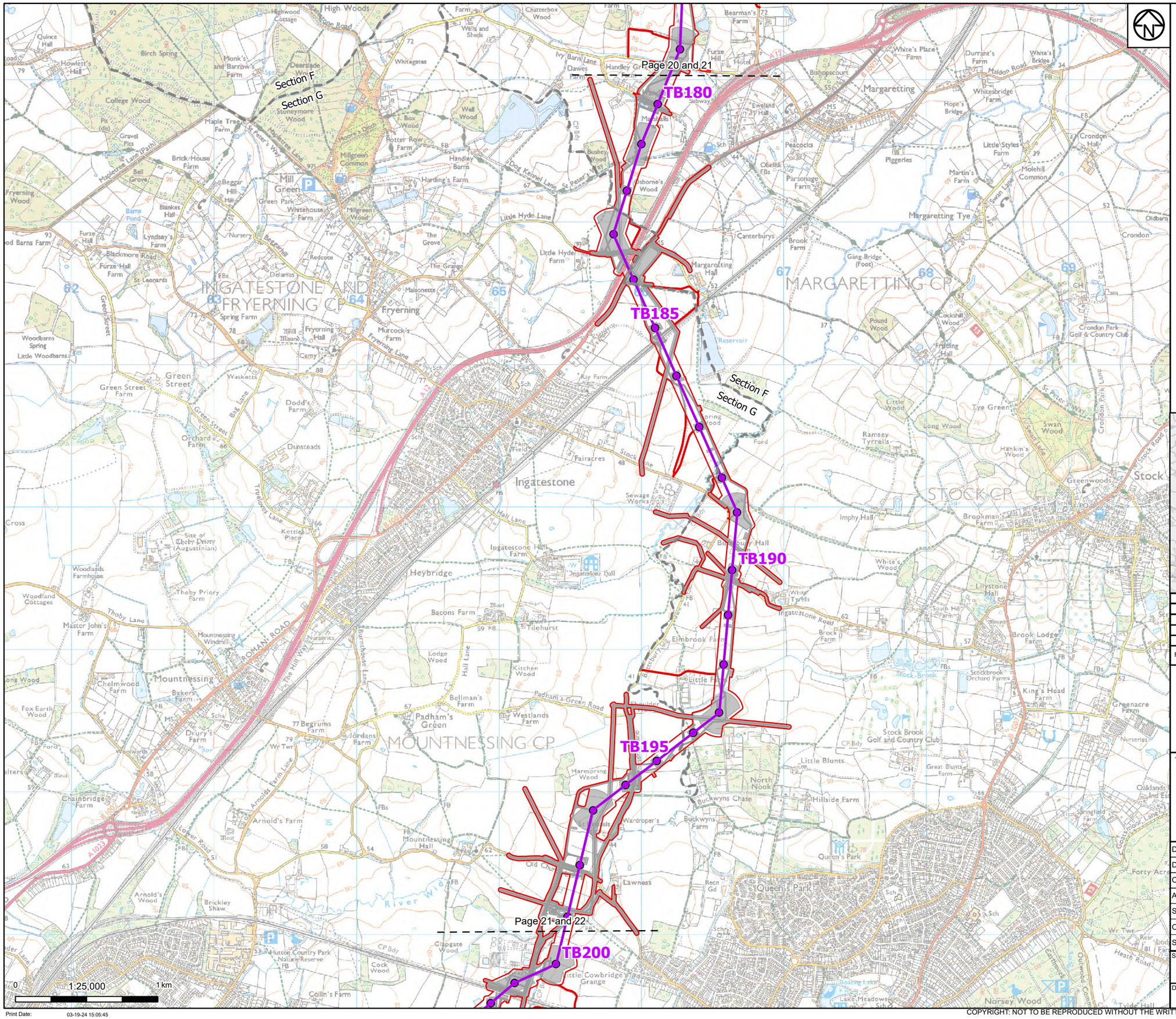

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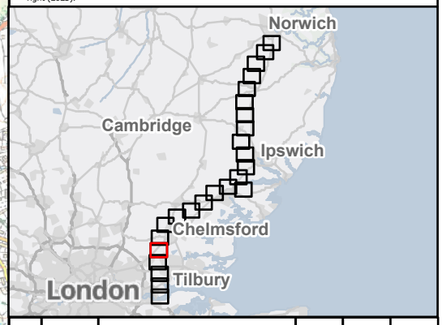

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 21 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

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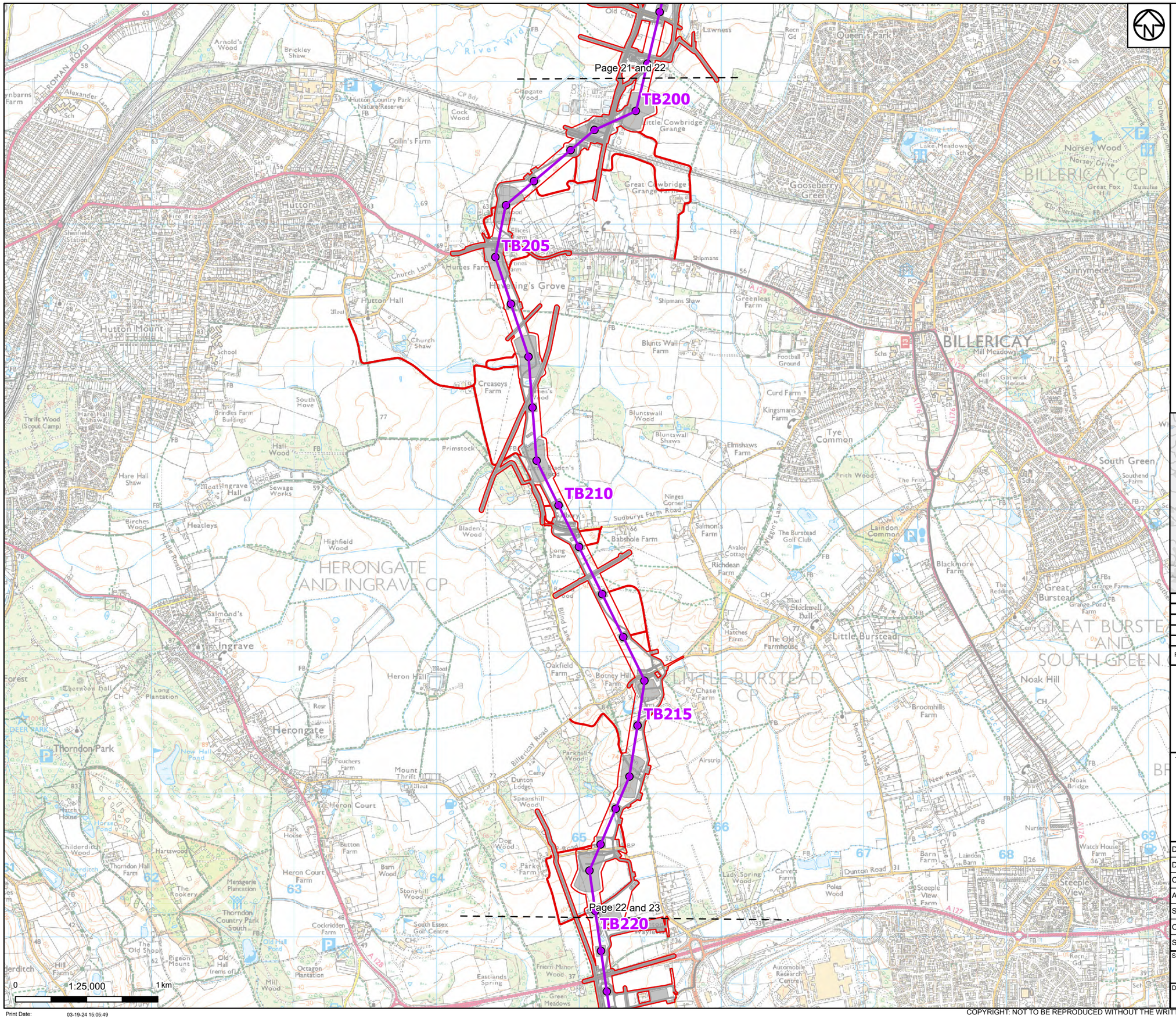

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed pylon position
- Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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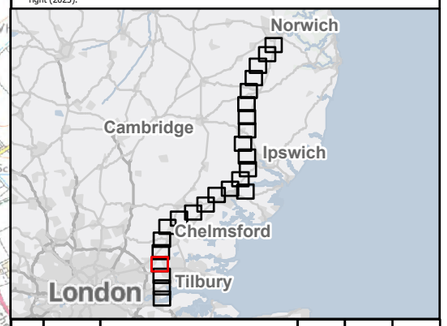

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

nationalgrid

PROJECT:
Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 22 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

Revision: A

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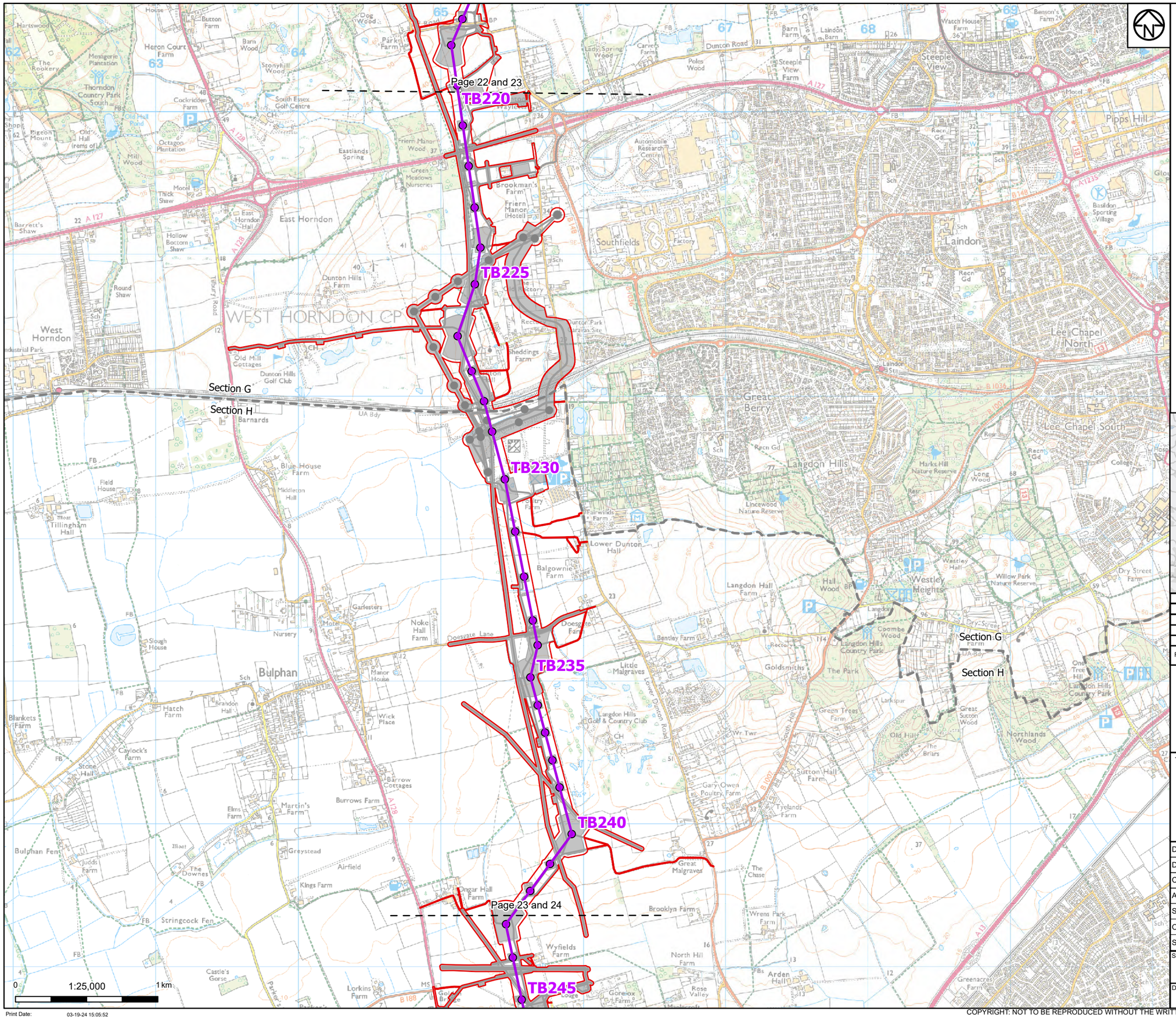

Draft order limits

Project sections

Proposed project design details

Proposed overhead line alignment

Proposed pylon position

Other temporary and permanent construction and operational works

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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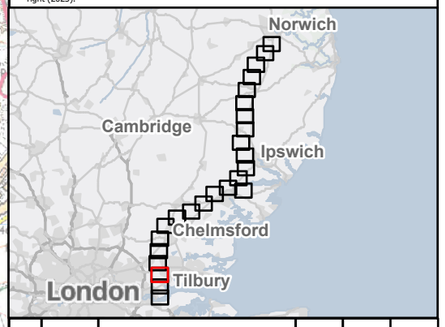

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 23 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

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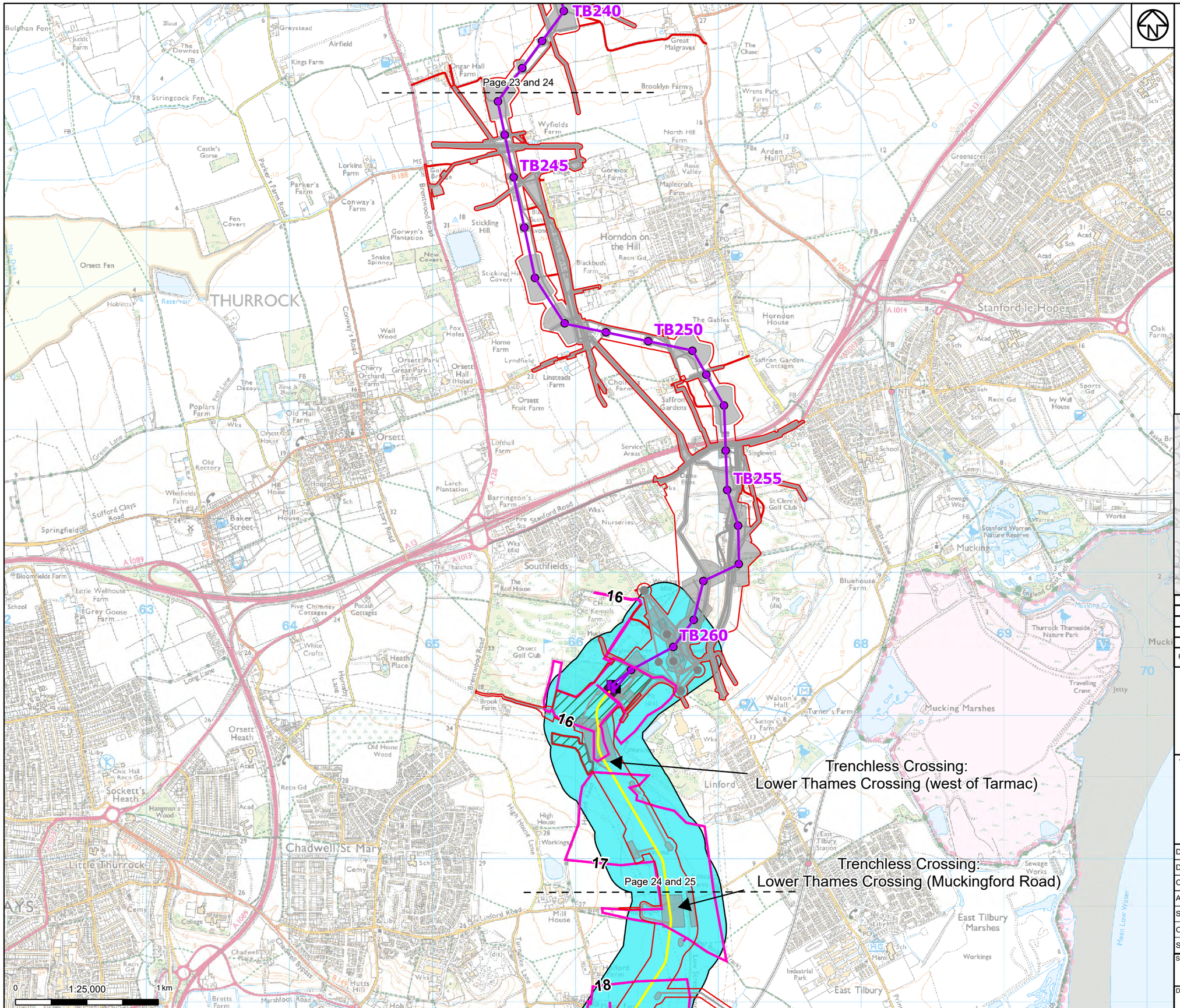

Draft order limits

Proposed project design details

- Proposed overhead line alignment
- Proposed full line tension gantry
- Proposed pylon position
- Proposed underground cable alignment
- Proposed cable sealing end compound
- Proposed environmental areas
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Breeding bird survey areas 2024
- Breeding bird transects 2024

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

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PROJECT: Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 24 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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: 10051663-ARC-EGN-ZZ-DR-ZZ-00115

Revision: A

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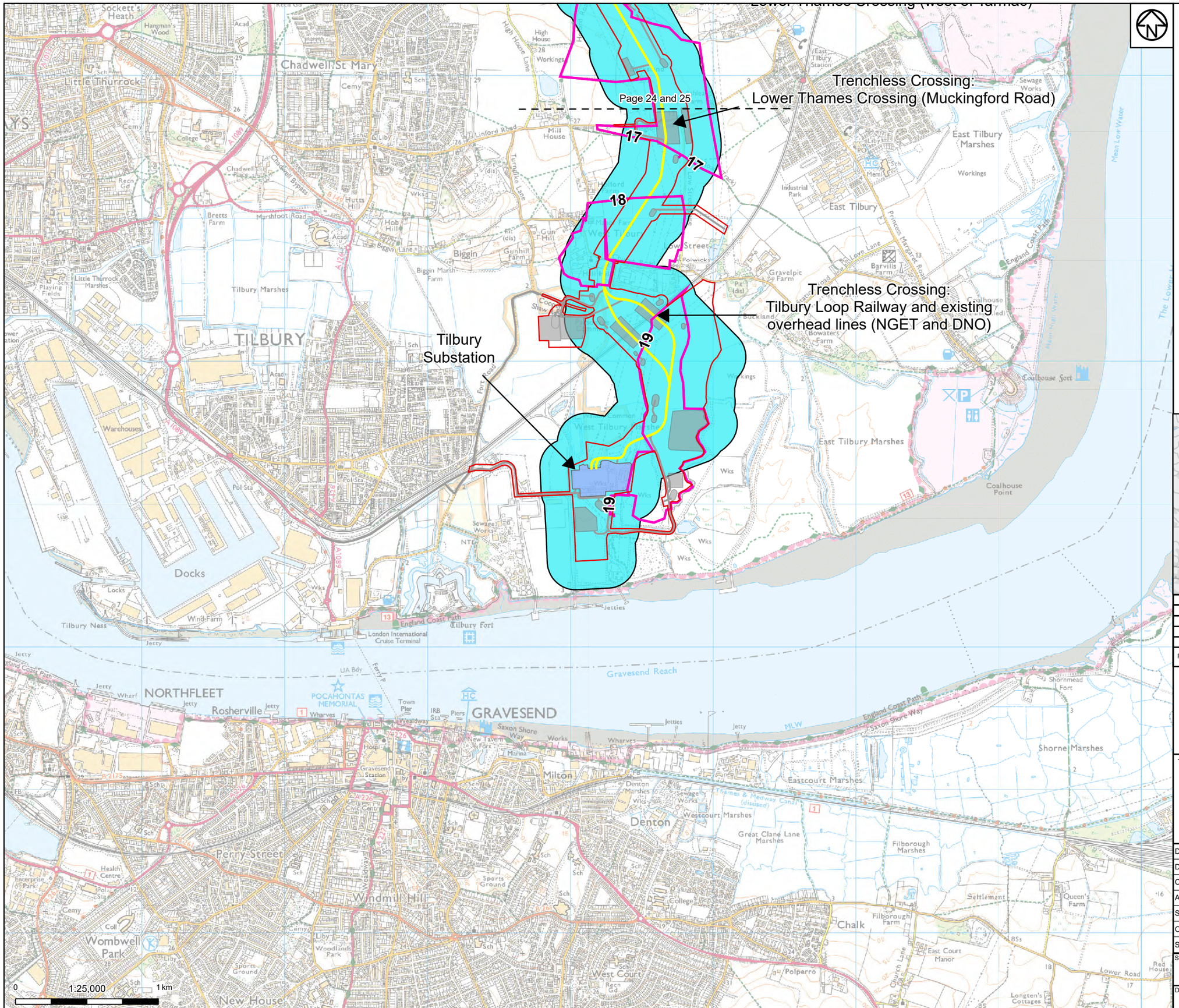

Draft order limits

Proposed project design details

- Proposed underground cable alignment
- Existing substation
- Other temporary and permanent construction and operational works

Discipline specific constraints

- Breeding bird survey areas 2024
- Breeding bird transects 2024

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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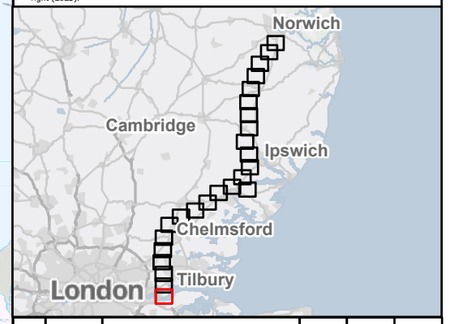

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	RP	AF	KB

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PROJECT:
Norwich to Tilbury

Title:

A 8.4.2 - Ecology and Biodiversity - Breeding Bird Survey Areas Page 25 of 25

Designed	H. Smith	Date	April 2024
Drawn	R. Pakhare	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
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:
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Revision:
A

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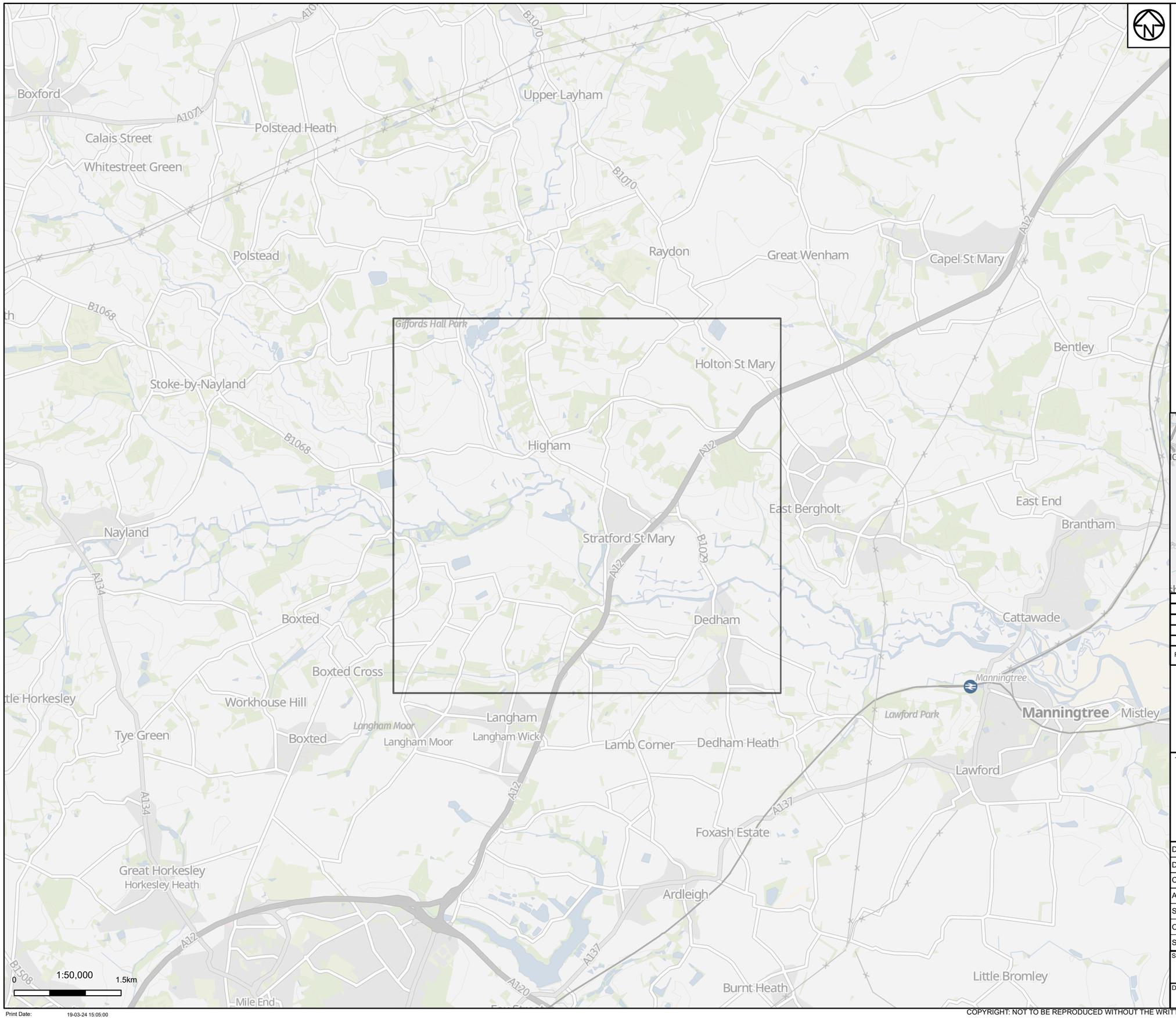
Figure A.8.4.3: 2023 Breeding Bird Survey Territories



Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT: Norwich to Tilbury

Title: A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Overview

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:50,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

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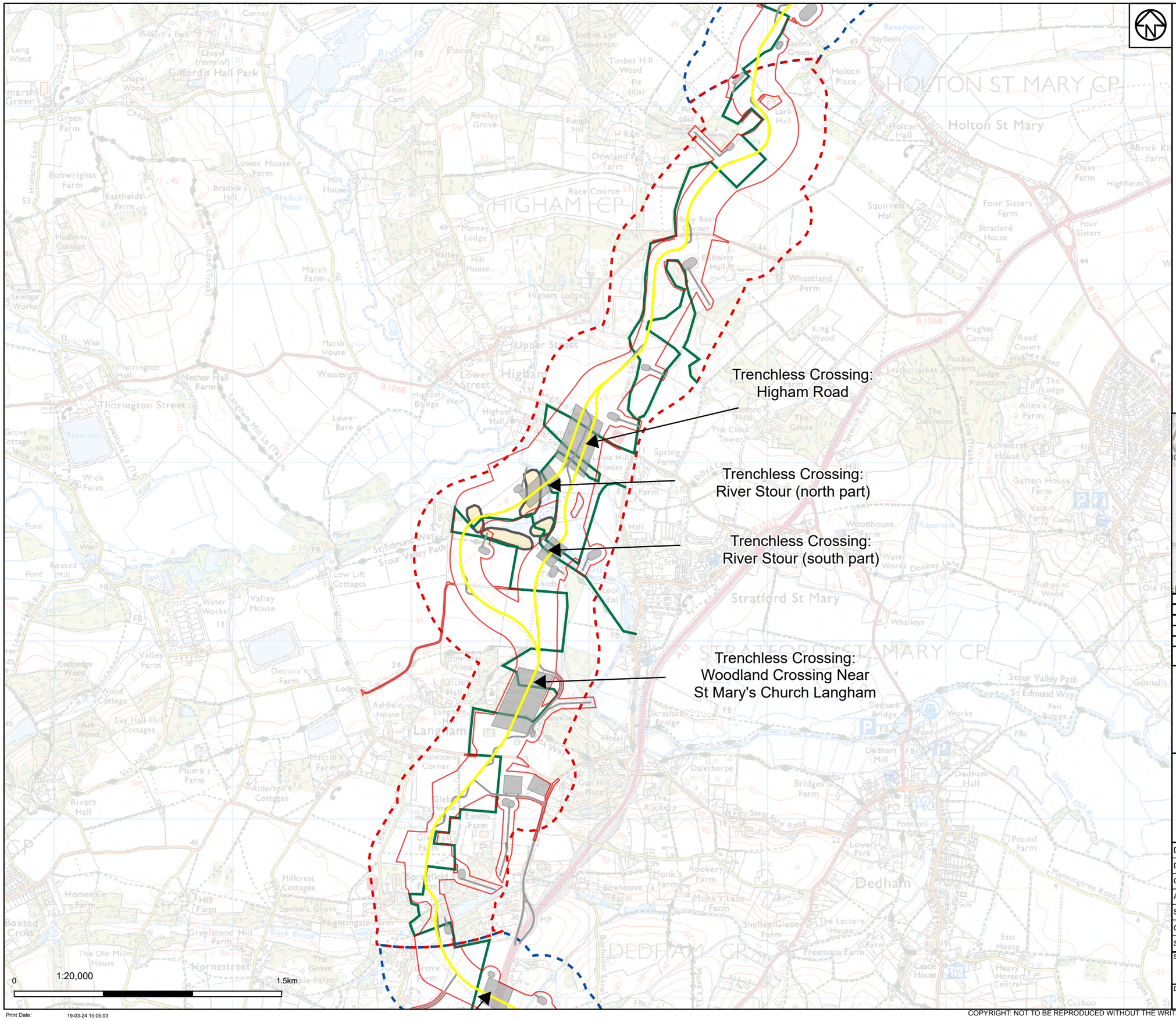

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Cettis Warbler

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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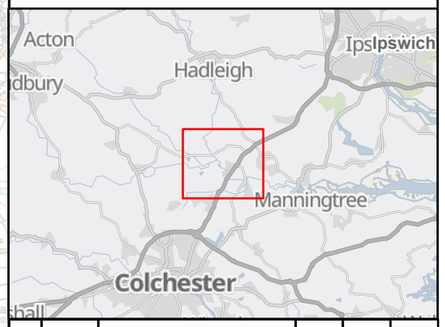

Rev	Date	Description	Drawn	Check	Approv
A	April 2024	FOR STATUTORY CONSULTATION	DP	AF	KB

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Cettis Warbler
Page 1 of 27

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

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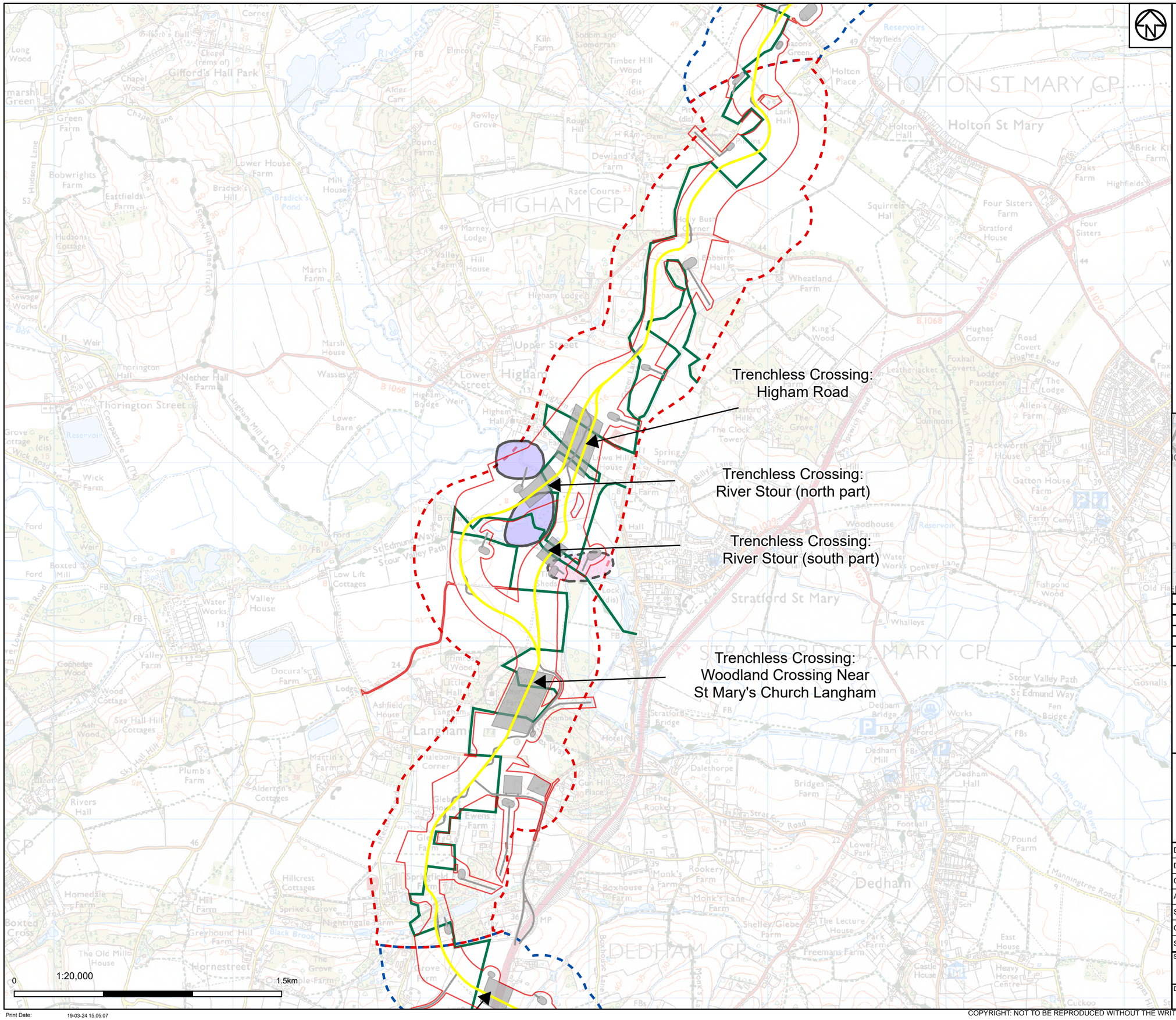

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Cuckoo

Possible Breeding Bird Territory - Cuckoo

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title: A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Cuckoo
Page 2 of 27

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision: A

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Dunnock

Possible Breeding Bird Territory - Dunnock

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Dunnock
Page 3 of 27

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision: A

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Green Finch

Possible Breeding Bird Territory - Green Finch

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Green Finch
Page 4 of 27

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number:
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Revision:
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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - House Martin

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories House Martin
Page 5 of 27

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number:
10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision:
A

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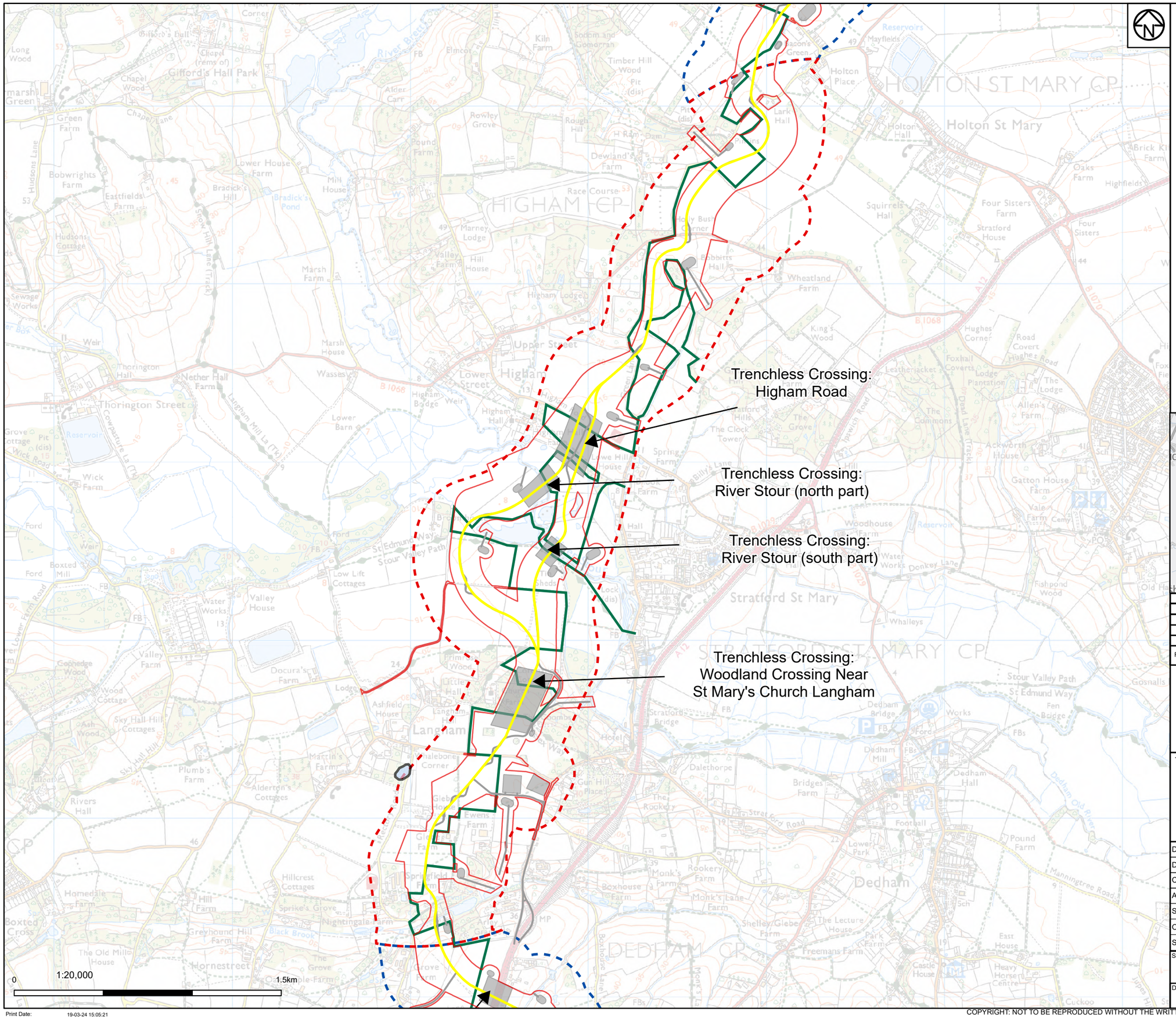

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - House Sparrow

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title: A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories House Sparrow
Page 6 of 27

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:05:25

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Kestrel

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title: A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Kestrel
Page 7 of 27

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

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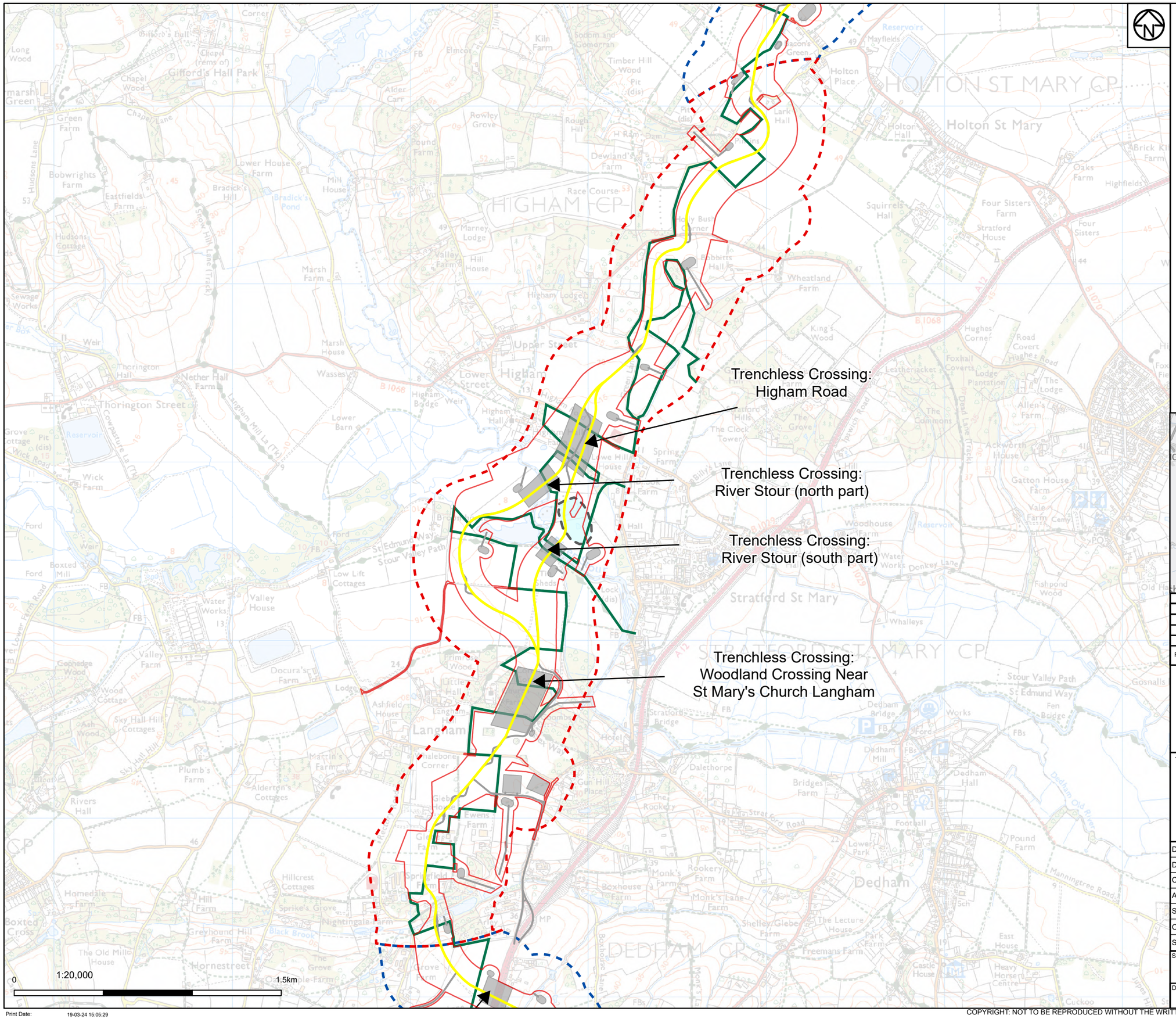
Trenchless Crossing:
Higham Road
Trenchless Crossing:
River Stour (north part)
Trenchless Crossing:
River Stour (south part)
Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham
HIGHAM CP
HOLTON ST MARY CP
STRATFORD ST MARY CP
DEDHAM CP
Holton St Mary
Stratford St Mary
Dedham
Langham
Higham
Upper Street
Lower Street
Thorington Street
Hornestreet
Gifford's Hall Park
Holton Place
Holton Hall
Lark Hall
Wheatland Farm
Squirrels Hall
Four Sisters Farm
Stratford House
Oaks Farm
Brick Kiln Farm
Rowley Grove
Timber Hill Wood
Dewland's Farm
Race Course
Marney Lodge
Hill House
Valley Farm
Marsh Farm
Higham Lodge
Bobbitts Hall
Holy Bush Corner
Bacon's Green
Reservoirs
Mayfields
Kiln Farm
Bottom and Gomorrah
Elmcot
Chapel (rems of)
Chapel Wood
Marshs Green
Green Farm
Chapel Lane
Hudsons Cottage
Bobwrights Farm
Eastfields Farm
Bradick's Hill
Bradick's Pond
Mill House
Lower House Farm
Pound Farm
Alder Carr
Rough Hill
Pit (dis)
H Ram
Dam
Hudsons Lane
Snow Hill Lane (Track)
Sewage Works
Weir
Thorington Hall
Nether Hall Farm
Laughan Mill La (TK)
Cowpasture La (TK)
Reservoir
Wick Farm
Wick Road
Grove Cottage
Lower Barn
Marsh House
Wassey
Higham Bridge
Higham Weir
Higham Hall
Spring Farm
Lowe Hill House
Bailey Lane
The Clock Tower
Catford Hills
Foxhall Coverts
Leatherjacket
Lodge Plantation
Hughes Corner
Road Covert
Hughes Road
The Lodge
Allen's Lodge
Ackworth House
Gatton House
Vale Farm
Cemy
The Commons
Dead Lane (Track)
Ipswich Road
King's Wood
Woodhouse Farm
Reservoir
Water Works
Donkey Lane
Fishpond Wood
Old Fishhall
Stour Valley Path
St Edmund Way
Fen Bridge
Dedham Bridge
Dedham Mill
Dedham Hall
Dedham Old Place
Bridges Farm
Dalethorpe
The Rookery
Gun Hill Place
Stratford Bridge
Hotel
Works
Ford
Football
Lower Park
Pound Farm
Manningtree Road
Rookery Farm
Monk's Farm
Monk's Lane Farm
Boxhouse Farm
Boxhouse Lane
Shelley Glebe Farm
The Lecture House
Park Farm
Freemans Farm
Castle House
Heavy Horse Centre
East House
Cuckoo
Fishponds Farm
Valley House
Low Lift Cottages
Docura's Farm
Gosnalls
Fen
FBs
Ford Road
Stratford Road
Footpath
Sch
PO
P
M
Ewens Farm
Gladwins Farm
Sprigg's Farm
Sprigg's Lane
Sprigg's Grove
Sprigg's Lane Farm
Little Hall
Langham Hall
Langham Bridge
Langham Lodge
Ashfield House
Shalebone Corner
Gun Hill
Martin's Farm
Plumb's Farm
Alderton's Cottages
Rivers Hall
Sky Hall Hill
Sky Hall Hill Cottages
Ash Wood
Gosheage Wood
Wood Cottage
Valley Farm
Homedale Farm
Hillcrest Cottages
Sprike's Grove
Nightingale Farm
Greyhound Hill Farm
Hill Farm
The Old Mills House
Boxted Cross
Boxted Mill
Black Brook
Hall Farm
Hall Farm Cottages
Hall Farm Barn
Hall Farm Grove
Hall Farm Pond
Hall Farm Shed
Hall Farm Wood
Hall Farm Lodges

Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Linnet

Possible Breeding Bird Territory - Linnet

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Linnet
Page 9 of 27

Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision: A

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:05:36

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Mallard

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Mallard
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Designed	H. Smith	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision: A

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:05:39

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Mistlethrush

Possible Breeding Bird Territory - Mistlethrush

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title: A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Mistlethrush
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Designed	H. Smith	Date	April 2024
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Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision: A

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:05:46

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Moorhen

Possible Breeding Bird Territory - Moorhen

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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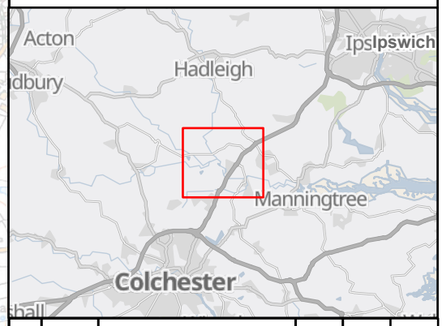

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Moorhen
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Designed	H. Smith	Date	April 2024
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Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision: A

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:05:50

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Possible Breeding Bird Territory - Nightingale

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Nightingale
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Designed	H. Smith	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision: A

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:05:53

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Possible Breeding Bird Territory - Redstart

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Redstart
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Designed	H. Smith	Date	April 2024
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Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision: A

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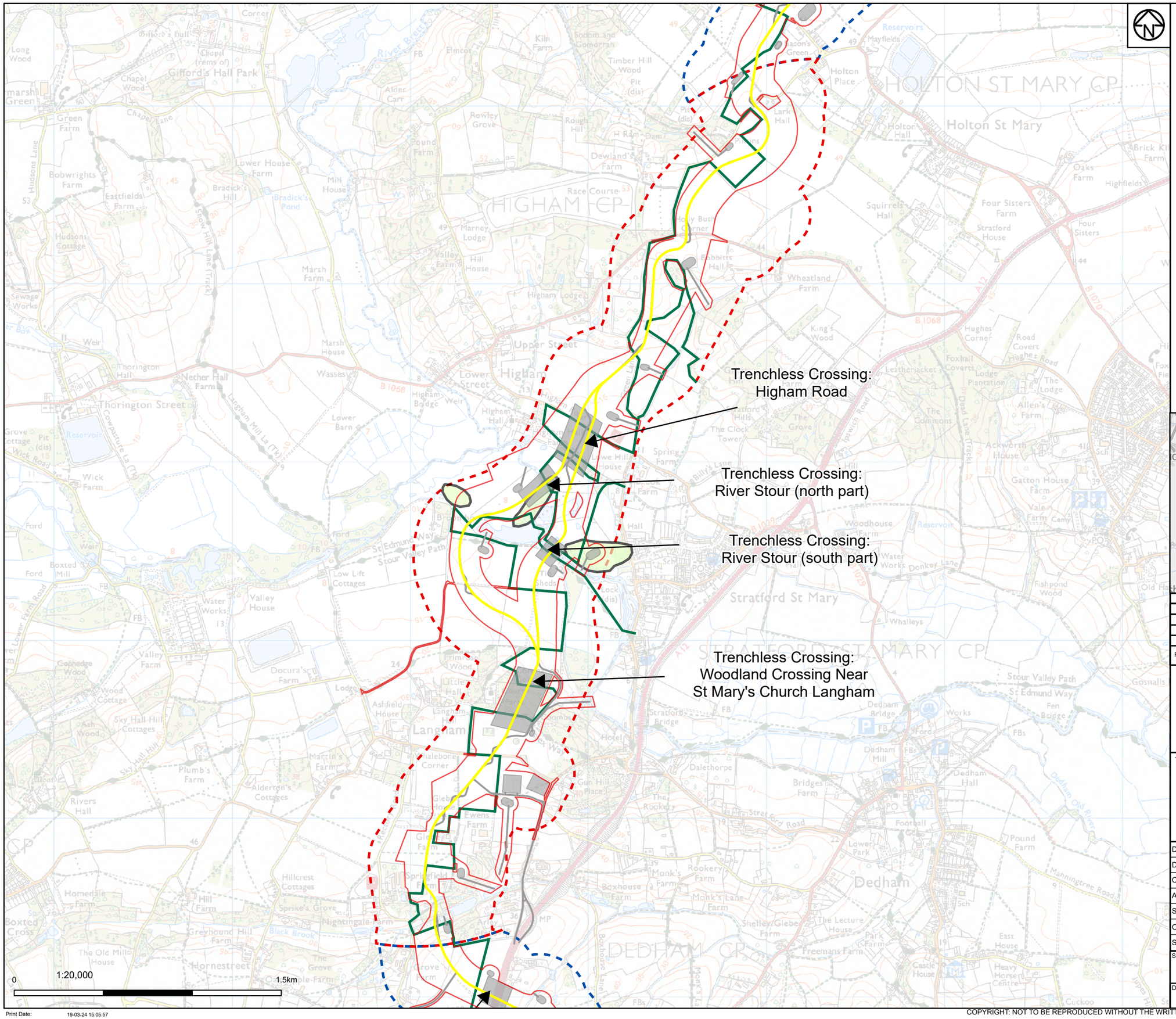

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Reed Bunting

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title: A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Reed Bunting
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Designed	H. Smith	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision: A

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:06:00

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Rook

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Rook
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Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Sedge Warbler

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Sedge Warbler
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Designed	H. Smith	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Shelduck

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Shelduck
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Designed	H. Smith	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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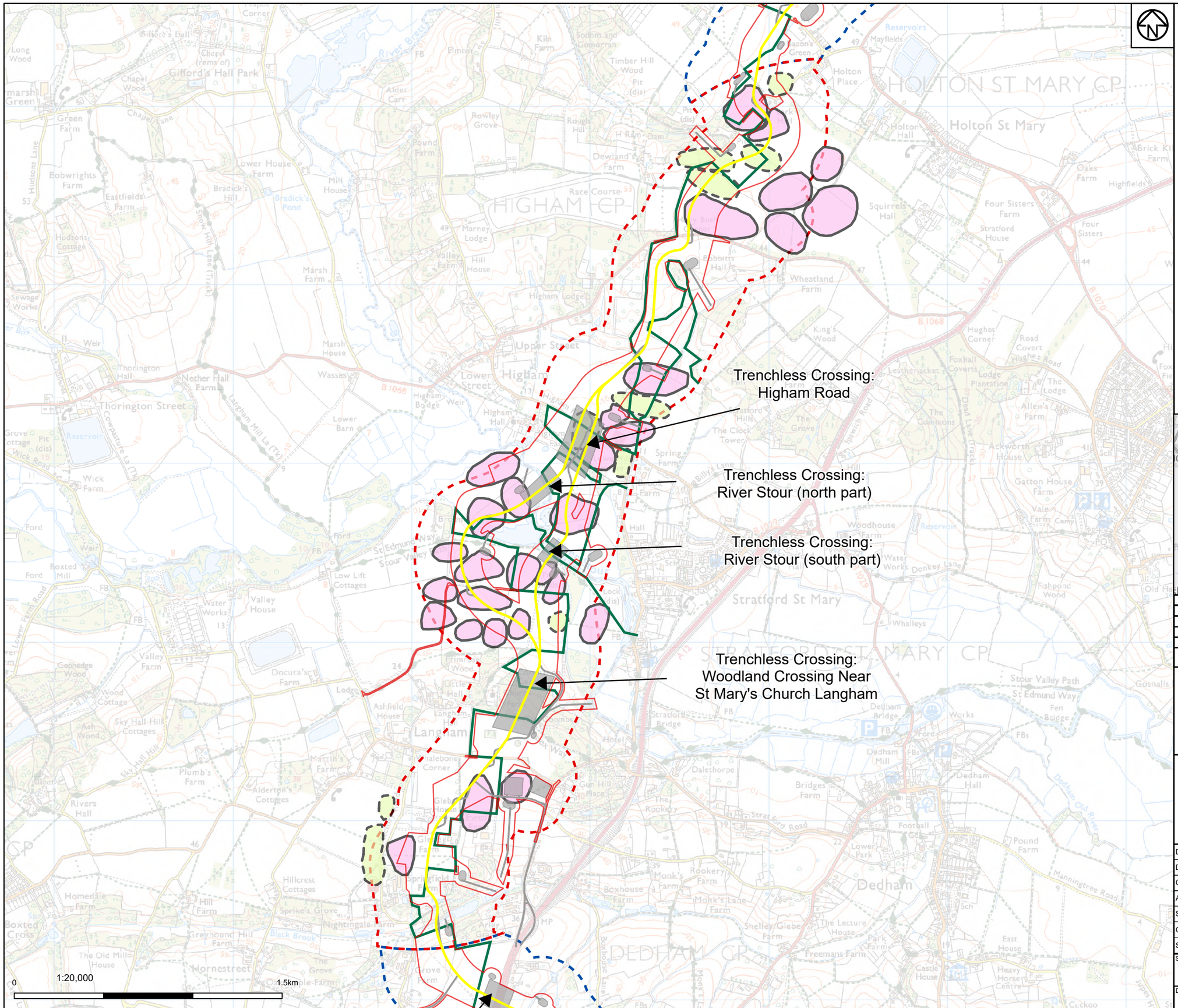

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Skylark

Possible Breeding Bird Territory - Skylark

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
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Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Skylark
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Designed	H. Smith	Date	April 2024
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Approved	K. Burrows	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:06:16

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Songthrush

Possible Breeding Bird Territory - Songthrush

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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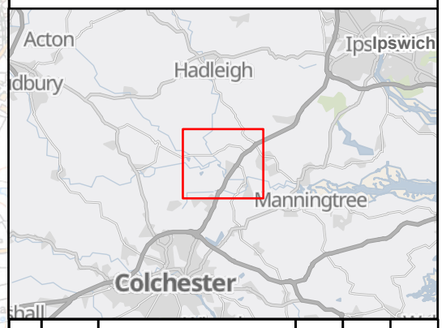

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Songthrush
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Designed	H. Smith	Date	April 2024
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Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

Revision: A

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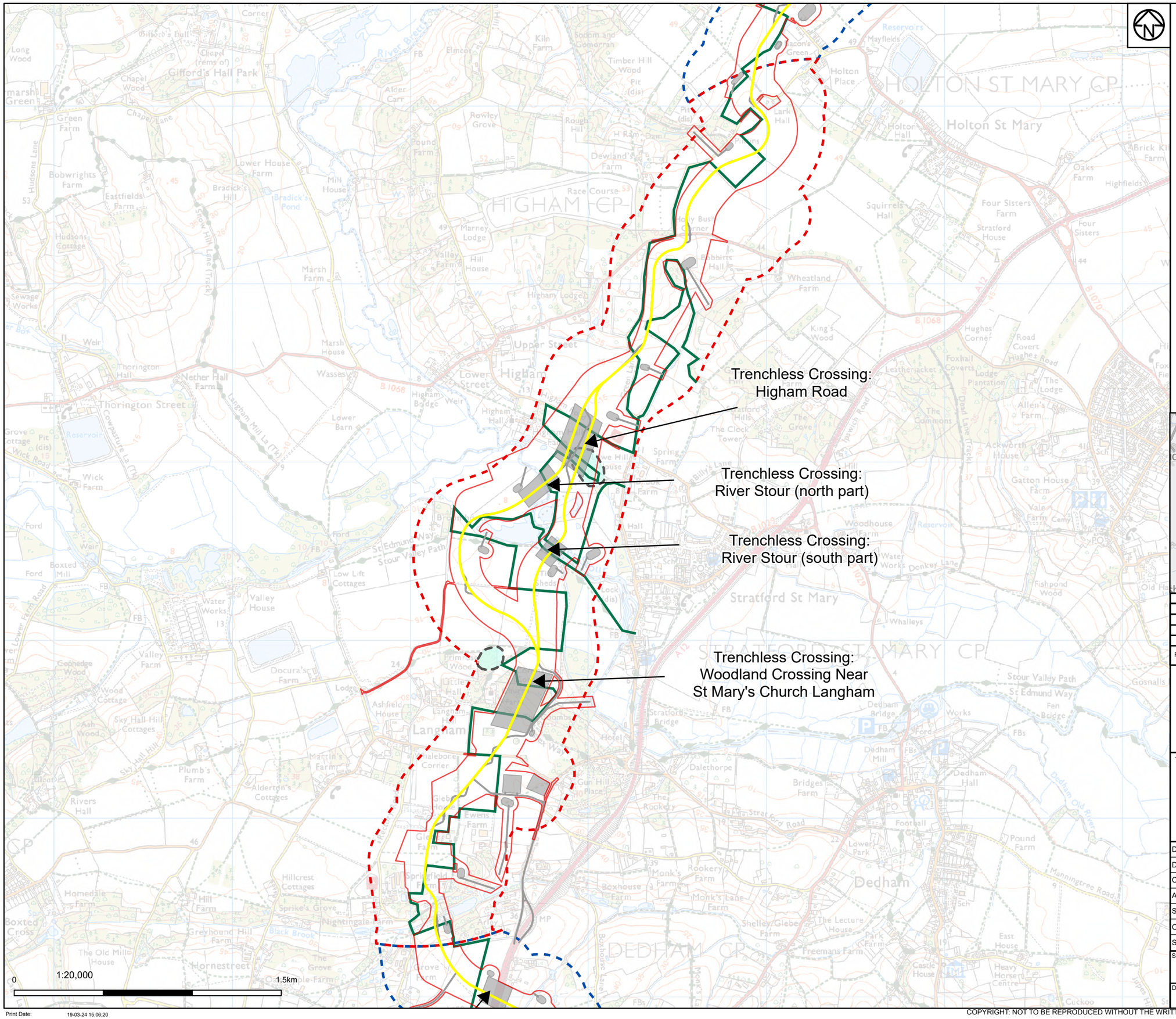

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Possible Breeding Bird Territory - Stock Dove

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
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Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Stock Dove
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Designed	H. Smith	Date	April 2024
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Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Revision:
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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

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Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Possible Breeding Bird Territory - Swift

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title: A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Swift
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Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116 Revision: A

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:06:27

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Whitethroat

Possible Breeding Bird Territory - Whitethroat

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Whitethroat
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Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Drawing Number: 10051663-ARC-EGN-ZZ-DR-ZZ-00116

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:06:31

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Woodpigeon

Possible Breeding Bird Territory - Woodpigeon

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title: A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Woodpigeon
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Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
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Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Wren

Possible Breeding Bird Territory - Wren

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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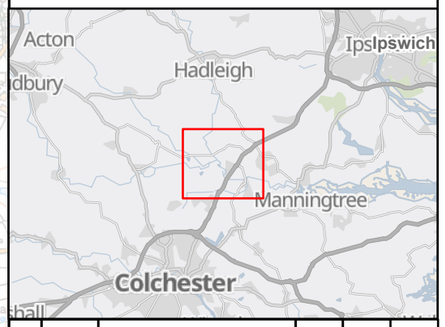

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Wren
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Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
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Original Size:	A3	Grid:	OS
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Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:06:38

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Possible Breeding Bird Territory - Yellow Wagtail

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT:
Norwich to Tilbury

Title:
A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Yellow Wagtail
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Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description:
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Trenchless Crossing:
Higham Road

Trenchless Crossing:
River Stour (north part)

Trenchless Crossing:
River Stour (south part)

Trenchless Crossing:
Woodland Crossing Near
St Mary's Church Langham

0 1:20,000 1.5km

Print Date: 19-03-24 15:06:42

Draft order limits

Proposed project design details

Proposed underground cable alignment

Other temporary and permanent construction and operational works

Discipline specific constraints

Breeding Bird Transects

2023 Breeding Bird Survey Areas

2024 Breeding Bird Survey Areas

Confirmed Breeding Bird Territory - Yellowhammer

Possible Breeding Bird Territory - Yellowhammer

Note: The proposed overhead line alignment and proposed underground cable alignment together comprise the 2024 preferred draft alignment.

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PROJECT: Norwich to Tilbury

Title: A 8.4.3 - Ecology and Biodiversity - 2023 Breeding Bird Survey Territories Yellowhammer
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Designed	H. Smith	Date	April 2024
Drawn	D. Pakrasi	Date	April 2024
Checked	A. Fell	Date	April 2024
Approved	K. Burrows	Date	April 2024
Scale:	1:20,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	A2	Project Number:	10059280

Suitability Description: Accepted as Concept Stage

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Annex B: Desk Study Results

Table A8.4.5 - Breeding Bird Records (Section A)

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Acanthis cabaret	Lesser Redpoll	BoCC5: Red[2], Sect.41[3]	2	2	1	2013
Accipiter nisus	Sparrowhawk	BoCC5: Amber[4]	2	2	1	2021
Alauda arvensis	Skylark	BoCC5: Red, Sect.41	9	516	240	2011
Alcedo atthis	Kingfisher	WCA1[5], BirdsDir: A1[6]	29	31	2	2013
Anas platyrhynchos	Mallard	BoCC5: Amber	2	231	230	2008
Anthus pratensis	Meadow Pipit	BoCC5: Amber	3	52	50	2009
Apus apus	Swift	BoCC5: Red	226	2368	250	2021
Ardea alba	Great White Egret	BoCC5: Amber, RBBP, BirdsDir: A1	1	1	1	2007
Ardea cinerea	Grey Heron		1	1	1	2008
Asio flammeus	Short-eared Owl	BoCC5: Amber, RBBP[7], BirdsDir: A1	2	2	1	2015
Athene noctua	Little Owl		53	68	4	2013
Branta canadensis	Canada Goose		2	2	1	2011
Buteo buteo	Buzzard		40	70	4	2015

[2] Red species on the Birds of Conservation Concern list (Stanbury *et al*, 2021).

[3] A Species of Principal Importance under the Natural Environment and Rural Communities Act (HMSO, 2006).

[4] Amber species on the Birds of Conservation Concern list (Stanbury *et al*, 2021).

[5] A bird species listed under Schedule 1 of the Wildlife and Countryside Act (HMSO, 1981).

[6] Bird species listed under Annex 1 of the Birds Directive (Directive 2009/147/EC)

[7] Bird species currently reported on by the Rare Breeding Bird Panel.

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Carduelis carduelis	Goldfinch		3	76	40	2012
Certhia familiaris	Treecreeper		6	8	3	2013
Cettia cetti	Cetti's Warbler	WCA1	3	3	1	2019
Chloris chloris	Greenfinch	BoCC5: Red	8	589	149	2011
Chroicocephalus ridibundus	Black-headed Gull	BoCC5: Amber	2	1450	800	2012
Circus aeruginosus	Marsh Harrier	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	5	5	1	2021
Coccothraustes coccothraustes	Hawfinch	BoCC5: Red, RBBP	1	1	1	2010
Columba oenas	Stock Dove	BoCC5: Amber	8	116	60	2016
Coturnix coturnix	Quail	BoCC5: Amber, WCA1, RBBP	3	3	1	2015
Crex crex	Corncrake	BoCC5: Red, Sect.41, WCA1, RBBP, BirdsDir: A1	2	2	1	2020
Cuculus canorus	Cuckoo	BoCC5: Red, Sect.41	12	13	2	2019
Cyanistes caeruleus	Blue Tit		2	2	1	2008
Cygnus olor	Mute Swan		5	12	8	2011
Delichon urbicum	House Martin	BoCC5: Red	3	18	15	2012
Dendrocopos major	Great Spotted Woodpecker		9	17	7	2016
Dryobates minor	Lesser Spotted Woodpecker	BoCC5: Red, Sect.41, RBBP	1	1	1	2012

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Egretta garzetta	Little Egret	RBBP, BirdsDir: A1	27	34	3	2014
Emberiza citrinella	Yellowhammer	BoCC5: Red, Sect.41	22	2023	400	2012
Emberiza schoeniclus	Reed Bunting	BoCC5: Amber, Sect.41	7	77	44	2019
Erithacus rubecula	Robin		1	1	1	2008
Falco peregrinus	Peregrine	WCA1, RBBP, BirdsDir: A1	9	9	1	2012
Falco subbuteo	Hobby	WCA1, RBBP	24	27	3	2015
Falco tinnunculus	Kestrel	BoCC5: Amber	2	2	1	2015
Fulica atra	Coot		10	80	12	2016
Gallinago gallinago	Snipe	BoCC5: Amber	1	9	9	2005
Gallinula chloropus	Moorhen	BoCC5: Amber	25	343	48	2016
Haematopus ostralegus	Oystercatcher	BoCC5: Amber	5	8	3	2014
Hirundo rustica	Swallow		6	23	10	2011
Jynx torquilla	Wryneck	WCA1, RBBP	2	2	1	2008
Larus argentatus	Herring Gull	BoCC5: Red, Sect.41	3	5	3	2010
Larus canus	Common Gull	BoCC5: Amber	2	1900	1500	2012
Larus fuscus	Lesser Black-backed Gull	BoCC5: Amber	7	3442	2000	2011
Linaria cannabina	Linnet	BoCC5: Red, Sect.41	18	9277	1774	2012
Milvus milvus	Red Kite	WCA1	16	17	2	2015
Motacilla alba	Pied Wagtail		4	202	100	2014

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Motacilla cinerea	Grey Wagtail	BoCC5: Amber	41	51	6	2013
Motacilla flava	Yellow Wagtail	BoCC5: Red	4	5	2	2014
Muscicapa striata	Spotted Flycatcher	BoCC5: Red, Sect.41	17	17	1	2013
Oenanthe oenanthe	Wheatear	BoCC5: Amber	6	16	11	2011
Parus major	Great Tit		1	1	1	2008
Passer domesticus	House Sparrow	BoCC5: Red, Sect.41	21	434	150	2015
Passer montanus	Tree Sparrow	BoCC5: Red, Sect.41	19	224	30	2013
Perdix perdix	Grey Partridge	BoCC5: Red, Sect.41	7	10	2	2012
Pernis apivorus	Honey-buzzard	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	3	5	2	2009
Phoenicurus ochruros	Black Redstart	BoCC5: Amber, WCA1, RBBP	2	2	1	2012
Phylloscopus trochilus	Willow Warbler	BoCC5: Amber	4	7	4	2010
Picus viridis	Green Woodpecker		21	27	5	2012
Podiceps cristatus	Great Crested Grebe		14	37	4	2016
Poecile montanus	Willow Tit	BoCC5: Red, Sect.41, RBBP	1	1	1	2009
Poecile palustris	Marsh Tit	BoCC5: Red, Sect.41	19	28	5	2013

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Pyrrhula pyrrhula	Bullfinch	BoCC5: Amber, Sect.41	50	112	9	2012
Regulus ignicapilla	Firecrest	WCA1, RBBP	2	2	1	2007
Riparia riparia	Sand Martin		1	1	1	2008
Scolopax rusticola	Woodcock	BoCC5: Red	23	41	7	2016
Sitta europaea	Nuthatch		7	10	4	2013
Spinus spinus	Siskin		2	26	25	2009
Sterna hirundo	Common Tern	BoCC5: Amber, BirdsDir: A1	1	1	1	2009
Streptopelia turtur	Turtle Dove	BoCC5: Red, Sect.41	94	132	3	2016
Strix aluco	Tawny Owl	BoCC5: Amber, BirdsDir: A1	31	32	2	2015
Sturnus vulgaris	Starling	BoCC5: Red, Sect.41	5	9140	6000	2012
Troglodytes' troglodytes	Wren	BoCC5: Amber	2	2	1	2005
Turdus viscivorus	Mistle Thrush	BoCC5: Red	2	2	1	2009
Tyto alba	Barn Owl	WCA1	77	77	1	2021
Vanellus vanellus	Lapwing	BoCC5: Red, Sect.41	3	3251	3000	2013

Table A8.4.6 - Breeding Bird Records (Section B)

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Acanthis cabaret	Lesser Redpoll	BoCC5: Red, Sect.41	11	44	15	2020
Acanthis flammea	Common Redpoll	BoCC5: Red, RBBP	3	4	2	2021
Accipiter gentilis	Goshawk	WCA1, RBBP	1	1	1	2020
Accipiter nisus	Sparrowhawk	BoCC5: Amber	84	98	4	2022
Acrocephalus palustris	Marsh Warbler	BoCC5: Red, Sect.41, WCA1	1	1	1	2010
Acrocephalus schoenobaenus	Sedge Warbler	BoCC5: Amber	12	16	3	2020
Aix galericulata	Mandarin Duck		8	14	3	2017
Alauda arvensis	Skylark	BoCC5: Red, Sect.41	91	575	268	2021
Alcedo atthis	Kingfisher	WCA1, BirdsDir: A1	32	37	3	2021
Anas acuta	Pintail	BoCC5: Amber	7	8	2	2020
Anas crecca	Teal	BoCC5: Amber	8	32	14	2020
Anser anser	Greylag Goose	BoCC5: Amber	25	164	70	2022
Anthus pratensis	Meadow Pipit	BoCC5: Amber	43	305	30	2020
Anthus trivialis	Tree Pipit	BoCC5: Red, Sect.41	3	3	1	2015
Apus apus	Swift	BoCC5: Red	371	2091	200	2021
Ardea alba	Great White Egret	BoCC5: Amber, RBBP, BirdsDir: A1	6	6	1	2021
Ardea cinerea	Grey Heron		31	50	10	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Asio flammeus	Short-eared Owl	BoCC5: Amber, RBBP, BirdsDir: A1	1	1	1	2016
Asio otus	Long-eared Owl	RBBP	1	1	1	2009
Athene noctua	Little Owl		61	79	6	2021
Aythya ferina	Pochard	BoCC5: Red, RBBP	3	16	14	2017
Aythya fuligula	Tufted Duck		14	45	15	2020
Botaurus stellaris	Bittern	BoCC5: Amber, Sect.41, WCA1, RBBP, BirdsDir: A1	3	3	1	2013
Branta leucopsis	Barnacle Goose	BoCC5: Amber, BirdsDir: A1	1	1	1	2015
Buteo buteo	Buzzard		90	115	4	2022
Calidris pugnax	Ruff	BoCC5: Red, WCA1, RBBP, BirdsDir: A1	1	4	4	2015
Cettia cetti	Cetti's Warbler	WCA1	8	9	2	2020
Charadrius dubius	Little Ringed Plover	WCA1, RBBP	4	10	4	2020
Charadrius hiaticula	Ringed Plover	BoCC5: Red	3	3	1	2018
Chloris chloris	Greenfinch	BoCC5: Red	140	323	31	2021
Chroicocephalus ridibundus	Black-headed Gull	BoCC5: Amber	67	1383	200	2021
Circus aeruginosus	Marsh Harrier	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	3	3	1	2020
Coccothraustes coccothraustes	Hawfinch	BoCC5: Red, RBBP	1	1	1	2009

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Corvus frugilegus	Rook	BoCC5: Amber	108	4925	3600	2022
Crex crex	Corncrake	BoCC5: Red, Sect.41, WCA1, RBBP, BirdsDir: A1	1	1	1	2014
Cuculus canorus	Cuckoo	BoCC5: Red, Sect.41	29	30	2	2021
Curruca communis	Whitethroat	BoCC5: Amber	76	120	12	2021
Cygnus olor	Mute Swan		24	46	6	2021
Delichon urbicum	House Martin	BoCC5: Red	60	314	75	2021
Dryobates minor	Lesser Spotted Woodpecker	BoCC5: Red, Sect.41, RBBP	5	6	2	2011
Egretta garzetta	Little Egret	RBBP, BirdsDir: A1	41	55	4	2021
Emberiza calandra	Corn Bunting	BoCC5: Red, Sect.41	1	1	1	2008
Emberiza citrinella	Yellowhammer	BoCC5: Red, Sect.41	87	211	30	2021
Emberiza schoeniclus	Reed Bunting	BoCC5: Amber, Sect.41	41	135	60	2021
Falco peregrinus	Peregrine	WCA1, RBBP, BirdsDir: A1	11	13	2	2021
Falco subbuteo	Hobby	WCA1, RBBP	21	21	1	2020
Falco tinnunculus	Kestrel	BoCC5: Amber	99	116	5	2022
Fulica atra	Coot		14	33	10	2020
Gallinago gallinago	Snipe	BoCC5: Amber	27	61	12	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Gallinula chloropus	Moorhen	BoCC5: Amber	130	423	30	2022
Haematopus ostralegus	Oystercatcher	BoCC5: Amber	4	5	2	2020
Larus argentatus	Herring Gull	BoCC5: Red, Sect.41	48	1201	1000	2020
Larus canus	Common Gull	BoCC5: Amber	44	417	80	2020
Larus fuscus	Lesser Black-backed Gull	BoCC5: Amber	42	104	25	2021
Larus marinus	Great Black-backed Gull	BoCC5: Amber	9	14	3	2020
Linaria cannabina	Linnet	BoCC5: Red, Sect.41	70	1205	200	2021
Locustella naevia	Grasshopper Warbler	BoCC5: Red, Sect.41	4	4	1	2020
Lullula arborea	Woodlark	Sect.41, WCA1, RBBP, BirdsDir: A1	3	3	1	2015
Luscinia megarhynchos	Nightingale	BoCC5: Red	17	20	3	2020
Mareca penelope	Wigeon	BoCC5: Amber, RBBP	6	19	5	2020
Mareca strepera	Gadwall	BoCC5: Amber	7	20	6	2020
Mergus merganser	Goosander		5	6	2	2020
Milvus milvus	Red Kite	WCA1	19	19	1	2021
Motacilla cinerea	Grey Wagtail	BoCC5: Amber	37	68	10	2021
Motacilla flava	Yellow Wagtail	BoCC5: Red	9	11	2	2020
Muscicapa striata	Spotted Flycatcher	BoCC5: Red, Sect.41	55	93	5	2021

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Numenius arquata	Curlew	BoCC5: Red, Sect.41	1	3	3	2008
Oenanthe oenanthe	Wheatear	BoCC5: Amber	6	6	1	2020
Oxyura jamaicensis	Ruddy Duck		1	2	2	2008
Passer domesticus	House Sparrow	BoCC5: Red, Sect.41	336	489	22	2021
Passer montanus	Tree Sparrow	BoCC5: Red, Sect.41	2	2	1	2016
Perdix perdix	Grey Partridge	BoCC5: Red, Sect.41	20	81	21	2020
Pernis apivorus	Honey-buzzard	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	5	5	1	2019
Phalacrocorax carbo	Cormorant		13	47	19	2020
Phoenicurus ochruros	Black Redstart	BoCC5: Amber, WCA1, RBBP	4	4	1	2020
Phoenicurus phoenicurus	Redstart	BoCC5: Amber	1	1	1	2007
Phylloscopus sibilatrix	Wood Warbler	BoCC5: Red, Sect.41	2	2	1	2017
Phylloscopus trochilus	Willow Warbler	BoCC5: Amber	40	63	13	2020
Podiceps cristatus	Great Crested Grebe		17	30	5	2021
Poecile montanus	Willow Tit	BoCC5: Red, Sect.41, RBBP	1	1	1	2006

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Poecile palustris	Marsh Tit	BoCC5: Red, Sect.41	51	63	3	2022
Prunella modularis	Dunnock	BoCC5: Amber, Sect.41	217	268	8	2022
Pyrrhula pyrrhula	Bullfinch	BoCC5: Amber, Sect.41	95	161	14	2021
Rallus aquaticus	Water Rail	RBBP	12	17	4	2018
Regulus ignicapilla	Firecrest	WCA1, RBBP	7	7	1	2016
Scolopax rusticola	Woodcock	BoCC5: Red	34	50	5	2020
Spatula clypeata	Shoveler	BoCC5: Amber, RBBP	3	7	3	2020
Sterna hirundo	Common Tern	BoCC5: Amber, BirdsDir: A1	13	16	2	2020
Streptopelia turtur	Turtle Dove	BoCC5: Red, Sect.41	168	243	7	2020
Strix aluco	Tawny Owl	BoCC5: Amber, BirdsDir: A1	42	47	2	2021
Sturnus vulgaris	Starling	BoCC5: Red, Sect.41	288	917	150	2022
Tachybaptus ruficollis	Little Grebe		10	21	5	2020
Tadorna tadorna	Shelduck	BoCC5: Amber	3	6	4	2015
Tringa totanus	Redshank	BoCC5: Amber	4	5	2	2018
Troglodytes' troglodytes	Wren	BoCC5: Amber	133	318	50	2021
Turdus viscivorus	Mistle Thrush	BoCC5: Red	65	102	12	2022
Tyto alba	Barn Owl	WCA1	141	155	6	2022

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Vanellus vanellus	Lapwing	BoCC5: Red, Sect.41	35	1335	330	2020

Table A8.4.7 - Breeding Bird Records (Section C)

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Acanthis cabaret	Lesser Redpoll	BoCC5: Red, Sect.41	20	87	38	2020
Accipiter nisus	Sparrowhawk	BoCC5: Amber	55	98	14	2020
Acrocephalus schoenobaenus	Sedge Warbler	BoCC5: Amber	6	7	2	2017
Aix galericulata	Mandarin Duck		6	11	4	2020
Alauda arvensis	Skylark	BoCC5: Red, Sect.41	71	201	20	2021
Alcedo atthis	Kingfisher	WCA1, BirdsDir: A1	40	144	50	2020
Alectoris rufa	Red-legged Partridge		15	26	6	2020
Anas acuta	Pintail	BoCC5: Amber	12	64	16	2020
Anas crecca	Teal	BoCC5: Amber	26	394	100	2020
Anas platyrhynchos	Mallard	BoCC5: Amber	24	98	23	2020
Anser anser	Greylag Goose	BoCC5: Amber	36	207	46	2020
Anthus pratensis	Meadow Pipit	BoCC5: Amber	24	117	50	2020
Apus apus	Swift	BoCC5: Red	115	569	70	2021
Ardea alba	Great White Egret	BoCC5: Amber, RBBP, BirdsDir: A1	9	11	2	2020
Ardea cinerea	Grey Heron		42	129	48	2020
Arenaria interpres	Turnstone	BoCC5: Amber, RBBP	1	3	3	2015
Asio flammeus	Short-eared Owl	BoCC5: Amber, RBBP, BirdsDir: A1	7	8	2	2015

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Asio otus	Long-eared Owl	RBBP	2	4	2	2018
Athene noctua	Little Owl		43	70	13	2020
Aythya ferina	Pochard	BoCC5: Red, RBBP	8	17	6	2020
Aythya fuligula	Tufted Duck		25	139	52	2020
Botaurus stellaris	Bittern	BoCC5: Amber, Sect.41, WCA1, RBBP, BirdsDir: A1	2	2	1	2019
Branta canadensis	Canada Goose		17	80	17	2020
Branta leucopsis	Barnacle Goose	BoCC5: Amber, BirdsDir: A1	14	23	6	2020
Buteo buteo	Buzzard		91	220	30	2021
Calidris pugnax	Ruff	BoCC5: Red, WCA1, RBBP, BirdsDir: A1	9	11	3	2019
Carduelis carduelis	Goldfinch		21	62	12	2020
Certhia familiaris	Treecreeper		7	22	9	2020
Cettia cetti	Cetti's Warbler	WCA1	18	80	25	2020
Charadrius dubius	Little Ringed Plover	WCA1, RBBP	15	33	7	2020
Charadrius hiaticula	Ringed Plover	BoCC5: Red	6	14	8	2015
Chloris chloris	Greenfinch	BoCC5: Red	111	237	40	2020
Chroicocephalus ridibundus	Black-headed Gull	BoCC5: Amber	64	2614	1250	2020
Circus aeruginosus	Marsh Harrier	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	7	52	46	2020
Coccothraustes coccothraustes	Hawfinch	BoCC5: Red, RBBP	1	1	1	2018

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Coloeus monedula	Jackdaw		15	22	3	2018
Columba oenas	Stock Dove	BoCC5: Amber	20	58	17	2020
Columba palumbus	Woodpigeon	BoCC5: Amber	30	55	9	2020
Corvus corone	Carrion Crow		23	51	12	2020
Corvus frugilegus	Rook	BoCC5: Amber	101	1799	1025	2021
Cuculus canorus	Cuckoo	BoCC5: Red, Sect.41	56	83	11	2021
Curruca communis	Whitethroat	BoCC5: Amber	44	92	39	2020
Cyanistes caeruleus	Blue Tit		19	47	11	2020
Cygnus olor	Mute Swan		51	241	52	2020
Delichon urbicum	House Martin	BoCC5: Red	64	338	100	2020
Dendrocopos major	Great Spotted Woodpecker		14	64	19	2020
Dryobates minor	Lesser Spotted Woodpecker	BoCC5: Red, Sect.41, RBBP	8	8	1	2017
Egretta garzetta	Little Egret	RBBP, BirdsDir: A1	34	130	41	2020
Emberiza calandra	Corn Bunting	BoCC5: Red, Sect.41	14	40	18	2020
Emberiza citrinella	Yellowhammer	BoCC5: Red, Sect.41	76	343	120	2020
Emberiza schoeniclus	Reed Bunting	BoCC5: Amber, Sect.41	34	111	30	2020
Erithacus rubecula	Robin		18	56	11	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Falco peregrinus	Peregrine	WCA1, RBBP, BirdsDir: A1	13	31	18	2020
Falco subbuteo	Hobby	WCA1, RBBP	35	70	11	2020
Falco tinnunculus	Kestrel	BoCC5: Amber	83	165	35	2021
Fulica atra	Coot		30	181	50	2020
Gallinago gallinago	Snipe	BoCC5: Amber	21	71	16	2020
Gallinula chloropus	Moorhen	BoCC5: Amber	67	171	29	2020
Garrulus glandarius	Jay		11	46	16	2020
Grus grus	Crane	BoCC5: Amber, RBBP, BirdsDir: A1	1	2	2	2020
Haematopus ostralegus	Oystercatcher	BoCC5: Amber	23	91	39	2020
Hirundo rustica	Swallow		30	88	21	2020
Larus argentatus	Herring Gull	BoCC5: Red, Sect.41	38	158	27	2020
Larus canus	Common Gull	BoCC5: Amber	51	631	200	2020
Larus fuscus	Lesser Black-backed Gull	BoCC5: Amber	39	115	37	2020
Larus marinus	Great Black-backed Gull	BoCC5: Amber	11	14	2	2020
Linaria cannabina	Linnet	BoCC5: Red, Sect.41	64	608	200	2020
Locustella naevia	Grasshopper Warbler	BoCC5: Red, Sect.41	2	2	1	2020
Luscinia megarhynchos	Nightingale	BoCC5: Red	26	28	2	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Mareca penelope	Wigeon	BoCC5: Amber, RBBP	15	1719	1000	2020
Mareca strepera	Gadwall	BoCC5: Amber	22	198	38	2020
Mergus merganser	Goosander		10	62	38	2020
Milvus milvus	Red Kite	WCA1	40	59	6	2021
Motacilla alba	Pied Wagtail		19	60	19	2020
Motacilla cinerea	Grey Wagtail	BoCC5: Amber	43	145	40	2020
Motacilla flava	Yellow Wagtail	BoCC5: Red	31	119	29	2020
Muscicapa striata	Spotted Flycatcher	BoCC5: Red, Sect.41	31	51	9	2020
Netta rufina	Red-crested Pochard		1	1	1	2016
Numenius arquata	Curlew	BoCC5: Red, Sect.41	13	24	6	2019
Oenanthe oenanthe	Wheatear	BoCC5: Amber	8	15	8	2018
Panurus biarmicus	Bearded Tit	WCA1, RBBP	4	4	1	2016
Parus major	Great Tit		21	43	11	2020
Passer domesticus	House Sparrow	BoCC5: Red, Sect.41	161	298	40	2020
Passer montanus	Tree Sparrow	BoCC5: Red, Sect.41	6	22	8	2015
Perdix perdix	Grey Partridge	BoCC5: Red, Sect.41	12	24	4	2021
Periparus ater	Coal Tit		8	15	6	2020
Pernis apivorus	Honey-buzzard	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	3	3	1	2016

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Phalacrocorax carbo	Cormorant		20	86	17	2020
Phasianus colchicus	Pheasant		9	14	3	2020
Phoenicurus ochruros	Black Redstart	BoCC5: Amber, WCA1, RBBP	4	6	2	2018
Phoenicurus phoenicurus	Redstart	BoCC5: Amber	3	4	2	2015
Phylloscopus trochilus	Willow Warbler	BoCC5: Amber	28	48	12	2020
Pica pica	Magpie		15	29	8	2020
Picus viridis	Green Woodpecker		21	106	48	2020
Podiceps cristatus	Great Crested Grebe		15	161	91	2020
Poecile palustris	Marsh Tit	BoCC5: Red, Sect.41	24	36	5	2021
Prunella modularis	Dunnock	BoCC5: Amber, Sect.41	137	188	12	2020
Pyrrhula pyrrhula	Bullfinch	BoCC5: Amber, Sect.41	52	95	18	2021
Rallus aquaticus	Water Rail	RBBP	10	12	2	2020
Recurvirostra avosetta	Avocet	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	5	19	12	2020
Regulus ignicapilla	Firecrest	WCA1, RBBP	4	10	6	2020
Regulus regulus	Goldcrest		12	63	22	2020
Riparia riparia	Sand Martin		11	69	41	2020
Rissa tridactyla	Kittiwake	BoCC5: Red	1	2	2	2015
Saxicola rubicola	Stonechat		5	20	14	2019

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Scolopax rusticola	Woodcock	BoCC5: Red	23	32	4	2019
Sitta europaea	Nuthatch		7	7	1	2020
Spatula clypeata	Shoveler	BoCC5: Amber, RBBP	6	85	26	2020
Spatula querquedula	Garganey	BoCC5: Amber, WCA1, RBBP	4	4	1	2017
Spinus spinus	Siskin		3	5	2	2013
Sterna hirundo	Common Tern	BoCC5: Amber, BirdsDir: A1	28	112	44	2022
Sternula albifrons	Little Tern	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	1	4	4	2015
Streptopelia decaocto	Collared Dove		9	14	3	2020
Streptopelia turtur	Turtle Dove	BoCC5: Red, Sect.41	117	168	17	2021
Strix aluco	Tawny Owl	BoCC5: Amber, BirdsDir: A1	22	30	5	2020
Sturnus vulgaris	Starling	BoCC5: Red, Sect.41	152	656	150	2020
Tachybaptus ruficollis	Little Grebe		26	119	43	2020
Tadorna tadorna	Shelduck	BoCC5: Amber	31	146	24	2020
Thalasseus sandvicensis	Sandwich Tern	BoCC5: Amber, BirdsDir: A1	1	3	3	2015
Tringa totanus	Redshank	BoCC5: Amber	18	73	9	2020
Troglodytes' troglodytes	Wren	BoCC5: Amber	94	173	14	2021

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Turdus merula	Blackbird		19	61	15	2020
Turdus viscivorus	Mistle Thrush	BoCC5: Red	52	113	17	2021
Tyto alba	Barn Owl	WCA1	48	60	8	2021
Vanellus vanellus	Lapwing	BoCC5: Red, Sect.41	45	1985	450	2020

Table A8.4.8 - Breeding Bird Records (Section D)

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Acanthis cabaret	Lesser Redpoll	BoCC5: Red, Sect.41	7	11	4	2020
Accipiter nisus	Sparrowhawk	BoCC5: Amber	38	94	27	2020
Aix galericulata	Mandarin Duck		4	6	2	2019
Alauda arvensis	Skylark	BoCC5: Red, Sect.41	46	114	17	2020
Alcedo atthis	Kingfisher	WCA1, BirdsDir: A1	11	15	4	2020
Alectoris rufa	Red-legged Partridge		24	71	20	2020
Anas crecca	Teal	BoCC5: Amber	5	5	1	2020
Anas platyrhynchos	Mallard	BoCC5: Amber	22	40	7	2020
Anser anser	Greylag Goose	BoCC5: Amber	13	16	2	2020
Anthus pratensis	Meadow Pipit	BoCC5: Amber	16	37	8	2020
Apus apus	Swift	BoCC5: Red	54	219	28	2020
Ardea alba	Great White Egret	BoCC5: Amber, RBBP, BirdsDir: A1	1	1	1	2019
Ardea cinerea	Grey Heron		15	23	4	2020
Athene noctua	Little Owl		29	39	4	2020
Aythya ferina	Pochard	BoCC5: Red, RBBP	2	3	2	2020
Aythya fuligula	Tufted Duck		10	18	6	2020
Branta canadensis	Canada Goose		10	15	3	2020
Buteo buteo	Buzzard		59	225	34	2020
Calidris pugnax	Ruff	BoCC5: Red, WCA1,	1	1	1	2015

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
		RBBP, BirdsDir: A1				
Carduelis carduelis	Goldfinch		55	178	27	2020
Certhia familiaris	Treecreeper		15	23	7	2020
Cettia cetti	Cetti's Warbler	WCA1	1	1	1	2020
Charadrius dubius	Little Ringed Plover	WCA1, RBBP	1	2	2	2013
Chloris chloris	Greenfinch	BoCC5: Red	41	90	13	2020
Chroicocephalus ridibundus	Black-headed Gull	BoCC5: Amber	38	92	15	2020
Circus aeruginosus	Marsh Harrier	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	3	7	3	2020
Coccothraustes coccothraustes	Hawfinch	BoCC5: Red, RBBP	1	1	1	2018
Coloeus monedula	Jackdaw		18	53	14	2018
Columba oenas	Stock Dove	BoCC5: Amber	22	68	20	2020
Columba palumbus	Woodpigeon	BoCC5: Amber	65	268	28	2020
Corvus corone	Carrion Crow		50	180	25	2020
Corvus frugilegus	Rook	BoCC5: Amber	27	41	6	2020
Cuculus canorus	Cuckoo	BoCC5: Red, Sect.41	34	65	6	2020
Curruca communis	Whitethroat	BoCC5: Amber	3	3	1	2011
Cyanistes caeruleus	Blue Tit		57	263	29	2020
Cygnus olor	Mute Swan		15	25	6	2020
Delichon urbicum	House Martin	BoCC5: Red	25	72	15	2020
Dendrocopos major	Great Spotted Woodpecker		28	112	22	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Dryobates minor	Lesser Spotted Woodpecker	BoCC5: Red, Sect.41, RBBP	1	1	1	2013
Egretta garzetta	Little Egret	RBBP, BirdsDir: A1	15	16	2	2020
Emberiza calandra	Corn Bunting	BoCC5: Red, Sect.41	5	13	5	2020
Emberiza citrinella	Yellowhammer	BoCC5: Red, Sect.41	53	127	24	2020
Emberiza schoeniclus	Reed Bunting	BoCC5: Amber, Sect.41	22	52	10	2020
Erithacus rubecula	Robin		62	255	26	2020
Falco peregrinus	Peregrine	WCA1, RBBP, BirdsDir: A1	9	13	3	2020
Falco subbuteo	Hobby	WCA1, RBBP	14	16	2	2020
Falco tinnunculus	Kestrel	BoCC5: Amber	62	125	17	2020
Fulica atra	Coot		16	49	28	2020
Gallinago gallinago	Snipe	BoCC5: Amber	3	3	1	2019
Gallinula chloropus	Moorhen	BoCC5: Amber	17	30	5	2020
Garrulus glandarius	Jay		34	94	18	2020
Grus grus	Crane	BoCC5: Amber, RBBP, BirdsDir: A1	1	1	1	2013
Hirundo rustica	Swallow		37	104	14	2020
Larus argentatus	Herring Gull	BoCC5: Red, Sect.41	21	48	15	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Larus canus	Common Gull	BoCC5: Amber	29	53	7	2020
Larus fuscus	Lesser Black-backed Gull	BoCC5: Amber	20	32	6	2020
Larus marinus	Great Black-backed Gull	BoCC5: Amber	2	2	1	2020
Linaria cannabina	Linnet	BoCC5: Red, Sect.41	33	92	16	2020
Luscinia megarhynchos	Nightingale	BoCC5: Red	10	25	8	2020
Mareca penelope	Wigeon	BoCC5: Amber, RBBP	1	3	3	2009
Mareca strepera	Gadwall	BoCC5: Amber	3	4	2	2013
Mergus merganser	Goosander		4	8	5	2018
Milvus milvus	Red Kite	WCA1	24	63	10	2020
Motacilla alba	Pied Wagtail		25	77	14	2020
Motacilla cinerea	Grey Wagtail	BoCC5: Amber	21	76	16	2020
Motacilla flava	Yellow Wagtail	BoCC5: Red	10	14	3	2020
Muscicapa striata	Spotted Flycatcher	BoCC5: Red, Sect.41	15	30	9	2020
Netta rufina	Red-crested Pochard		1	1	1	2013
Oenanthe oenanthe	Wheatear	BoCC5: Amber	4	6	2	2020
Panurus biarmicus	Bearded Tit	WCA1, RBBP	1	1	1	2020
Parus major	Great Tit		48	182	26	2020
Passer domesticus	House Sparrow	BoCC5: Red, Sect.41	45	132	13	2020
Passer montanus	Tree Sparrow	BoCC5: Red, Sect.41	2	4	3	2015

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Perdix perdix	Grey Partridge	BoCC5: Red, Sect.41	12	15	2	2020
Periparus ater	Coal Tit		15	28	11	2020
Pernis apivorus	Honey-buzzard	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	1	1	1	2013
Phalacrocorax carbo	Cormorant		9	21	7	2020
Phasianus colchicus	Pheasant		29	93	19	2020
Phylloscopus trochilus	Willow Warbler	BoCC5: Amber	24	31	6	2020
Pica pica	Magpie		55	156	24	2020
Picus viridis	Green Woodpecker		52	164	22	2020
Podiceps cristatus	Great Crested Grebe		4	10	5	2020
Poecile palustris	Marsh Tit	BoCC5: Red, Sect.41	1	1	1	2010
Prunella modularis	Dunnock	BoCC5: Amber, Sect.41	47	162	17	2020
Pyrrhula pyrrhula	Bullfinch	BoCC5: Amber, Sect.41	26	57	7	2020
Recurvirostra avosetta	Avocet	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	1	1	1	2013
Regulus regulus	Goldcrest		25	60	12	2020
Riparia riparia	Sand Martin		6	7	2	2020
Saxicola rubicola	Stonechat		3	3	1	2020
Scolopax rusticola	Woodcock	BoCC5: Red	8	10	3	2019

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Sitta europaea	Nuthatch		9	15	3	2020
Spinus spinus	Siskin		5	5	1	2018
Sterna hirundo	Common Tern	BoCC5: Amber, BirdsDir: A1	2	4	3	2019
Streptopelia decaocto	Collared Dove		47	151	18	2020
Streptopelia turtur	Turtle Dove	BoCC5: Red, Sect.41	85	151	9	2020
Strix aluco	Tawny Owl	BoCC5: Amber, BirdsDir: A1	9	25	9	2020
Sturnus vulgaris	Starling	BoCC5: Red, Sect.41	55	149	22	2020
Tachybaptus ruficollis	Little Grebe		14	21	4	2020
Tadorna tadorna	Shelduck	BoCC5: Amber	4	4	1	2020
Troglodytes' troglodytes	Wren	BoCC5: Amber	50	163	21	2020
Turdus merula	Blackbird		67	296	27	2020
Turdus viscivorus	Mistle Thrush	BoCC5: Red	30	73	11	2020
Tyto alba	Barn Owl	WCA1	24	32	3	2020
Vanellus vanellus	Lapwing	BoCC5: Red, Sect.41	17	65	25	2020

Table A8.4.92: Breeding Bird Records (Section E)

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Acanthis cabaret	Lesser Redpoll	BoCC5: Red, Sect.41	5	11	5	2020
Accipiter gentilis	Goshawk	WCA1, RBBP	1	2	2	2015
Accipiter nisus	Sparrowhawk	BoCC5: Amber	21	107	51	2020
Aix galericulata	Mandarin Duck		6	21	9	2020
Alauda arvensis	Skylark	BoCC5: Red, Sect.41	29	195	136	2020
Alcedo atthis	Kingfisher	WCA1, BirdsDir: A1	9	36	18	2020
Alectoris rufa	Red-legged Partridge		33	292	211	2020
Anas crecca	Teal	BoCC5: Amber	6	14	8	2020
Anas platyrhynchos	Mallard	BoCC5: Amber	35	442	281	2020
Anser anser	Greylag Goose	BoCC5: Amber	16	72	44	2020
Anthus pratensis	Meadow Pipit	BoCC5: Amber	7	35	28	2020
Apus apus	Swift	BoCC5: Red	101	671	58	2021
Ardea alba	Great White Egret	BoCC5: Amber, RBBP, BirdsDir: A1	1	1	1	2015
Ardea cinerea	Grey Heron		15	214	197	2020
Asio flammeus	Short-eared Owl	BoCC5: Amber, RBBP, BirdsDir: A1	2	3	2	2017
Asio otus	Long-eared Owl	RBBP	1	1	1	2019
Athene noctua	Little Owl		11	20	5	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Aythya ferina	Pochard	BoCC5: Red, RBBP	2	4	3	2020
Aythya fuligula	Tufted Duck		14	245	221	2020
Branta canadensis	Canada Goose		14	58	37	2020
Branta leucopsis	Barnacle Goose	BoCC5: Amber, BirdsDir: A1	3	3	1	2020
Buteo buteo	Buzzard		69	411	208	2020
Calidris pugnax	Ruff	BoCC5: Red, WCA1, RBBP, BirdsDir: A1	1	1	1	2015
Carduelis carduelis	Goldfinch		36	301	163	2020
Certhia familiaris	Treecreeper		8	70	59	2020
Cettia cetti	Cetti's Warbler	WCA1	1	2	2	2020
Charadrius dubius	Little Ringed Plover	WCA1, RBBP	6	22	10	2020
Chloris chloris	Greenfinch	BoCC5: Red	26	363	259	2020
Chroicocephalus ridibundus	Black-headed Gull	BoCC5: Amber	37	337	211	2020
Coccothraustes coccothraustes	Hawfinch	BoCC5: Red, RBBP	1	2	2	2017
Coloeus monedula	Jackdaw		11	247	224	2018
Columba oenas	Stock Dove	BoCC5: Amber	16	155	131	2020
Columba palumbus	Woodpigeon	BoCC5: Amber	61	544	283	2020
Corvus corone	Carrion Crow		39	437	282	2020
Corvus frugilegus	Rook	BoCC5: Amber	24	65	10	2020
Cuculus canorus	Cuckoo	BoCC5: Red, Sect.41	15	60	39	2020
Cyanistes caeruleus	Blue Tit		41	445	283	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Cygnus olor	Mute Swan		24	314	260	2020
Delichon urbicum	House Martin	BoCC5: Red	22	170	103	2020
Dendrocopos major	Great Spotted Woodpecker		24	149	105	2020
Dryobates minor	Lesser Spotted Woodpecker	BoCC5: Red, Sect.41, RBBP	1	1	1	2015
Egretta garzetta	Little Egret	RBBP, BirdsDir: A1	24	89	25	2020
Emberiza calandra	Corn Bunting	BoCC5: Red, Sect.41	1	1	1	2014
Emberiza citrinella	Yellowhammer	BoCC5: Red, Sect.41	24	58	21	2020
Emberiza schoeniclus	Reed Bunting	BoCC5: Amber, Sect.41	18	34	8	2020
Erithacus rubecula	Robin		43	461	256	2020
Falco peregrinus	Peregrine	WCA1, RBBP, BirdsDir: A1	9	20	7	2020
Falco subbuteo	Hobby	WCA1, RBBP	7	21	15	2020
Falco tinnunculus	Kestrel	BoCC5: Amber	47	216	104	2020
Fulica atra	Coot		16	311	279	2020
Gallinago gallinago	Snipe	BoCC5: Amber	2	3	2	2020
Gallinula chloropus	Moorhen	BoCC5: Amber	27	339	230	2020
Garrulus glandarius	Jay		16	175	127	2020
Grus grus	Crane	BoCC5: Amber, RBBP, BirdsDir: A1	1	1	1	2019

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Haematopus ostralegus	Oystercatcher	BoCC5: Amber	2	2	1	2015
Hirundo rustica	Swallow		28	178	116	2020
Jynx torquilla	Wryneck	WCA1, RBBP	1	1	1	2017
Larus argentatus	Herring Gull	BoCC5: Red, Sect.41	13	105	68	2020
Larus canus	Common Gull	BoCC5: Amber	14	48	26	2020
Larus fuscus	Lesser Black-backed Gull	BoCC5: Amber	20	75	38	2020
Larus marinus	Great Black-backed Gull	BoCC5: Amber	2	21	20	2017
Linaria cannabina	Linnet	BoCC5: Red, Sect.41	24	85	35	2020
Luscinia megarhynchos	Nightingale	BoCC5: Red	3	7	4	2020
Mareca penelope	Wigeon	BoCC5: Amber, RBBP	1	23	23	2015
Mareca strepera	Gadwall	BoCC5: Amber	5	192	187	2017
Mergus merganser	Goosander		9	24	9	2020
Milvus milvus	Red Kite	WCA1	28	96	27	2020
Motacilla alba	Pied Wagtail		18	50	15	2020
Motacilla cinerea	Grey Wagtail	BoCC5: Amber	12	40	10	2020
Motacilla flava	Yellow Wagtail	BoCC5: Red	11	21	6	2020
Muscicapa striata	Spotted Flycatcher	BoCC5: Red, Sect.41	4	18	11	2020
Netta rufina	Red-crested Pochard		1	1	1	2019
Oenanthe oenanthe	Wheatear	BoCC5: Amber	6	10	5	2020
Parus major	Great Tit		35	430	277	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Passer domesticus	House Sparrow	BoCC5: Red, Sect.41	32	483	272	2020
Perdix perdix	Grey Partridge	BoCC5: Red, Sect.41	2	2	1	2020
Periparus ater	Coal Tit		16	102	70	2020
Phalacrocorax carbo	Cormorant		19	147	106	2020
Phasianus colchicus	Pheasant		35	413	276	2020
Phoenicurus ochruros	Black Redstart	BoCC5: Amber, WCA1, RBBP	3	4	2	2020
Phylloscopus trochilus	Willow Warbler	BoCC5: Amber	12	27	7	2020
Pica pica	Magpie		45	422	223	2020
Picus viridis	Green Woodpecker		35	280	161	2020
Platalea leucorodia	Spoonbill	BoCC5: Amber, WCA1, RBBP	1	1	1	2013
Podiceps cristatus	Great Crested Grebe		6	80	71	2020
Poecile palustris	Marsh Tit	BoCC5: Red, Sect.41	3	74	72	2020
Prunella modularis	Dunnock	BoCC5: Amber, Sect.41	30	324	201	2020
Psittacula krameri	Ring-necked Parakeet		1	1	1	2018
Pyrrhula pyrrhula	Bullfinch	BoCC5: Amber, Sect.41	12	42	19	2020
Regulus regulus	Goldcrest		10	101	79	2020
Riparia riparia	Sand Martin		7	17	5	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Saxicola rubicola	Stonechat		2	4	3	2020
Scolopax rusticola	Woodcock	BoCC5: Red	3	7	5	2015
Sitta europaea	Nuthatch		3	9	7	2020
Spinus spinus	Siskin		5	10	5	2018
Sterna hirundo	Common Tern	BoCC5: Amber, BirdsDir: A1	5	9	3	2020
Streptopelia decaocto	Collared Dove		39	464	278	2020
Streptopelia turtur	Turtle Dove	BoCC5: Red, Sect.41	51	70	4	2020
Strix aluco	Tawny Owl	BoCC5: Amber, BirdsDir: A1	15	30	6	2020
Sturnus vulgaris	Starling	BoCC5: Red, Sect.41	35	434	241	2020
Tachybaptus ruficollis	Little Grebe		13	251	235	2020
Tadorna tadorna	Shelduck	BoCC5: Amber	6	36	17	2020
Thalasseus sandvicensis	Sandwich Tern	BoCC5: Amber, BirdsDir: A1	1	1	1	2014
Troglodytes' troglodytes	Wren	BoCC5: Amber	39	397	244	2020
Turdus merula	Blackbird		56	513	272	2020
Turdus viscivorus	Mistle Thrush	BoCC5: Red	25	220	155	2020
Tyto alba	Barn Owl	WCA1	8	9	2	2020
Vanellus vanellus	Lapwing	BoCC5: Red, Sect.41	15	64	40	2020

Table A8.4.10 - Breeding Bird Records (Section F)

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Acanthis cabaret	Lesser Redpoll	BoCC5: Red, Sect.41	14	25	5	2019
Acanthis flammea	Common Redpoll	BoCC5: Red, RBBP	3	5	2	2018
Accipiter nisus	Sparrowhawk	BoCC5: Amber	59	100	5	2020
Aix galericulata	Mandarin Duck		7	13	4	2020
Alauda arvensis	Skylark	BoCC5: Red, Sect.41	35	198	58	2020
Alcedo atthis	Kingfisher	WCA1, BirdsDir: A1	30	86	18	2020
Alectoris rufa	Red-legged Partridge		24	59	15	2020
Anas acuta	Pintail	BoCC5: Amber	2	2	1	2020
Anas crecca	Teal	BoCC5: Amber	4	5	2	2015
Anas platyrhynchos	Mallard	BoCC5: Amber	45	153	16	2020
Anser anser	Greylag Goose	BoCC5: Amber	24	51	9	2020
Anthus pratensis	Meadow Pipit	BoCC5: Amber	14	35	12	2020
Anthus trivialis	Tree Pipit	BoCC5: Red, Sect.41	2	2	1	2015
Apus apus	Swift	BoCC5: Red	99	521	40	2021
Ardea alba	Great White Egret	BoCC5: Amber, RBBP, BirdsDir: A1	2	2	1	2019
Ardea cinerea	Grey Heron		30	72	16	2020
Asio flammeus	Short-eared Owl	BoCC5: Amber, RBBP, BirdsDir: A1	1	1	1	2018

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Athene noctua	Little Owl		28	70	15	2020
Aythya ferina	Pochard	BoCC5: Red, RBBP	1	3	3	2019
Aythya fuligula	Tufted Duck		7	43	19	2020
Branta canadensis	Canada Goose		26	96	17	2020
Buteo buteo	Buzzard		121	343	20	2020
Carduelis carduelis	Goldfinch		54	217	51	2020
Certhia familiaris	Treecreeper		30	61	10	2020
Charadrius dubius	Little Ringed Plover	WCA1, RBBP	2	2	1	2019
Chloris chloris	Greenfinch	BoCC5: Red	39	112	18	2020
Chroicocephalus ridibundus	Black-headed Gull	BoCC5: Amber	55	149	28	2020
Coccothraustes coccothraustes	Hawfinch	BoCC5: Red, RBBP	2	2	1	2018
Coloeus monedula	Jackdaw		33	98	15	2018
Columba oenas	Stock Dove	BoCC5: Amber	39	156	25	2020
Columba palumbus	Woodpigeon	BoCC5: Amber	91	508	105	2020
Corvus corone	Carrion Crow		77	347	71	2020
Corvus frugilegus	Rook	BoCC5: Amber	39	95	15	2020
Coturnix coturnix	Quail	BoCC5: Amber, WCA1, RBBP	1	1	1	2014
Cuculus canorus	Cuckoo	BoCC5: Red, Sect.41	26	72	25	2020
Cyanistes caeruleus	Blue Tit		73	444	117	2020
Cygnus olor	Mute Swan		12	31	14	2020
Delichon urbicum	House Martin	BoCC5: Red	23	53	19	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Dendrocopos major	Great Spotted Woodpecker		60	230	43	2020
Dryobates minor	Lesser Spotted Woodpecker	BoCC5: Red, Sect.41, RBBP	7	7	1	2017
Egretta garzetta	Little Egret	RBBP, BirdsDir: A1	24	53	17	2020
Emberiza citrinella	Yellowhammer	BoCC5: Red, Sect.41	41	208	54	2020
Emberiza schoeniclus	Reed Bunting	BoCC5: Amber, Sect.41	19	77	20	2020
Erithacus rubecula	Robin		74	424	112	2020
Falco peregrinus	Peregrine	WCA1, RBBP, BirdsDir: A1	5	6	2	2020
Falco subbuteo	Hobby	WCA1, RBBP	12	16	4	2020
Falco tinnunculus	Kestrel	BoCC5: Amber	77	177	18	2020
Fulica atra	Coot		15	64	20	2020
Gallinago gallinago	Snipe	BoCC5: Amber	5	12	5	2017
Gallinula chloropus	Moorhen	BoCC5: Amber	27	105	19	2020
Garrulus glandarius	Jay		45	231	78	2020
Haematopus ostralegus	Oystercatcher	BoCC5: Amber	4	6	2	2019
Hirundo rustica	Swallow		41	153	35	2020
Larus argentatus	Herring Gull	BoCC5: Red, Sect.41	18	45	15	2020
Larus canus	Common Gull	BoCC5: Amber	20	62	22	2020
Larus fuscus	Lesser Black-backed Gull	BoCC5: Amber	25	98	23	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Larus marinus	Great Black-backed Gull	BoCC5: Amber	1	3	3	2015
Linaria cannabina	Linnet	BoCC5: Red, Sect.41	27	104	28	2020
Locustella naevia	Grasshopper Warbler	BoCC5: Red, Sect.41	1	1	1	2014
Luscinia megarhynchos	Nightingale	BoCC5: Red	2	12	11	2020
Mareca penelope	Wigeon	BoCC5: Amber, RBBP	3	4	2	2017
Mareca strepera	Gadwall	BoCC5: Amber	5	12	4	2018
Mergus merganser	Goosander		6	6	1	2018
Milvus milvus	Red Kite	WCA1	33	61	9	2020
Motacilla alba	Pied Wagtail		21	68	25	2020
Motacilla cinerea	Grey Wagtail	BoCC5: Amber	16	29	6	2020
Motacilla flava	Yellow Wagtail	BoCC5: Red	12	32	8	2020
Muscicapa striata	Spotted Flycatcher	BoCC5: Red, Sect.41	11	22	5	2019
Oenanthe oenanthe	Wheatear	BoCC5: Amber	8	8	1	2020
Parus major	Great Tit		66	383	99	2020
Passer domesticus	House Sparrow	BoCC5: Red, Sect.41	45	215	63	2020
Perdix perdix	Grey Partridge	BoCC5: Red, Sect.41	3	3	1	2020
Periparus ater	Coal Tit		26	42	7	2020
Phalacrocorax carbo	Cormorant		24	59	14	2020
Phasianus colchicus	Pheasant		48	256	62	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Phoenicurus ochruros	Black Redstart	BoCC5: Amber, WCA1, RBBP	3	3	1	2019
Phoenicurus phoenicurus	Redstart	BoCC5: Amber	1	1	1	2013
Phylloscopus trochilus	Willow Warbler	BoCC5: Amber	24	62	21	2020
Pica pica	Magpie		79	394	68	2020
Picus viridis	Green Woodpecker		72	406	55	2020
Podiceps cristatus	Great Crested Grebe		15	76	25	2020
Poecile palustris	Marsh Tit	BoCC5: Red, Sect.41	6	12	3	2019
Prunella modularis	Dunnock	BoCC5: Amber, Sect.41	54	311	81	2020
Psittacula krameri	Ring-necked Parakeet		1	1	1	2014
Pyrrhula pyrrhula	Bullfinch	BoCC5: Amber, Sect.41	45	185	64	2020
Regulus regulus	Goldcrest		33	65	10	2020
Riparia riparia	Sand Martin		3	3	1	2020
Saxicola rubicola	Stonechat		3	3	1	2020
Scolopax rusticola	Woodcock	BoCC5: Red	13	20	4	2020
Sitta europaea	Nuthatch		20	31	3	2020
Spinus spinus	Siskin		9	13	4	2018
Sterna hirundo	Common Tern	BoCC5: Amber, BirdsDir: A1	13	18	6	2020
Streptopelia decaocto	Collared Dove		37	179	63	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Streptopelia turtur	Turtle Dove	BoCC5: Red, Sect.41	25	42	10	2020
Strix aluco	Tawny Owl	BoCC5: Amber, BirdsDir: A1	19	35	8	2020
Sturnus vulgaris	Starling	BoCC5: Red, Sect.41	54	245	61	2020
Tachybaptus ruficollis	Little Grebe		11	48	16	2020
Tadorna tadorna	Shelduck	BoCC5: Amber	3	3	1	2013
Troglodytes' troglodytes	Wren	BoCC5: Amber	55	409	107	2020
Turdus merula	Blackbird		77	432	102	2020
Turdus viscivorus	Mistle Thrush	BoCC5: Red	31	56	6	2020
Tyto alba	Barn Owl	WCA1	10	22	8	2020
Vanellus vanellus	Lapwing	BoCC5: Red, Sect.41	8	42	15	2020

Table A8.4.311 - Breeding Bird Records (Section G)

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Acanthis cabaret	Lesser Redpoll	BoCC5: Red, Sect.41	8	11	4	2020
Accipiter nisus	Sparrowhawk	BoCC5: Amber	28	68	25	2020
Aix galericulata	Mandarin Duck		3	3	1	2020
Alauda arvensis	Skylark	BoCC5: Red, Sect.41	41	74	8	2020
Alcedo atthis	Kingfisher	WCA1, BirdsDir: A1	4	6	2	2019
Alectoris rufa	Red-legged Partridge		6	8	2	2020
Anas crecca	Teal	BoCC5: Amber	1	1	1	2018
Anas platyrhynchos	Mallard	BoCC5: Amber	28	56	10	2020
Anser anser	Greylag Goose	BoCC5: Amber	10	21	10	2020
Anthus pratensis	Meadow Pipit	BoCC5: Amber	6	7	2	2020
Apus apus	Swift	BoCC5: Red	60	267	17	2021
Ardea cinerea	Grey Heron		14	22	6	2020
Athene noctua	Little Owl		15	30	11	2020
Aythya ferina	Pochard	BoCC5: Red, RBBP	1	1	1	2013
Aythya fuligula	Tufted Duck		4	6	3	2017
Botaurus stellaris	Bittern	BoCC5: Amber, Sect.41, WCA1, RBBP, BirdsDir: A1	1	1	1	2017
Branta canadensis	Canada Goose		14	33	10	2020
Buteo buteo	Buzzard		52	95	9	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Carduelis carduelis	Goldfinch		34	68	9	2020
Certhia familiaris	Treecreeper		10	10	1	2020
Chloris chloris	Greenfinch	BoCC5: Red	35	62	7	2020
Chroicocephalus ridibundus	Black-headed Gull	BoCC5: Amber	26	59	7	2020
Circus aeruginosus	Marsh Harrier	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	1	2	2	2017
Coccothraustes coccothraustes	Hawfinch	BoCC5: Red, RBBP	1	1	1	2018
Coloeus monedula	Jackdaw		22	43	10	2018
Columba oenas	Stock Dove	BoCC5: Amber	18	33	7	2020
Columba palumbus	Woodpigeon	BoCC5: Amber	60	162	16	2020
Corvus corone	Carrion Crow		52	119	10	2020
Corvus frugilegus	Rook	BoCC5: Amber	14	18	3	2020
Cuculus canorus	Cuckoo	BoCC5: Red, Sect.41	16	19	2	2020
Cyanistes caeruleus	Blue Tit		58	127	11	2020
Cygnus olor	Mute Swan		8	15	7	2020
Delichon urbicum	House Martin	BoCC5: Red	16	19	2	2020
Dendrocopos major	Great Spotted Woodpecker		39	71	8	2020
Egretta garzetta	Little Egret	RBBP, BirdsDir: A1	15	22	3	2020
Emberiza calandra	Corn Bunting	BoCC5: Red, Sect.41	1	1	1	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Emberiza citrinella	Yellowhammer	BoCC5: Red, Sect.41	28	54	6	2020
Emberiza schoeniclus	Reed Bunting	BoCC5: Amber, Sect.41	24	34	4	2020
Erithacus rubecula	Robin		53	107	10	2020
Falco peregrinus	Peregrine	WCA1, RBBP, BirdsDir: A1	4	4	1	2020
Falco subbuteo	Hobby	WCA1, RBBP	10	14	4	2020
Falco tinnunculus	Kestrel	BoCC5: Amber	32	63	5	2020
Fulica atra	Coot		8	27	10	2020
Gallinago gallinago	Snipe	BoCC5: Amber	5	5	1	2018
Gallinula chloropus	Moorhen	BoCC5: Amber	18	40	10	2020
Garrulus glandarius	Jay		38	72	9	2020
Haematopus ostralegus	Oystercatcher	BoCC5: Amber	1	1	1	2020
Hirundo rustica	Swallow		37	56	4	2020
Larus argentatus	Herring Gull	BoCC5: Red, Sect.41	13	20	5	2020
Larus canus	Common Gull	BoCC5: Amber	4	6	3	2020
Larus fuscus	Lesser Black-backed Gull	BoCC5: Amber	17	21	2	2020
Linaria cannabina	Linnet	BoCC5: Red, Sect.41	33	48	4	2020
Luscinia megarhynchos	Nightingale	BoCC5: Red	2	2	1	2020
Mareca strepera	Gadwall	BoCC5: Amber	1	1	1	2018

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Mergus merganser	Goosander		1	1	1	2013
Milvus milvus	Red Kite	WCA1	14	29	7	2020
Motacilla alba	Pied Wagtail		24	32	3	2020
Motacilla cinerea	Grey Wagtail	BoCC5: Amber	12	15	2	2020
Motacilla flava	Yellow Wagtail	BoCC5: Red	14	19	3	2020
Muscicapa striata	Spotted Flycatcher	BoCC5: Red, Sect.41	4	5	2	2020
Oenanthe oenanthe	Wheatear	BoCC5: Amber	1	1	1	2013
Parus major	Great Tit		48	94	10	2020
Passer domesticus	House Sparrow	BoCC5: Red, Sect.41	43	75	14	2020
Perdix perdix	Grey Partridge	BoCC5: Red, Sect.41	2	2	1	2020
Periparus ater	Coal Tit		15	23	5	2020
Pernis apivorus	Honey-buzzard	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	1	1	1	2019
Phalacrocorax carbo	Cormorant		8	11	4	2020
Phasianus colchicus	Pheasant		33	53	9	2020
Phoenicurus phoenicurus	Redstart	BoCC5: Amber	1	1	1	2020
Phylloscopus trochilus	Willow Warbler	BoCC5: Amber	7	7	1	2020
Pica pica	Magpie		53	125	16	2020
Picus viridis	Green Woodpecker		35	67	11	2020
Podiceps cristatus	Great Crested Grebe		6	10	5	2017

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Poecile palustris	Marsh Tit	BoCC5: Red, Sect.41	1	1	1	2017
Prunella modularis	Dunnock	BoCC5: Amber, Sect.41	37	70	8	2020
Psittacula krameri	Ring-necked Parakeet		7	11	3	2020
Pyrrhula pyrrhula	Bullfinch	BoCC5: Amber, Sect.41	20	34	4	2020
Regulus regulus	Goldcrest		20	34	6	2020
Riparia riparia	Sand Martin		1	1	1	2020
Rissa tridactyla	Kittiwake	BoCC5: Red	1	1	1	2018
Sitta europaea	Nuthatch		14	18	3	2020
Spinus spinus	Siskin		3	9	5	2018
Sterna hirundo	Common Tern	BoCC5: Amber, BirdsDir: A1	2	2	1	2019
Streptopelia decaocto	Collared Dove		30	48	5	2020
Strix aluco	Tawny Owl	BoCC5: Amber, BirdsDir: A1	10	14	3	2019
Sturnus vulgaris	Starling	BoCC5: Red, Sect.41	41	74	10	2020
Tachybaptus ruficollis	Little Grebe		4	6	3	2019
Troglodytes' troglodytes	Wren	BoCC5: Amber	42	87	10	2020
Turdus merula	Blackbird		50	121	12	2020
Turdus viscivorus	Mistle Thrush	BoCC5: Red	24	37	5	2020
Tyto alba	Barn Owl	WCA1	10	11	2	2020
Vanellus vanellus	Lapwing	BoCC5: Red, Sect.41	2	2	1	2019

Table A8.4.12 - Breeding Bird Records (Section H)

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Acanthis cabaret	Lesser Redpoll	BoCC5: Red, Sect.41	23	125	27	2020
Acanthis flammea	Common Redpoll	BoCC5: Red, RBBP	1	1	1	2013
Accipiter nisus	Sparrowhawk	BoCC5: Amber	77	553	73	2020
Aix galericulata	Mandarin Duck		1	1	1	2017
Alauda arvensis	Skylark	BoCC5: Red, Sect.41	89	329	24	2020
Alcedo atthis	Kingfisher	WCA1, BirdsDir: A1	57	545	60	2020
Alectoris rufa	Red-legged Partridge		27	41	5	2020
Anas acuta	Pintail	BoCC5: Amber	23	94	17	2020
Anas crecca	Teal	BoCC5: Amber	79	690	96	2020
Anas platyrhynchos	Mallard	BoCC5: Amber	99	772	143	2020
Anser anser	Greylag Goose	BoCC5: Amber	57	328	68	2020
Anthus pratensis	Meadow Pipit	BoCC5: Amber	77	286	24	2020
Anthus trivialis	Tree Pipit	BoCC5: Red, Sect.41	9	11	2	2020
Apus apus	Swift	BoCC5: Red	70	367	20	2020
Ardea alba	Great White Egret	BoCC5: Amber, RBBP, BirdsDir: A1	6	6	1	2020
Ardea cinerea	Grey Heron		55	198	38	2020
Arenaria interpres	Turnstone	BoCC5: Amber, RBBP	38	266	62	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Asio flammeus	Short-eared Owl	BoCC5: Amber, RBBP, BirdsDir: A1	32	109	23	2020
Asio otus	Long-eared Owl	RBBP	12	28	10	2020
Athene noctua	Little Owl		18	86	36	2020
Aythya ferina	Pochard	BoCC5: Red, RBBP	35	232	97	2020
Aythya fuligula	Tufted Duck		72	601	98	2020
Botaurus stellaris	Bittern	BoCC5: Amber, Sect.41, WCA1, RBBP, BirdsDir: A1	5	8	2	2019
Branta canadensis	Canada Goose		53	375	65	2020
Branta leucopsis	Barnacle Goose	BoCC5: Amber, BirdsDir: A1	3	5	3	2020
Buteo buteo	Buzzard		97	626	57	2020
Calidris pugnax	Ruff	BoCC5: Red, WCA1, RBBP, BirdsDir: A1	8	9	2	2020
Carduelis carduelis	Goldfinch		109	731	101	2020
Certhia familiaris	Treecreeper		8	186	117	2019
Cettia cetti	Cetti's Warbler	WCA1	75	490	80	2020
Charadrius dubius	Little Ringed Plover	WCA1, RBBP	20	171	36	2020
Charadrius hiaticula	Ringed Plover	BoCC5: Red	58	474	71	2020
Chloris chloris	Greenfinch	BoCC5: Red	72	347	67	2020
Chroicocephalus ridibundus	Black-headed Gull	BoCC5: Amber	111	655	87	2020
Circus aeruginosus	Marsh Harrier	BoCC5: Amber, WCA1,	56	483	67	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
		RBBP, BirdsDir: A1				
Coccothraustes coccothraustes	Hawfinch	BoCC5: Red, RBBP	7	46	22	2018
Coloeus monedula	Jackdaw		35	119	36	2018
Columba oenas	Stock Dove	BoCC5: Amber	51	170	32	2020
Columba palumbus	Woodpigeon	BoCC5: Amber	112	820	155	2020
Corvus corone	Carrion Crow		109	674	140	2020
Corvus frugilegus	Rook	BoCC5: Amber	55	181	26	2020
Coturnix coturnix	Quail	BoCC5: Amber, WCA1, RBBP	1	1	1	2016
Cuculus canorus	Cuckoo	BoCC5: Red, Sect.41	54	230	28	2020
Cyanistes caeruleus	Blue Tit		104	733	152	2020
Cygnus olor	Mute Swan		46	294	56	2020
Delichon urbicum	House Martin	BoCC5: Red	44	112	16	2020
Dendrocopos major	Great Spotted Woodpecker		71	574	153	2020
Dryobates minor	Lesser Spotted Woodpecker	BoCC5: Red, Sect.41, RBBP	5	27	13	2018
Egretta garzetta	Little Egret	RBBP, BirdsDir: A1	72	439	62	2020
Emberiza calandra	Corn Bunting	BoCC5: Red, Sect.41	29	191	28	2020
Emberiza citrinella	Yellowhammer	BoCC5: Red, Sect.41	29	53	6	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Emberiza schoeniclus	Reed Bunting	BoCC5: Amber, Sect.41	64	211	24	2020
Erithacus rubecula	Robin		105	755	162	2020
Falco peregrinus	Peregrine	WCA1, RBBP, BirdsDir: A1	50	256	29	2020
Falco subbuteo	Hobby	WCA1, RBBP	41	146	23	2020
Falco tinnunculus	Kestrel	BoCC5: Amber	93	423	49	2020
Fulica atra	Coot		72	599	99	2020
Gallinago gallinago	Snipe	BoCC5: Amber	28	115	21	2020
Gallinula chloropus	Moorhen	BoCC5: Amber	80	503	137	2020
Garrulus glandarius	Jay		59	320	147	2020
Haematopus ostralegus	Oystercatcher	BoCC5: Amber	61	447	51	2020
Hirundo rustica	Swallow		83	299	32	2020
Jynx torquilla	Wryneck	WCA1, RBBP	1	1	1	2013
Larus argentatus	Herring Gull	BoCC5: Red, Sect.41	76	332	37	2020
Larus canus	Common Gull	BoCC5: Amber	57	211	22	2020
Larus fuscus	Lesser Black-backed Gull	BoCC5: Amber	62	237	28	2020
Larus marinus	Great Black-backed Gull	BoCC5: Amber	65	229	31	2020
Linaria cannabina	Linnet	BoCC5: Red, Sect.41	93	385	33	2020
Locustella naevia	Grasshopper Warbler	BoCC5: Red, Sect.41	17	64	14	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Lullula arborea	Woodlark	Sect.41, WCA1, RBBP, BirdsDir: A1	2	2	1	2017
Luscinia megarhynchos	Nightingale	BoCC5: Red	33	133	23	2020
Mareca penelope	Wigeon	BoCC5: Amber, RBBP	33	171	28	2018
Mareca strepera	Gadwall	BoCC5: Amber	28	150	36	2018
Mergus merganser	Goosander		9	12	3	2019
Milvus milvus	Red Kite	WCA1	23	39	4	2020
Motacilla alba	Pied Wagtail		47	123	26	2020
Motacilla cinerea	Grey Wagtail	BoCC5: Amber	32	113	31	2020
Motacilla flava	Yellow Wagtail	BoCC5: Red	30	148	19	2020
Muscicapa striata	Spotted Flycatcher	BoCC5: Red, Sect.41	9	16	5	2019
Numenius arquata	Curlew	BoCC5: Red, Sect.41	79	695	108	2020
Oenanthe oenanthe	Wheatear	BoCC5: Amber	30	125	18	2020
Oxyura jamaicensis	Ruddy Duck		2	2	1	2013
Panurus biarmicus	Bearded Tit	WCA1, RBBP	21	61	12	2020
Parus major	Great Tit		98	663	151	2020
Passer domesticus	House Sparrow	BoCC5: Red, Sect.41	80	511	126	2020
Passer montanus	Tree Sparrow	BoCC5: Red, Sect.41	4	4	1	2020
Perdix perdix	Grey Partridge	BoCC5: Red, Sect.41	2	2	1	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
Periparus ater	Coal Tit		7	51	28	2019
Phalacrocorax carbo	Cormorant		80	395	73	2020
Phasianus colchicus	Pheasant		44	147	33	2020
Phoenicurus ochruros	Black Redstart	BoCC5: Amber, WCA1, RBBP	7	25	7	2020
Phoenicurus phoenicurus	Redstart	BoCC5: Amber	6	8	3	2020
Phylloscopus sibilatrix	Wood Warbler	BoCC5: Red, Sect.41	2	3	2	2020
Phylloscopus trochilus	Willow Warbler	BoCC5: Amber	26	74	29	2020
Pica pica	Magpie		113	767	153	2020
Picus viridis	Green Woodpecker		86	735	143	2020
Platalea leucorodia	Spoonbill	BoCC5: Amber, WCA1, RBBP	14	20	3	2020
Podiceps cristatus	Great Crested Grebe		53	447	93	2020
Poecile palustris	Marsh Tit	BoCC5: Red, Sect.41	1	1	1	2017
Prunella modularis	Dunnock	BoCC5: Amber, Sect.41	80	513	150	2020
Psittacula krameri	Ring-necked Parakeet		66	308	67	2020
Pyrrhula pyrrhula	Bullfinch	BoCC5: Amber, Sect.41	20	231	91	2020
Rallus aquaticus	Water Rail	RBBP	51	163	19	2020
Recurvirostra avosetta	Avocet	BoCC5: Amber, WCA1,	74	714	94	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
		RBBP, BirdsDir: A1				
Regulus ignicapilla	Firecrest	WCA1, RBBP	9	28	17	2020
Regulus regulus	Goldcrest		33	263	130	2020
Riparia riparia	Sand Martin		44	132	20	2020
Rissa tridactyla	Kittiwake	BoCC5: Red	25	83	21	2020
Saxicola rubicola	Stonechat		68	500	86	2020
Scolopax rusticola	Woodcock	BoCC5: Red	15	28	8	2019
Sitta europaea	Nuthatch		10	50	16	2019
Spatula querquedula	Garganey	BoCC5: Amber, WCA1, RBBP	3	4	2	2016
Spinus spinus	Siskin		15	55	16	2018
Sterna hirundo	Common Tern	BoCC5: Amber, BirdsDir: A1	46	305	35	2020
Sternula albifrons	Little Tern	BoCC5: Amber, WCA1, RBBP, BirdsDir: A1	17	34	10	2020
Streptopelia decaocto	Collared Dove		85	540	98	2020
Streptopelia turtur	Turtle Dove	BoCC5: Red, Sect.41	16	42	7	2018
Strix aluco	Tawny Owl	BoCC5: Amber, BirdsDir: A1	9	91	55	2020
Sturnus vulgaris	Starling	BoCC5: Red, Sect.41	107	656	100	2020
Sylvia undata	Dartford Warbler	BoCC5: Amber, WCA1,	10	39	13	2020

Scientific Name	Common Name	Legislative Policy Designation	Number of Records	Total Number of Individuals	Max Count	Most Recent Record
		RBBP, BirdsDir: A1				
Tachybaptus ruficollis	Little Grebe		62	550	79	2020
Tadorna tadorna	Shelduck	BoCC5: Amber	77	523	106	2020
Thalasseus sandvicensis	Sandwich Tern	BoCC5: Amber, BirdsDir: A1	23	77	24	2018
Tringa totanus	Redshank	BoCC5: Amber	35	259	52	2017
Troglodytes' troglodytes	Wren	BoCC5: Amber	88	561	162	2020
Turdus merula	Blackbird		101	766	150	2020
Turdus viscivorus	Mistle Thrush	BoCC5: Red	32	117	24	2020
Tyto alba	Barn Owl	WCA1	31	186	43	2020
Vanellus vanellus	Lapwing	BoCC5: Red, Sect.41	57	360	38	2020

Annex C: Survey Results

Table A8.4.13 - Territories Identified for Birds of Conservation Value

Scientific Name	Common Name	Confirmed Territories	Possible Territories	Conservation Value
Acrocephalus schoenobaenus	Sedge warbler	1	0	BoCC5: Amber
Alauda arvensis	Skylark	30	10	BoCC5: Red, Essex LBAP[8], Sect. 41 Suffolk LBAP
Anas platyrhynchos	Mallard	6	0	BoCC5: Amber
Apus apus	Swift	0	1	BoCC5: Red, Suffolk LBAP
Cettia cetti	Cetti's warbler	4	0	WCA1i
Chloris chloris	Greenfinch	3	6	BoCC5: Red
Columba oenas	Stock dove	0	2	BoCC5: Amber
Columba palumbus	Woodpigeon	25	13	BoCC5: Amber
Corvus frugilegus	Rook	8	0	BoCC5: Amber
Cuculus canorus	Cuckoo	2	1	BoCC5: Red, Sect.41, Suffolk LBAP
Curruca communis	Common whitethroat	12	11	BoCC5: Amber
Delichon urbicum	House martin	1	0	BoCC5: Red
Emberiza citrinella	Yellowhammer	4	3	BoCC5: Red, Sect. 41, Suffolk LBAP
Emberiza schoeniclus	Reed bunting	3	0	BoCC5: Amber, Sect.41, Suffolk LBAP
Falco tinnunculus	Kestrel	1	1	BoCC5: Amber
Gallinula chloropus	Moorhen	5	1	BoCC5: Amber
Linaria cannabina	Linnet	3	3	BoCC5: Amber, Sect. 41, Suffolk LBAP

[8] Local Biodiversity Action Plan (Norfolk, Suffolk, or Essex)

Scientific Name	Common Name	Confirmed Territories	Possible Territories	Conservation Value
Luscinia megarhynchos	Nightingale	0	1	BoCC5: Red
Motacilla flava	Yellow wagtail	0	1	BoCC5: Red, Sect. 41, Suffolk LBAP
Passer domesticus	House sparrow	1	0	BoCC5: Red, Sect. 41, Suffolk LBAP,
Phoenicurus phoenicurus	Redstart	0	1	BoCC5: Amber
Prunella modularis	Dunnock	7	8	BoCC5: Amber, Sect. 41, Suffolk
Tadorna tadorna	Shelduck	2	0	BoCC5: Amber
Troglodytes' troglodytes	Wren	32	13	BoCC5: Amber
Turdus philomelos	Song Thrush	10	12	BoCC5: Amber, Essex LBAP, Sect. 41
Turdus viscivorus	Mistle thrush	2	3	BoCC5: Red
Vanellus vanellus	Lapwing	0	1	BoCC5: Red, Sect. 41, Suffolk LBAP

Table A8.4.144 - Birds of Conservation Value Recorded, with No Territories Identified

Scientific Name	Common Name	Conservation Value
Accipiter nisus	Sparrowhawk	BoCC5: Amber
Anas strepera	Gadwall	BoCC5: Amber
Anser anser	Greylag goose	BoCC5: Amber
Aythya ferina	Pochard	BoCC5: Red
Aythya marila	Scaup	BoCC5: Red, Sect. 41, WCA1i
Chroicocephalus ridibundus	Black-headed gull	BoCC5: Amber
Emberiza calandra	Corn bunting	BoCC5: Red, Sect. 41, Suffolk LBAP
Falco peregrinus	Peregrine	WCA1i
Falco subbuteo	Hobby	WCA1i
Fulmarus glacialis	Fulmar	BoCC5: Amber

Scientific Name	Common Name	Conservation Value
Haematopus ostralegus	Oystercatcher	BoCC5: Amber
Larus argentatus	Herring gull	BoCC5: Red, Sect. 41, Suffolk LBAP
Larus fuscus	Lesser black-backed gull	BoCC5: Amber
Larus marinus	Great black-backed gull	BoCC5: Amber
Milvus milvus	Red kite	WCA1i
Motacilla cinerea	Grey wagtail	BoCC5: Amber
Perdix perdix	Grey partridge	BoCC5: Red, Essex LBAP, Sect. 41, Suffolk LBAP
Poecile montanus	Willow tit	BoCC5: Red, Sect. 41, Suffolk LBAP
Poecile palustris	Marsh tit	BoCC5: Red, Sect. 41, Suffolk LBAP
Sterna paradisaea	Arctic tern	BoCC5: Amber
Strix aluco	Tawny owl	BoCC5: Amber
Sturnus vulgaris	Starling	BoCC5: Red, Sect. 41, Suffolk LBAP
Tringa totanus	Redshank	BoCC5: Amber
Turdus pilaris	Fieldfare	BoCC5: Red, WCA1i
Tyto alba	Barn owl	Suffolk LBAP, WCA1i

Table A8.4.155 - Birds Recorded Not Considered of Conservation Value

Scientific Name	Common Name
Acrocephalus scirpaceus	Reed warbler
Aegithalos caudatus	Long-tailed tit
Alectoris rufa	Red-legged partridge
Alopochen aegyptiaca	Egyptian goose
Ardea cinerea	Grey heron
Branta canadensis	Canada goose
Branta canadensis	Canada goose
Carduelis carduelis	Goldfinch
Certhia familiaris	Tree creeper
Corvus monedula	Jackdaw

Scientific Name	Common Name
Curruca curruca	Lesser whitethroat
Cyanistes caeruleus	Bluetit
Cygnus olor	Mute swan
Dendrocopos major	Great-spotted woodpecker
Erithacus rubecula	Robin
Fringilla coelebs	Chaffinch
Fulica atra	Coot
Garrulus glandarius	Jay
Hirundo rustica	Swallow
Motacilla alba	Pied wagtail
Parus major	Great tit
Periparus ater	Coal tit
Phalacrocorax carbo	Cormorant
Phylloscopus collybita	Chiffchaff
Pica pica	Magpie
Picus viridis	Green woodpecker
Regulus regulus	Goldcrest
Streptopelia decaocto	Collard dove
Sylvia atricapilla	Blackcap
Sylvia borin	Garden warbler
Turdus merula	Blackbird

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