Report

Dengie Marshes Wind Farm

EIA Scoping Report

For Dengie Marshes Wind Farm Limited

30 May 2025

Document Control

Project Title:	Dengie Marshes Wind Farm
Project Number:	16100A
Client:	Dengie Marshes Wind Farm Limited
Principal Contact:	Tim Hancock
Document Title:	EIA Scoping Report
Document Number:	16100A-30-01-i01 EIA Scoping Report
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Revision History

01	21/05/2025	For Review
02	30/05/2025	Final issue

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1 Introduction

1.1 Background

1.1.1 This Environmental Impact Assessment (EIA) Scoping Report has been prepared by Logika Consultants (Logika) on behalf of Dengie Marshes Wind Farm Limited (DMWFL). The project Dengie Marshes Wind Farm (Dengie Marshes Wind) - is a joint development between DMWFL and local landowners including D. J. Fisher (Farms), J D Mee & Sons, Parker Farms, Strutt and Parker Farms and others. The applicant (Dengie Marshes Wind Farm Limited) intends to apply to Maldon District Council (MDC) for full planning permission to develop a wind farm on the Dengie Peninsula, near Southminster, Maldon, Essex. An underground grid connection will also be required from the site to the point of connection to the distribution grid network although this does not form part of the planning application for which this report is concerned. Figure 1-1 shows the existing indicative site being considered for the wind farm site.

1.1.2 This EIA Scoping Report supports a request for an EIA Scoping Opinion from MDC, pursuant to Regulation 15 of the 'Town and Country Planning (Environmental Impact Assessment) Regulations, 2017 (the 'EIA Regulations') for the proposed onshore wind development at Dengie Marshes, Maldon, Essex (the 'Proposed Development').

Figure 1-1: Indicative Planning Application Red Line Boundary and Locational Context

1.2 Requirement for Environmental Impact Assessment

Purpose and Need for EIA

1.2.1 The term EIA describes a procedure that must be followed by certain types of projects before it can be given 'planning permission'. Underpinned by the Town and Country Planning (Environmental Impact Assessment) Regulations 2017[1], as amended (hereafter referred to as the 'EIA Regulations'), EIA is a formal process that brings together information to identify the likely significant environmental effects of a project and measures for avoiding, preventing, reducing or, if possible, offsetting likely significant effects. It provides decision-makers with the environmental information needed to make decisions when determining planning applications. Furthermore, EIA provides information on the likely significant effects to the public to understand as part of participating in the planning process.

1.2.2 The EIA Regulations set out a procedure for identifying those projects which should be subject to an EIA, and for assessing, consulting, and coming to a decision on those projects which are likely to have significant environmental effects.

1.2.3 The Proposed Development is not Schedule 1 development under the EIA Regulations, for which EIA would be mandatory. It is however, a Schedule 2 development and falls within the classification of Schedule 2, 3(a) ('Energy Industry, Industrial installations for the production of electricity, steam and hot water (unless included in Schedule 1)[2]; of the EIA regulations on the basis that the Site is greater than 0.5ha. The Proposed Development has not been subject to an EIA Screening Request as it has been assumed by the applicant that EIA applies.

1.3 Project Team

1.3.1 Regulation 18(5) of the EIA Regulations require that in order to ensure the completeness and quality of the ES, '(a) the developer must ensure that the environmental statement is prepared by competent experts;' and '(b) the environmental statement must be accompanied by a statement from the developer outlining the relevant expertise or qualifications of such experts.' In accordance with this requirement **Table 1-1** sets out the technical specialists who have contributed to this Scoping Report and who are likely undertake the production of the ES (where necessary) and notes their relevant expertise.

Table 1-1: Demonstration of Competent Expertise

Name	Aspect covered	Qualifications	Description of competence
Lisa Russell	Planning Lead	BSc(Hons) Town and Regional Planning, MRTPI, MEEC 20 + years of renewable energy experience	Lisa has over 20 years experience as a chartered town planner and contributed to and led a significant number of onshore wind and battery proposals in Scotland, England and Wales providing planning and EIA Direction. Her role on this project is as planning lead for the Proposed Development.

[1] The Town and Country Planning (Environmental Impact Assessment) Regulations, 2017
[2] The Town and Country Planning (Environmental Impact Assessment) Regulations, 2017, Schedule 2 "Descriptions of development and applicable thresholds and criteria for the purposes of the definition of "Schedule 2 Development", Paragraph 3(a).

Name	Aspect covered	Qualifications	Description of competence
Craig Hynd	EIA Lead Hydrology Transport Land and Soils Community	MSC Environmental Engineering BSC Zoology 20+ years major infrastructure and engineering experience	Craig has over 20 years experience working in environmental consulting and engineering on major multibillion dollar projects both globally and in the UK. He has helped deliver projects including Oil and Gas, Pipelines, Solar, Wind Farm, Harbours, Marine Developments, and Water Infrastructure. He has a proven track record of delivery and gaining approval of EIAs through local council authorities, national governments and global partnership authorities such as the IFC and World Bank. He has extensive knowledge of the EIA processes and creating sustainable and manageable EMPs and BMPs. Recent delivery of a solar farm EIA includes Oman National Oil Company submission to the Oman Sultanate and World Bank in order to futureproof the Sur LNG Refinery with the addition of solar farms.
Toby Gibbs	EIA Project Director	BSc (Hons), CEnv, CMIEEM	A Chartered Environmentalist, with more than 25 years of experience, and a specialist in EIA having worked on many infrastructure projects, and with experience in the UK, Europe, Africa and the Middle East. Projects include being engaged to provide environmental leadership to the development of Heathrow Airport's expansion proposals, a major NSIP development. He was also the Director responsible for the EIA that formed part of the DCO documentation for reopening Manston Airport in Kent and has managed and directed EIAs for a number of renewable energy projects.
Alan Kirby	Ecology and Biodiversity Lead	BSc(Hons), MSc, PHD	Alan is an ecologist with 19 years of consulting experience. Alan has led the biodiversity inputs on a number of large infrastructure projects including input into the ESs as part of the DCO applications for Rampion 2 Offshore Wind Farm (ongoing), the Heathrow Expansion Project, Navitus Bay Offshore Windfarm (NBOWF) and the North London (Electricity Line) Reinforcement Project. He has also provided input to DCO Examination hearing sessions (e.g. Hinkley Point C NNB, NBOWF and Triton Knoll Electrical System), Public Inquiries and Examinations in Public including the provision of written representations, the negotiation of Statements of Common Ground and the giving of oral evidence as an expert witness.
Jon Sims	Noise and Vibration	BEng (hons), BSc (hons), MIOA	Jon has over 15 years experience in acoustic consultants, this includes many large infrastructure projects including onshore and offshore wind farms, energy transmission systems, rail, road and large industrial projects.

Name	Aspect covered	Qualifications	Description of competence
			Jon provided consultancy advice on noise to HS2 Ltd for several years, particularly in relation to the construction and operation of Phase 1 of HS2, the DCO application for Triton Knoll Offshore Wind Farm Onshore Electrical system, including giving evidence on noise at the planning hearing and environmental permitting for several power stations.
Laurence Caird	Climate Change	Csci, MIEA, IAQM	Laurence is a Chartered Scientist with 15 years' experience in the field of environmental consultancy with extensive experience in air quality and climate change assessments. He helped shape the methodology for the assessment of greenhouse gas emissions within EIA to satisfy the requirements of the EIA Regulations 2017. He has produced carbon footprints and greenhouse gas assessments for a number of projects including major infrastructure projects including transportation, as well as EIA residential, commercial and mixed-use developments and industrial facilities.
Michael Shackshaft	Ecology	BSc (Hons), Geological Science MSc, Biodiversity Conservation 16 years of ecological consultancy experience	Micheal has experience specializing in ornithology, terrestrial ecology and spatial ecology and has a broad understanding assessment methods including the delivery of Ecological Impact Assessment (EcIA) and Habitat Regulations assessments (HRA). Michael has managed and contributed to a large number of development projects of varying scale, leading on ornithology and ecology tasks and projects. This has included; being a key member of ecological management team for the Heathrow Expansion Project; management of ecology and ornithology surveys for numerous overhead line refurbishment projects; and management and delivery of biodiversity and ornithology elements for terrestrial windfarms in Wales.
John Ingham	Landscape and Visual	BA (Hons), Dip LA, CMLI	John is a Chartered Landscape Architect with over 25 years experience in undertaking LVIA for major infrastructure projects and has been involved in over 100+ renewable energy projects in all parts of the UK. He has previously led on the LVIAs for numerous onshore and offshore wind farm projects. He is a Landscape Planning Director at Stephenson Halliday and regularly acts as an expert landscape witness at public inquiries and examination hearings.
Loretta Nikolic	Cultural Heritage	BA (Hons), Archaeology	Loretta has over 30 years experience in archaeological studies and providing expert

Name	Aspect covered	Qualifications	Description of competence
		MSc, Information Technology in Archaeology	interpretation and presentation of archaeological sites and cultural sites of significance. Loretta has led on cultural heritage aspects on numerous renewable projects .

1.4 Purpose and Structure of this Scoping Report.

1.4.1 This Scoping Report has been prepared in accordance with the EIA Regulations. It identifies the environmental aspects and associated significant effects likely to result from the Proposed Development (i.e. they are 'scoped in' to the ES) and describes the proposed methodologies that will be used to determine such effects. Where, in the process of identifying those environmental aspects, environmental effects are considered to be minor, they are 'scoped out'. In doing so, scoping aims to focus the EIA and resulting ES on identifying the likely significant effects of the Proposed Development and avoid unnecessary or over-complicated examination of environmental effects that are not significant. The report aims to engage stakeholders and assist MDC with the formation of their Scoping Opinion.

1.4.2 In particular, in accordance with Regulation 15(2) of the EIA Regulations this Scoping Report provides:

- A plan sufficient to identify the land (the Site) (see **Figure 1-1**);
- A brief description of the nature and purpose of the Proposed Development, including its location and technical capacity (**see Chapters 2** and **3**);
- Such other information or representations as the person making the request may wish to provide or make (see **Chapters 6** and **7**).

The opportunity has also been taken to provide additional information to MDC that sets out:

- The proposed approach to the EIA;
- The consultation that will be undertaken as part of the EIA; and
- The intended structure of the ES.

1.4.3 The structure of this Scoping Report is as follows:

- **Chapter 2** describes the Site and the surrounding area;
- **Chapter 3** provides details of the Proposed Development;
- **Chapter 4** summarises the legislative context and relevant planning policy;
- **Chapter 5** sets out the approach to the EIA;
- **Chapter 6** Landscape and Visual Amenity
- **Chapter 7** Biodiversity
- **Chapter 8** Hydrology and Hydrogeology
- **Chapter 9** Cultural Heritage and Archaeology

- **Chapter 10** Land and Soils
- **Chapter 11** Transport and Access
- **Chapter 12** Air Quality
- **Chapter 13** Noise and Vibration
- **Chapter 14** Community, Tourism, Recreation and Health
- **Chapter 15** GHG and Climate Change

2 Description of the Site and Surrounding Area

2.1 Site Location

2.1.1 The wind farm and associated infrastructure are to be located within the area indicated in Figure 1-1 (referred to hereafter for EIA scoping purposes only, as the 'indicative site'). The indicative site is located on the Dengie Peninsula in Maldon District, Essex. The surrounding area is characterised by low lying agricultural land, isolated dwellings, three existing onshore wind farms and an offshore wind farm that is visible from the indicative site. Figure 6-1 shows the environmental designations that occur within the vicinity of the indicative site.

2.1.2 The nearest settlements to the indicative site include Burnham-on-Crouch (to south west), Ostend, Southminster (to the west) and Asheldham (to the west), and Dengie and Tillingham to the north west / north. Road access to the indicative site is from the B1021, B1018 and B1010 to the west.

2.1.3 The indicative site is located adjacent to the Dengie (Mid-Essex Coast Phase 1) Ramsar site and Special Protection Area (SPA) to the east and south, the Foulness (Mid-Essex Coast Phase 5) Ramsar site and SPA to the south east and south, the Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA to the south and south west. The Essex Estuaries Special Area of Conservation (SAC) covers areas to the east, south and south west of the indicative site, as well as further north near the Blackwater Estuary. The Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site and SPA is located further north of the indicative site. All designations are shown on Figure 6-1.

2.1.4 The Dengie Site of Special Scientific Interest (SSSI) is located east of the indicative site with the Foulness SSSI located to the south and south east. The Crouch and Roach Estuaries SSSI is located to the south and south west of the indicative site and the Blackwater Estuary SSSI being located further north. The Cliff, Burnham-on-Crouch SSSI is located to the west of Burnham-on-Crouch. Sandbeach Meadows SSSI is located to the north of the indicative site and Goldsands Road Pit SSSI is to the west of the indicative site, south of Southminster.

2.1.5 The area approximately 500m to the east of the indicative site is also designated as Dengie National Nature Reserve, with the Bradwell Shell Bank Nature Reserve being located just offshore. The adjacent offshore area to the east and south, and further north of the indicative site is also a Marine Conservation Zone.

2.1.6 The indicative site comprises mostly agricultural land used for arable crops. A network of man-made ditches and drains exist which are subject to regular management. Where management is less intensive, small areas of reed bed and other wetland habitat are present. Hedgerows occur though are often defunct and poorly managed. There are extensive areas of saltmarsh immediately to the east of the indicative site which are associated with the designated sites and habitats along the coastline.

2.1.7 There is very little habitat within the indicative site that is listed on the Priority Habitat Inventory. The small pockets that do exist are either areas of coastal and floodplain grazing marsh (including Sandbeach Meadows SSSI and Bridgewick Marshes) or copses of deciduous woodland which are often associated with farmyards and / or residential dwellings.

2.1.8 There are several public rights of way (PROW) in and adjacent to the indicative site. A number of PROW connect Tillingham in the north, across the indicative site to the River Crouch in the south. Other PROW connect together and run parallel to the east and southern boundary of the indicative site, adjacent to the coastline. The Charles III England Coast Path runs along the seawall to the east and south.

2.1.9 There are a number of listed buildings at several of the farmsteads within the indicative site with additional heritage assets close to the indicative site, including the church and manor group at Dengie, isolated farms dispersed along the former north edge of the marshes and the listed churches at Southminster, Tillingham and Bradwell-on-Sea. The historic centres of Southminster, Tillingham, Bradwell-on-Sea and Burnham-on-Crouch are designated conservation areas. To the south of the River Crouch, on Foulness Island, Foulness Churchend is also a conservation area. The closest scheduled monuments to the indicative site are an Iron Age hill fort at Asheldham, and two sites to the north of Southminster (cropmarks and an earthwork).

2.1.10 The indicative site is predominantly within flood zone 3 and has a high probability of flooding from rivers and the sea. With regard to surface water flooding, very limited, small areas of low risk exist with these being associated with some of the numerous ditches which criss-cross the indicative site, aligned north to south and east to west.

3 The Proposed Development

3.1 Components of the Proposed Development

3.1.1 The preliminary proposal is for the erection of up to 17 turbines, comprising a total installed wind-generated capacity of up to 120 MW. However, it should be noted that the number of turbines remains provisional at this stage and may be revised depending on the agreed turbine specification and detailed consideration of site constraints coupled with appropriate design evolution.

3.1.2 It is envisaged that the Proposed Development will include the following elements:

- While the specific wind turbine model has yet to be selected, it is likely that the turbines would be of a three-bladed horizontal axis design with an upwind rotor and a tubular steel tower. They are likely to be up to a maximum of 200m, from ground to maximum blade tip height, with the blades themselves being a maximum of 82m.

- As the turbine height could be up to a maximum of 200m, there is a requirement by the Civil Aviation Authority and the Ministry of Defence that the turbines be lit with visible (and infrared) lighting to assist their detection by aircraft. This aviation safety lighting is likely to comprise 2 no, medium intensity candela (cd) CAP393 lights mounted on the nacelles of each turbine. This would be considered a worst case scenario.

- Each turbine tower would be fixed to a base, comprising a circular concrete pad foundation of up to 25m diameter. The foundation would be formed through excavations approximately 4m deep, depending on ground conditions. The foundations may be piled, should ground conditions require this. The wind turbine transformer and associated electrical equipment is likely to be housed within the tower at the base.

- Hard-surfaced crane pads and staging areas adjacent to each turbine site will be of a rectangular or triangular configuration depending on the requirements of the manufacturer of the turbine selected for the site. Whilst the majority will be removed after construction, part of the crane pads would be left in-situ following erection of the turbines to allow for maintenance and replacement of parts as necessary during the lifetime of the project (considered to be at least 35 years).

- The marine transfer facility at the southern extent of the site, on the River Crouch, which was originally established for the previous wind farm development in the area, will be utilised for wind turbine deliveries. The area comprises an existing hard-surfaced area adjacent to the sea wall. A crane can be used to lift wind turbine components from barges on the River Crouch over the sea wall and onto specialist transport equipment which will then complete the deliveries to the wind turbine installation locations within the site.

- The location of the site access for road transport deliveries has yet to be determined. Road transport deliveries will include aggregates for access track and crane pad construction, concrete and other construction materials.

- Access tracks for construction and operational use will be of single width, with an additional shoulder area likely to be constructed from compacted road stone. Passing points may be added to the tracks as appropriate, creating sections that are a little wider than the tracks and sufficient for opposing vehicles to pass safely. The tracks will be designed to accommodate abnormal loads (for the delivery of turbine components, cranes, etc.) which will include widening through corners and turning heads where required. There is an existing network of access tracks within the indicative site that are currently used for farming activities and some of which were

used for the construction of the existing local wind farms and these will be utilised where appropriate.

- An electrical control building / substation / interconnection facility will be located on the site and interconnected to the collection system cables (noted below). A storage facility to be used during the operational phase of the project may adjoin the substation should this be required by the wind turbine OEM.
- Power collection system cables will be required between each turbine and the site electrical control building / substation / interconnection facility. These cables will be installed underground adjacent to on-site access tracks or along the edges of fields (turbines will be grouped in circuits) and will include earthing and fibre optic connection network cables for the safe operation of the wind farm.
- A permanent anemometry mast may be included. The mast will either be guyed or of a freestanding nature, with a lattice tower on a concrete foundation. The anemometer mast is likely to be of comparable height to the turbine hubs.
- Drainage and flood attenuation measures will be provided as necessary to manage any surface water run off with the amount of flood attenuation to be determined.
- Landscape planting and ecological enhancement will be provided to mitigate habitat loss as a result of turbine foundations, crane hardstands, control building / substation / interconnection facility, access tracks, cabling, etc. will be required. The enhancements will ensure the provision of a minimum 10% biodiversity net gain (BNG) on site.
- The Proposed Development will require crushed stone to support the construction of new access tracks where necessary and to improve existing tracks on site. Concrete / crushed stone will also be required to create the hardstanding areas for cranes, substations, etc. and lay the foundations for turbines. Where possible, crushed stone will be sourced from local quarries. It is likely that a temporary concrete batching plant will be provided on site to reduce the number of vehicle movements generated during construction as far as possible.
- A temporary construction compound / storage area will be created. This will provide a secure area for a site office, welfare facilities, storage of materials, equipment and components will be needed. The compound will be surrounded by a security fence and access will be via a lockable gate. The fence and gates will be removed at the end of the construction phase and if located within an arable area, the hardcore base will be removed to allow ongoing farming operations.
- The underground electricity cables connecting the site to the existing substation at Rayleigh will be installed by the DNO. It is important to note that the planning application for the wind farm will not include the off-site grid connection.

3.2 Construction

Construction Programme

3.2.1 Site preparation is anticipated to commence in 2028 with completion in 2030, this resulting in a construction programme of circa 18 months.

Construction Environmental Management Plan

3.2.2 An outline construction environment management plan (CEMP) will be prepared and will set out a guide to construction activities in order to ensure the environmental impacts are kept to a practical minimum. A detailed CEMP (that it is assumed would be a planning condition attached to the

consent) will set out the method statements for constructing site infrastructure and the measures that will be undertaken by contractors to ensure best site practice with regards to environmental management. The detailed CEMP will require approval by MDC, in consultation with other statutory consultees for example, this potentially including the Highway Authority (Essex County Council), Natural England, Environment Agency and local communities, prior to the commencement of construction works.

3.2.3 In addition to the provision of a detailed CEMP, an Environmental Clerk of Works (ECoW) may be appointed to oversee construction activities. The ECoW will ensure that, during construction, impacts on ecological features are minimised through best practice, ensuring water quality is maintained and the potential for disturbance or risk of injury / death is minimised for protected species that may be using the site.

Construction Activities

3.2.4 The following activities will be undertaken during the construction stage of the Project:

- Enabling works and establishment of temporary construction staging areas / laydown areas / construction compounds / upgrade and reuse of the existing marine transfer facility;
- Earthworks to enable the creation of site access tracks, hardstands, and other infrastructure;
- Formation of drainage features and creation of any flood defences if required;
- Earthworks and operations (e.g. concrete-batching) to create turbine foundations, substation and other building foundations, met mast foundations (if used), crane pads (alongside associated landscaping) and underground cable networks;
- Wind turbine erection;
- Installation of electrical connections and construction of substation / control facility and associated operations storage facility;
- Construction of foundations and installation of a meteorological monitoring mast, should one be required;
- Turbine commissioning and testing;
- Decommissioning of temporary construction compound, reinstatement turbine hardstanding / crane pads alongside site finishes; and
- Habitat management / enhancement works.

3.2.5 Construction will be undertaken in accordance with the Construction (Design and Management) Regulations 2015. The relevant construction areas (i.e. each turbine location) and compound areas / laydown areas will be appropriately secured to prevent unauthorised entry during construction works. Additional security measures will include the use of lighting, on-site personnel and the installation of gates to manage the movement of vehicles, plant, equipment and personnel.

3.2.6 The construction compounds / laydown areas for the wind farm, will be set up by the contractor(s) and appointed subcontractors.

3.2.7 It is anticipated that mobile cranes with a lifting capacity of 1,000 tonnes will be used on site during the construction stage.

3.2.8 Other potential construction vehicles required include;

- Low loader – generator, excavator, equipment deliveries
- Tipper lorry – stone/gravel/aggregate deliveries and movements
- Backhoe loader – miscellaneous site activities
- Concrete mixer truck – concrete for turbine foundations
- Flat bed truck – turbine and steel deliveries
- Telehandler – cable laying

Construction Site Access

3.2.9 Abnormal loads will be delivered by sea wherever possible via the existing marine transfer facility at the southern end of the site.

3.2.10 Suitable construction access routes and site access points will be determined and are expected to be via one or more of the existing B roads and Class III roads to the west of the site.

3.2.11 General construction material deliveries such as aggregate and plant will be delivered by Heavy Goods Vehicles (HGV) or the marine transfer facility. It is likely that an onsite concrete batching plant will be utilised to minimise concrete deliveries. Other movements to and from the site will be via Light Goods Vehicles (LGV) and cars.

3.2.12 All appointed contractor(s) and subcontractor construction parking will be located within the site, with no parking on roads within the wider area.

3.2.13 For health and safety purposes, public access may be temporarily restricted during construction activities, along public footpaths and bridleways that cross the site and the King Charles III Way that runs along the sea wall. In particular, temporary diversions may be needed. Clear diversion signage will be provided for any routes that are closed which will also show alternative routes.

Construction Compound

3.2.14 To provide a secure area for site office and storage of materials and components, a temporary construction and storage compound will be constructed. It will be surrounded by a security fence and lockable gate. The fence and gates would be removed at the end of the construction phase. The hardcore base may be retained but allowed to naturally re-vegetate.

3.3 Operation and Maintenance

3.3.1 The Proposed Development is expected to operate continuously. The site will not be permanently staffed, with day-to-day monitoring of the wind turbines being undertaken remotely. Maintenance activities are anticipated to include planned maintenance on an approximately semi-annual basis as well as site visits occasionally on an 'as required' basis for inspections and to attend to the operation of the wind turbines. All operational vehicles will be parked on site. An operations storage facility may be included adjacent to the wind farm substation where critical parts and supplies will be stored, as well as providing welfare facilities to operations personnel.

3.3.2 The development will generate a small number of full-time equivalent jobs who will monitor the performance of the wind turbines, and maintain all the on-site infrastructure together with habitat / landscape maintenance.

3.3.3 All the footpaths that cross the site will be protected and are anticipated to be able to remain open throughout the operation of the development.

3.3.4 Interpretation boards will be located at key locations along the footpaths that cross the site. The boards will provide key information about renewable energy, including details on the technology being used, the climate benefits and the ecological measures that the scheme has implemented.

3.4 Decommissioning

3.4.1 After its operational design life (anticipated to be at least 35 years) the infrastructure will be decommissioned and the site reinstated in accordance with the land use at this time. A decommissioning management plan will be developed as part of the planning application that will outline the broad methods for decommissioning.

3.4.2 It is important to note that the above scheme description is subject to some revision in response to environmental and technical constraints, and environmental enhancement opportunities that will emerge throughout the pre-planning application period.

4 Legislative and Planning Policy Context

4.1 Introduction

4.1.1 As set out in the preceding chapters, the primary legislative requirement applicable to the Proposed Development is the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. Alongside this legislation is a framework of national and local planning policy.

4.1.2 This chapter presents a summary of the EIA Regulations, other relevant legislation, as well as key national and local planning, energy and climate policy relevant to energy development and the Proposed Development specifically.

4.1.3 A review of policy relevant to each environmental aspect will be included within the ES. The weight to be given to certain policies can inform the assessment of effects and will depend on whether the policy is determinative (as a result of being a policy in an NPS which has effect) or an important and relevant consideration (as is the case for local policies). The weight to be given to draft policy will also vary depending on the stage it has reached. An assessment of the compliance of the Proposed Development with relevant planning policies will be undertaken within the Planning Statement which will accompany the ES. It is noted that all relevant legislation, national policy, and local policy will be identified and considered in the environmental assessment.

4.2 Legislation

4.2.1 The following key pieces of legislation are also of relevance to the Proposed Development:

- The Town and Country Planning Act 1990;
- Climate Change Act 2008; and
- Carbon Budgets Order 2021.

4.3 National Planning Policy

4.3.1 The National Planning Policy Framework ('NPPF') was adopted in March 2012 and was last updated in 2024[3]. The NPPF sets out the Government's planning policies for England and how these are to be applied. The policies contained within the NPPF are expanded upon and supported by National Planning Practice Guidance ('NPPG'), which was first published in March 2014 and has been periodically updated since.

4.3.2 NPPGs that are considered most relevant to the Proposed Development includes:

- Renewable and Low Carbon Energy;
- Climate Change
- Historic Environment;
- Natural Environment;

[3] Department for Levelling Up, Housing and Communities, National Planning Policy Framework (2024)(Accessed February 2025)Available at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

- Effective use of land;
- Environmental Impact Assessment; and
- Strategic Environmental Assessment and Sustainability Appraisal.

4.3.3 The National Policy Statements ('NPSs') make up the planning policy framework for examining and determining Nationally Significant Infrastructure Projects ('NSIPs'). As the Proposed Development is not a NSIP, the NPSs are not directly relevant; however, they do form material considerations in the determination of the planning application.

4.3.4 The following NPSs are relevant to the Proposed Development:

- Overarching NPS for Energy ('EN-1')[4]; and
- NPS for Renewable Energy Infrastructure ('EN-3')[5].

4.4 Local Planning Policy

The adopted Development Plan for the indicative site and Proposed Development comprises the Maldon District Local Development Plan (adopted 21 July 2017). Planning policies considered of relevance include:

- Spatial Vision and Development (Policies S1, S7-S8)
- Design and Climate Change (Policies D2-D5)
- Economic Prosperity (Policy E4)
- Natural Environment and Green Infrastructure (Policies N1-N3)
- Transport and Access (Policy T1)
- Implementing and Monitoring (Policy I1)

4.5 Other Material Considerations

Other material considerations of relevance include:

- Local Development Scheme 2023-2027 (October 2024)
- Maldon District Council Climate Action Strategy 2021-2030
- MDC Climate Action Plan 2023-2024
- MDC Renewable and Low Carbon Technologies SPD 2018

[4] Department for Energy Security and Net Zero, Policy Paper – Overarching National Policy Statement for energy (EN-1), 17 January 2024 (Accessed May 2024) Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1

[5] Department for Energy Security and Net Zero, Policy Paper – National Policy Statement for renewable energy infrastructure (EN-3), 17 January 2024 (Accessed May 2024) Available at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3

5 Approach to the EIA

5.1 The EIA Process

5.1.1 The EIA documentation including in particular the Environmental Statement (ES) will be prepared in accordance with the EIA Regulations; relevant planning and planning policy and guidance; and current best-practice EIA guidelines. Each technical topic chapter of the ES will be undertaken in line with specific technical aspect methodologies and best-practice guidelines.

5.2 Constraints Analysis and Design Principles

5.2.1 As part of the EIA and design process all technical aspects will use the relevant environmental baseline conditions of a site and its surrounds in order to identify any environmental constraints and opportunities relevant to their aspect. This has and will continue to allow design principles to be created that are and will continue to be used to support the development of the scheme so that important environmental considerations are taken into account during the design evolution. The inputs from this process will be included as an Alternatives Chapter of the ES as required by Schedule 4(2) of the EIA Regulations.

5.3 Consultations

5.3.1 Sections 42, 47 and 48 of the Planning Act 2008 and Regulation 13 of the EIA Regulations require that certain statutory bodies, stakeholder groups and relevant land interests must be consulted as part of the pre-application process.

5.3.2 Consultation alongside the EIA process is critical to the development of a comprehensive and proportionate ES. The views of statutory and non-statutory consultees are important to ensure that the EIA from the outset focuses on the environmental studies and to identify specific issues where there are likely significant environmental effects, and where further investigation is required.

5.3.3 The consultation, as an ongoing process, enables environmental measures to be incorporated into the Proposed Development to avoid, reduce and offset adverse environmental effects and to optimise environmental benefits.

5.3.4 Early and ongoing engagement with consultees will be important to influence the design process of the Proposed Development by seeking an appropriate level of feedback from consultees, to ensure that comments are considered as part of the project design.

5.3.5 Consultation has already begun and will continue to be undertaken as part of the design and EIA process. Where relevant this scoping report will refer to consultation undertaken to date.

5.3.6 The Applicant and their consultant team are proposing to consult with a variety of organisations, these are included, but not limited to, the entities contained within Table 5-1 below.

Table 5-1: Statutory and non-statutory consultees

Statutory consultees	Non-statutory consultees
Maldon District Council • Planning policy • Environmental Health • Countryside and Coast • Conservation and Heritage	Royal Society for the Protection of Birds (RSPB)

Essex County Council • Highways Authority • Ecology • Archaeology • Public Rights of Way • Low Carbon Energy	Essex Wildlife Trust
Environment Agency	OFCOM
Natural England	Joint Radio Company (JRC)
Historic England	BBC
National Highways	Mobile network providers
Relevant Parish Councils	Ministry of Defence
Lead Local Flood Authority	NATS En Route plc
The Health and Safety Executive	Civil Aviation Authority
Office for Nuclear Regulation (given the indicative sites proximity to Bradwell Nuclear Power Station)	Southend Airport
	The Crouch Harbour Authority
	Maritime and Coastguard Agency
	NHS Mid Essex Clinical Commission Group/Mid and South Essex Health and Care Partnership

5.4 Baseline and Future Baseline

5.4.1 Appropriate and accurate baseline conditions (i.e. existing conditions on the Site) need to be established in order to assess the likely significant environmental effects of the Proposed Development and to identify the most appropriate environmental measures to be employed to minimise any likely significant adverse effects.

5.4.2 Baseline information has been and will be collected and described by each technical aspect of the ES. This will include existing and available information within the public domain, baseline surveys undertaken as part of the EIA process and additional information provided as part of the consultation process and form engagement. For the majority of the environmental aspects relevant baseline conditions will relate to the existing environmental conditions at the site and in the local area.

5.4.3 As per the requirements of Schedule 4(3) of the EIA Regulations, consideration will also be given to future baseline conditions in particular how it will likely evolve in the future (i.e. in the opening year) but without the Proposed Development in place. The likely evolution of the baseline conditions will be described within each technical aspect chapter of the ES, with justification given as to why any change is assumed, and have also been described, where currently known, in the aspect specific Chapters of this Scoping Report.

5.5 EIA Assessment Scenarios

5.5.1 An indicative construction programme for the Proposed Development building on the programme in Chapter 3, will be presented in the ES. This will include all stages of the construction phases including site preparation and ground works, construction and landscaping. To assess the likely significant

environmental effects of the Proposed Development, the ES will document an assessment of the peak year of construction as this will provide a reasonable worst-case assessment.

5.5.2 The effects of the completed Proposed Development will be assessed and documented within the ES for any significant impacts on the receiving environment from operation of the Proposed Development.

5.5.3 Within the ES there will also be an assessment made of the decommissioning phase of the Proposed Development. As above, for the purposes of the EIA the decommissioning assessment will be based on an assumption that the Proposed Development will be operational for at least 35-years. The assessment does not assume that the operational phase will be limited to 35 years as the wind farm infrastructure may continue to be operating successfully and safely beyond this period. However, this timeframe is a realistic timeframe based on current practices and will be used as an approximate to assess the likely significant effects from the decommissioning phase. Further information on the decommissioning phase, is presented in each of the technical aspects detailed in each chapter.

5.5.4 It is noted that at the time that decommissioning would take place, the regulatory framework, good industry practices and the future baseline could have altered. Consequently, as detailed in Chapter 3, the Applicant will implement a Decommissioning and Environmental Management Plan (DEMP).

5.6 Prediction of Likely Effects and Determining Significance

5.6.1 Determining the potential for significant effects needs, generally, an aspect specific approach and these methodologies are detailed within the aspect specific chapters themselves. However, there are certain common elements that occur in defining the appropriate scope for the detailed assessment.

5.6.2 Understanding the policy and legal position with regard to a specific environmental aspect is fundamental to determining the likelihood of significant effects occurring. As such the assessment of effects for every aspect will be informed by a detailed review of existing policy including that at national, regional and local level. In addition, relevant legal requirements will be identified.

5.6.3 Knowledge of the baseline environment, specific to the technical aspect being considered is also required. At this scoping stage the level of baseline collection is appropriate to allow the gaining of an understanding of whether the Proposed Development has the potential to cause significant effects. In many cases this means that there has been a reliance on desk study data and as such, in the future, and to inform the detailed assessment as will be documented within the ES, further baseline data will be collected. Arising from an analysis of the baseline data will come the identification of sensitive receptors that could be affected by the Proposed Development. At this Scoping stage sensitive receptors have been identified and are noted within the aspect specific Chapter albeit with the collection of more detailed baseline information these may be subject to some change.

5.6.4 Establishing the potential for a significant effect to occur, and therefore which effects should be subject to detailed assessment, has been informed by aspect specific guidance often validated by a relevant professional body. The same will be used to inform the detailed assessment as will be documented within the ES. Generally, guidance, in reaching a conclusion on whether an effect could be significant, requires consideration of the sensitivity of a receptor to change, and importantly consideration of the predicted magnitude of change.

5.6.5 Consideration will be paid to the opportunity to introduce environmental measures (and mitigation) that will help to avoid or reduce the potential for an adverse significant effect to occur.

5.6.6 Summary of effect tables that summarise the likely significant effects associated with each of the environmental aspects will be provided in the ES at the end of each aspect assessment chapter.

These tables will detail sensitive receptors, additional mitigation measures and residual effects. A distinction will be made between direct, indirect, secondary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects. Cumulative effects will be considered as a single coordinated assessment.

5.7 Cumulative Effects

5.7.1 Schedule 4(5)(e) of the EIA Regulations states that the ES should include "a description of the likely significant effects of the development on the environment resulting from… the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources".

5.7.2 Details of the cumulative schemes to be considered within the detailed assessment will be identified based on information available on the local authorities planning registers (and that of the Planning Inspectorate) and discussed during the consultation stages. The current criteria for inclusion in the study are as follows:

- other projects within the local vicinity (at this stage assumed to be within 5km of the Proposed Development):
- that have planning permission (or development consent) but are not yet built; or
- schemes where a planning application (or DCO application) has been submitted but a decision not yet made; or
- major projects likely to occur due to existing policy.

5.7.3 It should be recognised that many of the projects that will fall within the categories under the first two bullets above maybe so small that cumulative effects would be highly unlikely. An example of this would be a house extension or similar. Using professional judgement, projects will therefore be screened for their potential to act in a cumulative way with the Proposed Development with only those where such potential exists considered further. This screening exercise will be detailed within the ES and will also be consulted upon as part of pre-application discussions with the host authorities.

5.7.4 Each technical aspect of the ES will consider the potential for cumulative effects associated with the schemes identified (for example cumulative assessment of traffic effects from nearby projects that are of a significant scale (and where traffic flows are publicly available)). A Cumulative Assessment will be presented in each technical aspect chapter of the ES.

5.7.5 Regulation 4(5) states that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the Proposed Development on population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape. Regulation 5(2)(e) refers to the need to assess 'the interaction between those factors". The following types of cumulative effects will be considered in accordance with the EIA Regulations and best practice guidance:

- Combined effects occur when a similar type of effect, for example noise, occurs albeit from differing sources e.g. from both road traffic and aircraft noise. Within the ES, combined effects will be dealt with in the relevant technical aspect Chapter.
- Interactive effects occur when a number of separate effects, for example noise and air quality, together interact to cause an effect to a particular receptor, for example a protected species. Within the ES that will be produced interactive effects will be dealt with

either in the relevant technical aspect Chapter (such as the example for protected species would be included in the Biodiversity Chapter), or where they have the potential to affect human health, then within the Health Chapter.

5.8 Transboundary Effects

5.8.1 Regulation 32 of the EIA Regulations require the consideration of any likely significant effects in the environment of another European Economic Area (EEA) member state. Guidance of the consideration of transboundary effects is provided in the PINS' Advice Note 12 'Transboundary Impacts and Process', published in December 2020.

5.8.2 Due to the nature and location of Proposed Development, it is not anticipated that the Proposed Development has the potential to result in any likely significant effects on the environment of another European Economic Association (EEA) State. Therefore, a transboundary screening matrix has not been included within this EIA Scoping Report and transboundary effects are proposed to be scoped out of any future assessment.

5.9 Environmental Statement

5.9.1 In accordance with Schedule 4 (Regulation 18(3)) of the EIA Regulations and PINS Advice Note Seven, the EIA process will be documented in an ES which will describe the Proposed Development, give full details of the EIA methodology and any technical methodologies and data used in support of the assessment; detail any mitigation and enhancement measures that have been employed; present the assessment of likely significant environmental effects; and provide a schedule of proposed mitigation and monitoring arrangements.

5.9.2 The ES will present an assessment of the cumulative effects and impact interactions as described in each of the topic sections in the technical chapters.

5.9.3 The proposed content the ES is likely to be outlined as follows (or similar):

- Introduction;
- Description of Site and Context;
- Description of Proposed Development including Site Selection and Alternatives;
- Consultation;
- Legislation and Planning Policy;
- EIA Methodology including details of assumptions and/or limitations;
- Environmental Aspect Assessments – the technical assessment Chapters;
- Cumulative Assessment; and
- Summary of Effects and Embedded Measures including details of how mitigation will be secured.

5.9.4 Each of the technical assessments will be set out in the following format (or similar):

- Introduction:
- List of relevant legislation and planning policies;

- Assessment methodology, including a summary of consultation undertaken, explanation of how responds to EIA Scoping Opinion, list of sources of information & guidance documents, details of the study area, assessment process/criteria and any assumption limitations;
- Baseline description of the Site (current state of the environment (baseline) and an outline of the likely evolution thereof without the implementation of the Proposed Development (future baseline);
- Proposed enhancement and monitoring measures;
- Assessment of potential effects;
- Summary; and
- List of references.

5.10 Environmental Aspects

5.10.1 Following a review of environmental surveys and preliminary appraisal work to date, it is proposed that the EIA need only to focus on the following environmental aspects where significant effects are likely to occur. This includes the following technical aspects, which are discussed in the following chapters;

- Biodiversity;
- Hydrology and Hydrogeology;
- Land and Soils;
- Buried Heritage;
- Cultural Heritage;
- Landscape and Visual;
- Transport and Access;
- Air Quality;
- Noise and Vibration;
- Socio-Economics;
- Climate change.

5.11 Waste Management

Waste will inevitably be generated as a consequence of the enabling and construction works for the Proposed Development. However, waste strategies including extensive commitments to reduce the generation of waste and to divert waste from landfill will be considered and set out in the ES.

Furthermore, a Site Waste Management Plan (SWMP) will be prepared for the enabling and construction works. This will ensure that construction waste arisings will be effectively controlled, and that good Site management practice will be implemented to minimise the generation of waste and maximise the reuse or recycling of waste materials that arise from the construction where practicable.

Once operational, very limited waste and only associated with maintenance operations is expected to be produced by the Proposed Development.

As a result it is not proposed that a Chapter specifically related to the assessment of waste will be provided. However, the production of waste and its transportation from the Site will be considered within the relevant ES chapters including, in particular, that for transport and access.

6 Landscape and Visual Amenity

6.1 Introduction

6.1.1 Due to the scale of the Proposed Development, it is considered that there is the potential for likely significant effects to arise in relation to the landscape resource and visual amenity and it is therefore proposed that this topic is scoped into the EIA.

6.1.2 A Landscape and Visual Impact Assessment (LVIA) will be undertaken by Chartered Landscape Architects from Stephenson Halliday in accordance with published best practice as referenced below.

6.1.3 Although linked, landscape and visual effects will be assessed separately. Landscape effects derive from changes in the landscape fabric, which may result in changes to landscape character, whereas visual effects are the effect of these changes as experienced by people (visual receptors).

6.1.4 The landscape and visual chapter will therefore consider the potential effects upon:

- landscape elements and fabric;
- landscape character;
- the special qualities of any landscape designations; and
- visual receptors including relevant residential, transport and recreational/leisure receptors.

6.1.5 In considering effects on landscape fabric, the landscape and visual chapter will consider the removal or addition of elements such as vegetation in relation to landscape change, but the assessment of effects of the Proposed Development on ecology and habitats will be considered in a separate biodiversity chapter of the ES.

6.1.6 Likewise, it is proposed that the landscape and visual chapter will take account of cultural heritage assets in so much as they contribute to landscape character and its perceived value (for example, Conservation Areas are treated as areas where the character and views are valued). However, the assessment of effects of the Proposed Development on the setting of cultural heritage receptors will be considered in the Cultural Heritage chapter of the ES (and of this Scoping Report).

6.1.7 The landscape and visual chapter will:

- define the landscape and visual baseline environments of the site and the established study area;
- describe the relevant landscape and visual receptors and identify their sensitivity;
- establish the magnitude of effect on the landscape and visual receptors during the various phases of the Proposed Development (including construction, operation and decommissioning);
- determine the significance of effect of the Proposed Development on landscape and visual amenity and identify any effects which are deemed to be significant;
- identify mitigation and/or monitoring proposals to address the likely significant effects on landscape character and visual amenity;

- assess the significance of any night time effects on landscape and visual amenity from aviation lighting; and
- consider the potential for cumulative effects on landscape and visual amenity.

6.2 Review of Legislation, Policy, and Relevant Technical Guidance

6.2.1 The landscape and visual chapter of the ES will be undertaken with regard to the following legislation, policy and guidance. The same has also been used to inform the proposal for scoping which is detailed in this Chapter.

Legislation

- Council of Europe Landscape Convention, 2000 (ETS No 176 as amended);
- The Town and Country Planning (Tree Preservation) (England) Regulations, 2012 (Statutory Instrument 2012 No 605); and
- The Hedgerow Regulations (Statutory Instrument 1997 No 1160), 1997.

Planning Policy

National

- National Planning Policy Framework (NPPF) (updated December 2024) Ministry of Housing, Communities and Local Government. Sections 12, 14 and 15 are of relevance to this chapter; and
- Overarching National Policy Statement for Energy (NPS EN-1) (updated January 2024) - Section 5.10 concerns landscape and visual matters relating to energy infrastructure. New draft EN-1 and EN-3 published April 2025.

Local

- Maldon District Council Local Development Plan 2014-2029 (July 2017) Maldon District Council; and
- Maldon District Council Renewable and Low Carbon Technologies Supplementary Planning Document (May 2018) Maldon District Council;

Technical Guidance

- Planning Practice Guidance: Natural Environment (updated February 2025) Ministry of Housing, Communities and Local Government - Paragraphs 036 and 037 are relevant;
- Planning Practice Guidance: Renewable and Low Carbon Energy (updated August 2023) Ministry of Housing, Communities and Local Government -Paragraphs 005, 007 and 013 are relevant;
- Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) (2013). Landscape Institute and Institute of Environmental Management and Assessment;
- Technical Guidance Note LITGN-2024-01: Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (2024) Landscape Institute;
- Technical Guidance Note 06/19: Visual Representation of Development Proposals (TGN 06/19) (2019) Landscape Institute;

- Technical Guidance Note 02/21: Assessing Landscape Value Outside National Designations (TGN 02/21) (2021) Landscape Institute;
- Technical Guidance Note 02/19: Residential Visual Amenity Assessment (TGN 02/19) (2019) Landscape Institute;
- An Approach to Landscape Character Assessment (2014) Natural England;
- An Approach to Landscape Sensitivity Assessment (2019) Natural England;
- Siting and Designing Wind Farms in the Landscape (2017) NatureScot;
- Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments (2021) Nature Scot;
- Visual Representation of Wind Farms Version 2.2 (2017) NatureScot; and
- Guidance on Aviation Lighting Impact Assessment (2024) NatureScot.

6.3 Baseline Conditions

6.3.1 Figure 6-1 illustrates the existing landscape context and designations within 10km of the indicative site area.

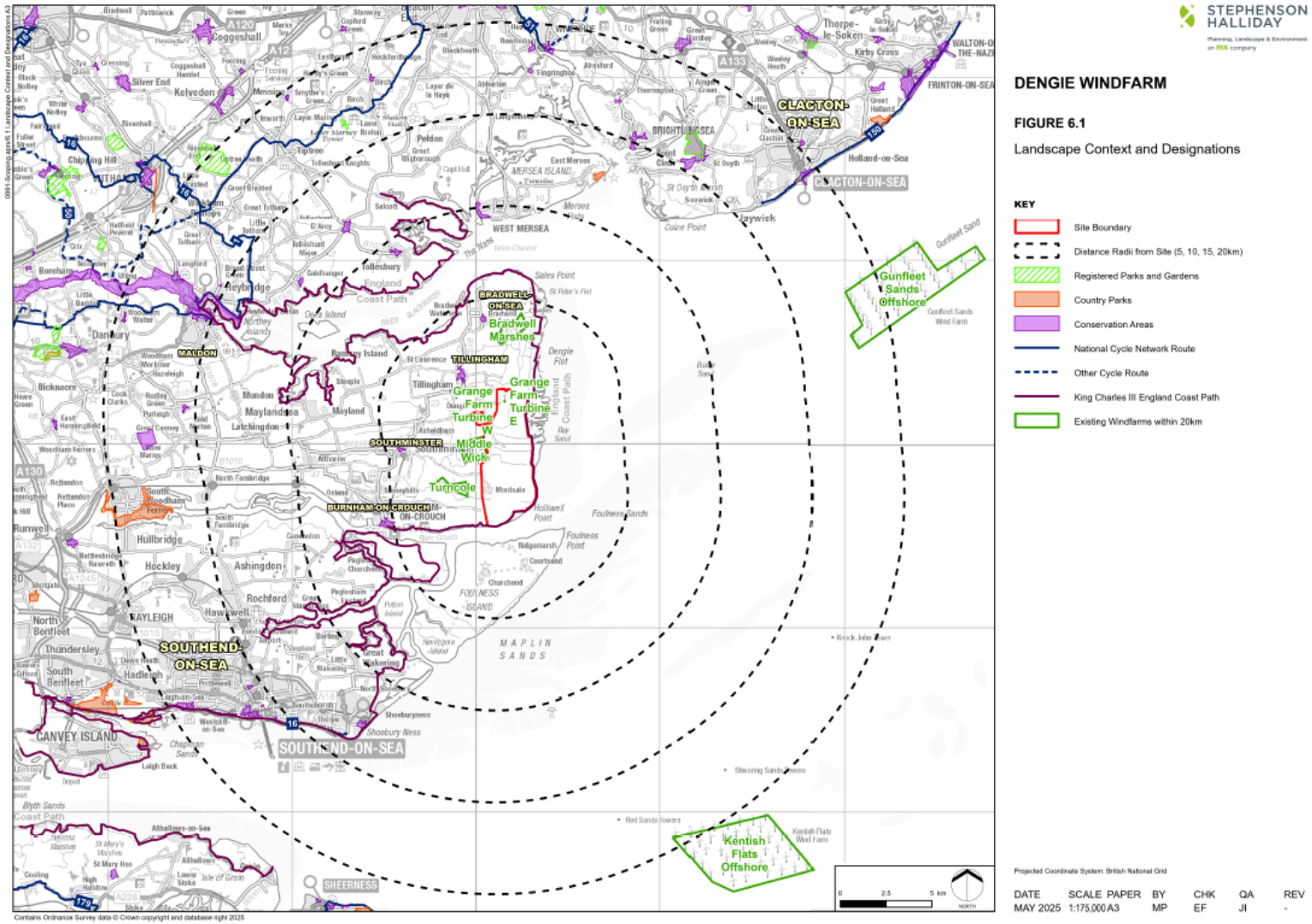

Figure 6-1: Landscape Context and Designations

6.3.2 The Proposed Development extends northwards along the Dengie Peninsula from Holliwell Point on the northern banks of the River Crouch to Tillingham Marshes. A coastal sea wall demarcates the eastern extent of the indicative site area beyond which there are extensive mudflats and coastal marshes. The King Charles III England Coastal Path (National Trail) follows the route of the sea wall along the eastern boundary of the indicative site area.

6.3.3 There are three existing onshore windfarms (approximately 125m to blade tip) in relatively close proximity to the Proposed Development and which have an existing influence on the landscape, namely: Bradwell Marshes (approximately 2km to the north), Middlewick (approximately 1km to the west) and Turncole (approximately 2km to the west). There are also visible offshore wind farms off the coast including those at Kentish Flats, Gunfleet Sands and London Array.

6.3.4 The Proposed Development occupies reclaimed marshland which is now predominately arable farmland located at or close to sea level. A plan showing the topography within 20km of the indicative site area is presented in Figure 6-2.

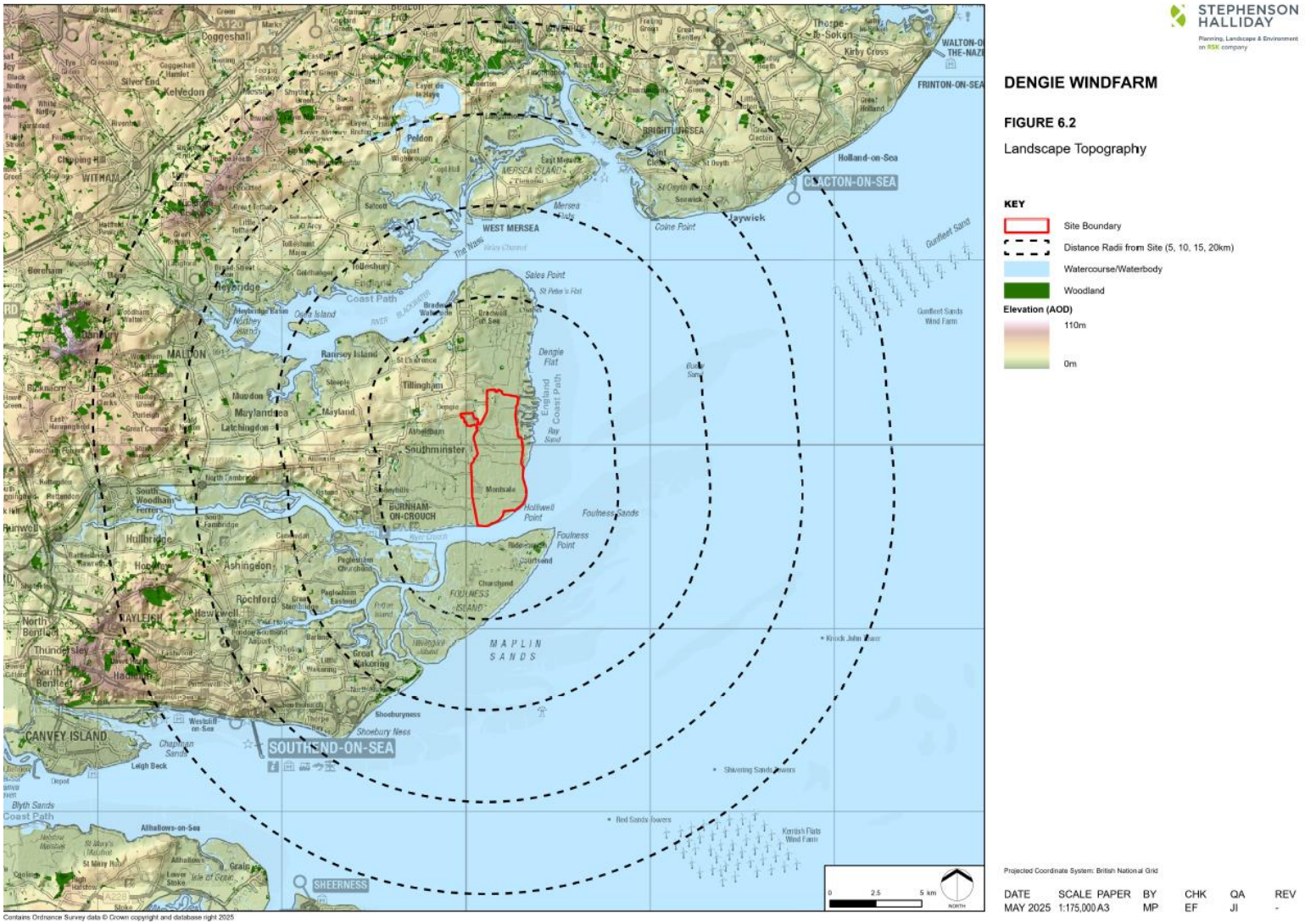

Figure 6-2: Landscape Topography

6.3.5 Initial site visits have been undertaken to inform ongoing design development and to inform this Scoping Report. Further day time and night time site work will be undertaken to gain an appreciation of the visual effects across the wider study area. Site work will be largely restricted to views from publicly accessible locations (e.g. roads and public rights of way). However, visits to a number of close residential properties are also proposed to understand the potential effects on private visual amenity.

Landscape Designations

6.3.6 There are no statutory or national landscape designations within 20km of the Proposed Development. The nearest national landscape designations are the Dedham Vale National Landscape and the Suffolk Coast and Heaths National Landscape, both of which are located over 25km to the north east.

6.3.7 Furthermore there are no local landscape designations in Maldon District within 20km of the indicative site area.

6.3.8 The nearest Conservation Areas are at Bradwell on Sea, Tillingham, Southminster and Burnham on Crouch. These are heritage designations and, as previously noted, any effects on their setting will be addressed as part of the heritage chapter of the ES.

6.3.9 The indicative site area does not fall within the Green Belt.

Baseline Landscape Character

6.3.10 The Proposed Development lies wholly within National Character Area (NCA) 81: Greater Thames Estuary, as defined by Natural England. NCA 81 is described as 'predominantly a remote and tranquil landscape of shallow creeks, drowned estuaries, low lying islands, mudflats and broad tracts of tidal salt marsh and reclaimed grazing marsh that lies between the North Sea and the rising ground inland. It forms the eastern edge of the London Basin and encompasses the coastlines of South Essex and North Kent, along with a narrow strip of land following the path of the Thames into East London.'

6.3.11 The Seascape Character Assessment for the South East Inshore Marine Plan Area identifies the coast and sea within 10km of the indicative site area as falling within Marine Character Area 19 (MCA 19): Essex and South Suffolk Estuaries and Coastal Waters.

6.3.12 The NCAs and MCAs within 20km of the indicative site area are illustrated on Figure 6-3.

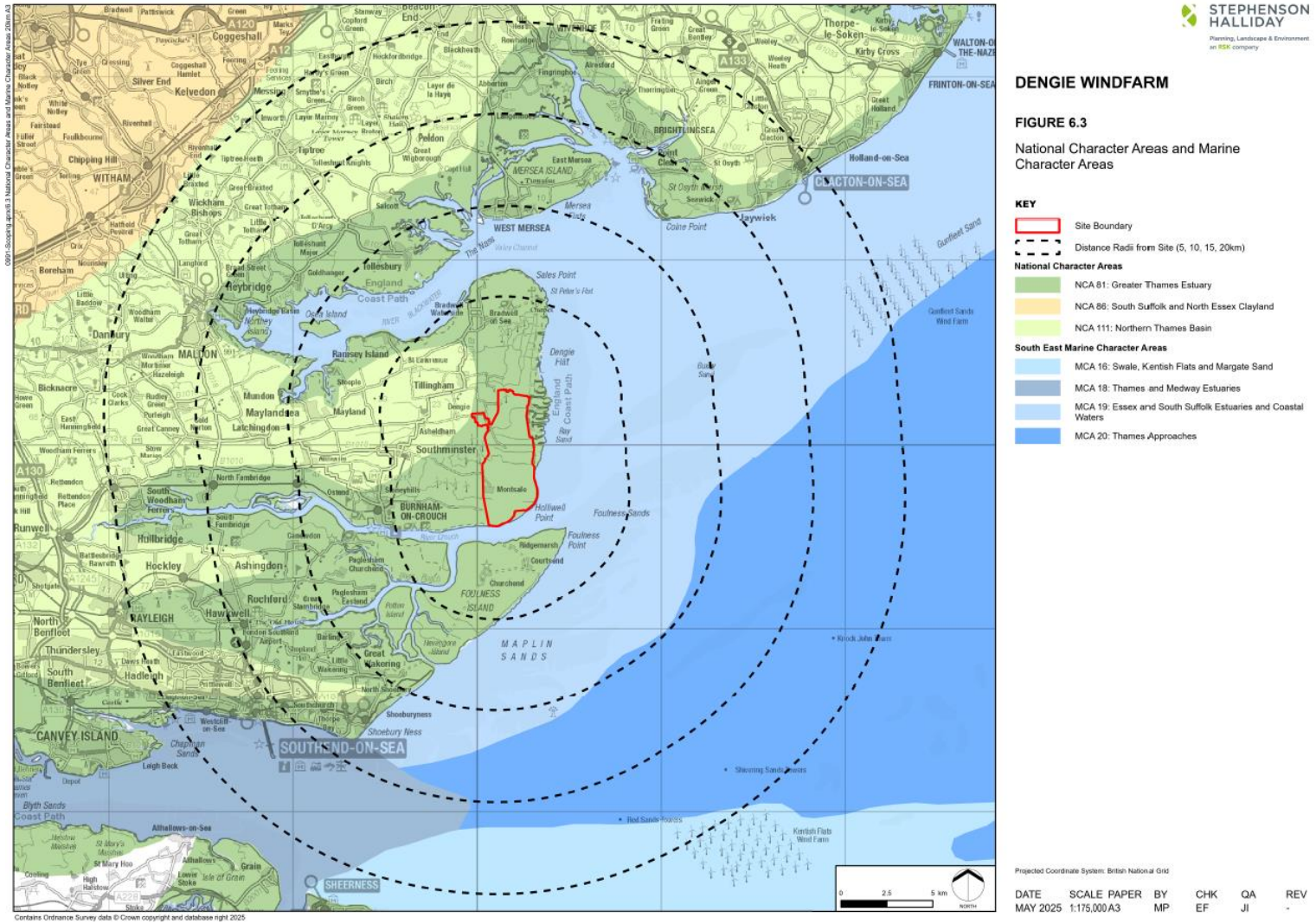

Figure 6-3: National Character Areas and Marine Character Areas

6.3.13 Within the Essex Landscape Character Assessment the Proposed Development is identified as falling within Landscape Character Type (LCT) F: Coastal Landscapes and within Landscape Character Area (LCA) F3: Dengie and Foulness Coast. LCA F3 is noted as having the following key characteristics:

- 'Large scale, flat landscape;
- Sense of openness/space. Wide views;
- Vast tidal mudflats and sands, and extensive fringing saltmarshes, rich in wildlife;
- Mainly arable farmland of the reclaimed marshlands, intersected by ditches and dykes;
- Absence of woodland, only a few hedgerows;
- Isolated farms and barns, with small villages restricted to the fringes;
- Bradwell Nuclear Power Station is a significant landmark; and
- Remote tranquil character.'

6.3.14 Other LCAs within the Essex Landscape Character Assessment and within approximately 10km of the indicative site area include the following:

- LCA E1: South Essex Farmlands;
- LCA F2: Crouch and Roach Farmland;
- LCA F4: Blackwater Estuary;
- LCA F5: North Blackwater and Colne Coastal Farmland;
- LCA F6: Mersea Island; and
- LCA F7: Brightlingsea-Clacton- Frinton Coast.

6.3.15 Essex County Landscape Character Areas within 10km of the indicative site area are illustrated on Figure 6-4.

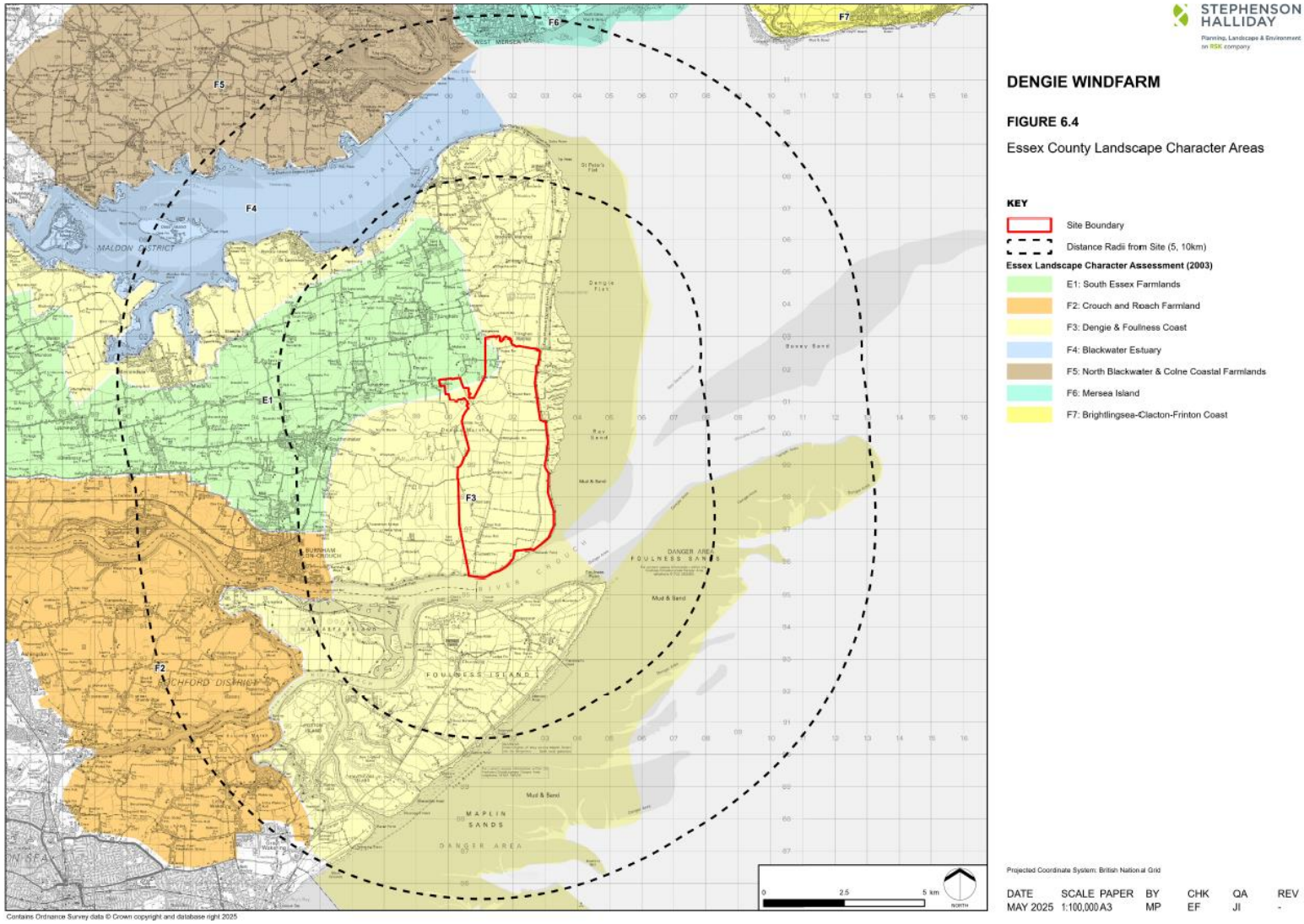

Figure 6-4: Essex County Landscape Character Areas

6.3.16 Within the Maldon Landscape Character Assessment, the Proposed Development is identified as falling within Landscape Character Type (LCT) D: Drained Estuarine Marsh Landscapes. The Key characteristics of this LCT are:

- 'Areas of flat, artificially drained former saltmarsh currently grassland and cultivated fields;
- Visible sea walls separate drained former marshland and current saltmarsh/mudflats;
- Lack of large areas of trees or woodland; and
- Network of visible drainage ditches.'

6.3.17 LCT D is further subdivided into individual Landscape Character Areas (LCA's). The Proposed Development lies within LCA D8: Dengie Drained Estuarine Marsh which is described as 'low-lying drained farmland immediately behind the sea wall defences from Sale Point in the northeast tip of the Dengie Peninsula and parallel to the fringing saltmarsh southwards round Holliwell Point to the broad tracts of polder lying between Burnham-on Crouch and the sea.' LCA D8 is noted as having the following key characteristics:

- 'Low drained land immediately behind sea wall defences;
- Mostly arable farmland on former reclaimed marsh intersected by linear ditches and dykes;
- Absence of trees except around farmsteads;
- Sense of huge sky, sound of birds, tranquillity, and panoramic views across the marshland and out to sea; and
- Isolated farms; restricted access provided by a very few lanes; absence of settlements.'

6.3.18 Other LCAs within the Maldon Landscape Character Assessment and within approximately 10km of the indicative site area include the following;

- LCA C1: Tollesbury Fleet Estuarine Marsh/Mudflats;
- LCA C2: Blackwater Estuarine March/Mudflats;
- LCA C3: Dengie Flats Estuarine March/Mudflats;
- LC1 D1: Old Hall Marshes and Tollesbury Wick Drained Estuarine Marsh;
- LCA D6: Ramsey Drained Estuarine Marsh;
- LCA D7: Bradwell Drained Estuarine Marsh;
- LCA D9: Fambridge Drained Estuarine Marsh;
- LCA E1: Tolleshunt Coastal Farmland; and
- LCA E2: Tillingham and Latchingdon Coastal Farmland.

6.3.19 Maldon District Landscape Character Areas within 10km of the indicative site area are illustrated on Figure 6-5.

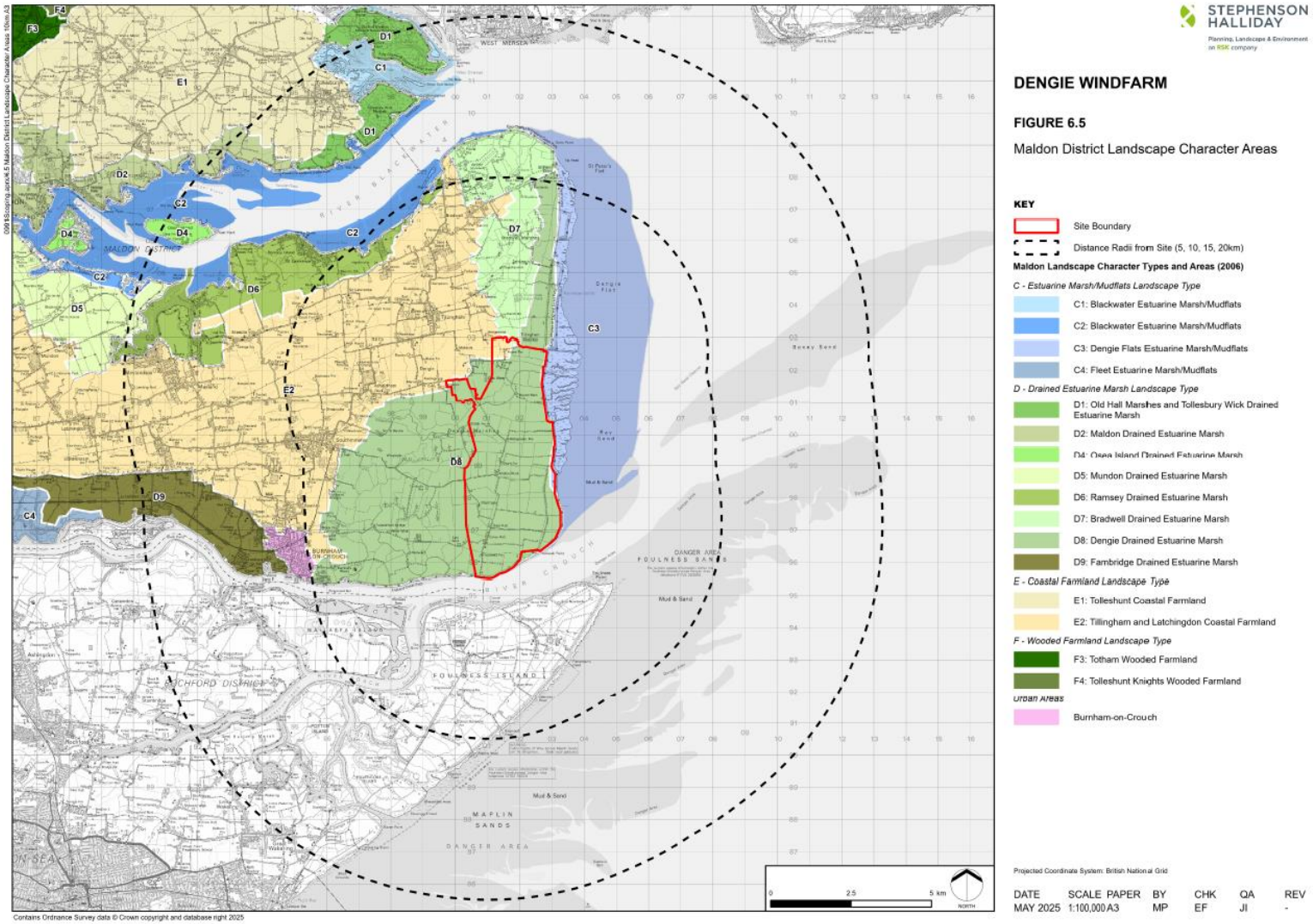

Figure 6-5: Maldon District Landscape Character Areas

6.3.20 It is noted that both the Essex County and the Maldon District landscape character assessments predate the construction of the three existing onshore windfarms and the offshore windfarms. These are also now a recognisable feature of the landscape.

Baseline Views and Visual Amenity

6.3.21 To assist in the identification of potential visual receptors, a series of preliminary Zone of Theoretical Visibility (ZTV) plans have been prepared. Two types of ZTV have been generated:

- Bare earth ZTVs - which show the maximum theoretical extent of visibility of the wind turbines taking account of topography but no intervening buildings or vegetation. As is typical for all such ZTVs, the visibility shown on the plans is exaggerated and the actual extent of visibility of any development on the site would be considerably more constrained than is indicated on these preliminary ZTVs. The bare earth ZTVs have been generated for the hub height of the wind turbines (assumed to be 125m) for the purposes of this exercise and also at the maximum blade tip height (assumed to be 200m).

- Screened ZTVs – which show the maximum theoretical extent of visibility of the turbines taking account of topography but also the screening effect of buildings (modelled at 7m in height) and blocks of woodland (modelled at 15m in height). These ZTVs do not take into account some localised features such as smaller groups of trees or hedgerows and therefore typically exaggerate the extent of visibility.

6.3.22 The purpose of the ZTVs at this scoping stage is simply to identify the maximum possible extents of visibility and to help identify potential visual receptors. Importantly, ZTVs indicate areas from where a wind farm is theoretically visible within the study area, but they cannot show what it would look like, nor indicate the nature or magnitude of landscape or visual impacts.

6.3.23 In accordance with Visual Representation of Wind Farms Version 2.2 and for the purposes of scoping, a set of ZTVs has been prepared extending out to 45km from the indicative study area. As suggested in the above guidance, these plans are presented on an A1 sheet of paper. An A3 enlargement of a 10km radius surrounding the indicative study area has also been provided for ease of reference. The following ZTV plans have been provided:

- Figure 6-6 – ZTV Hub Height (bare earth) 45km radius
- Figure 6-7 - ZTV Blade Tip (bare earth) 45km radius
- Figure 6-8 – ZTV Hub Height (screened) 45km radius
- Figure 6.-9 - ZTV Blade Tip (screened) 45km radius
- Figure 6-10 - ZTV Hub Height (screened) 10km radius enlargement
- Figure 6-11 - ZTV Blade Tip (screened) 10km radius enlargement

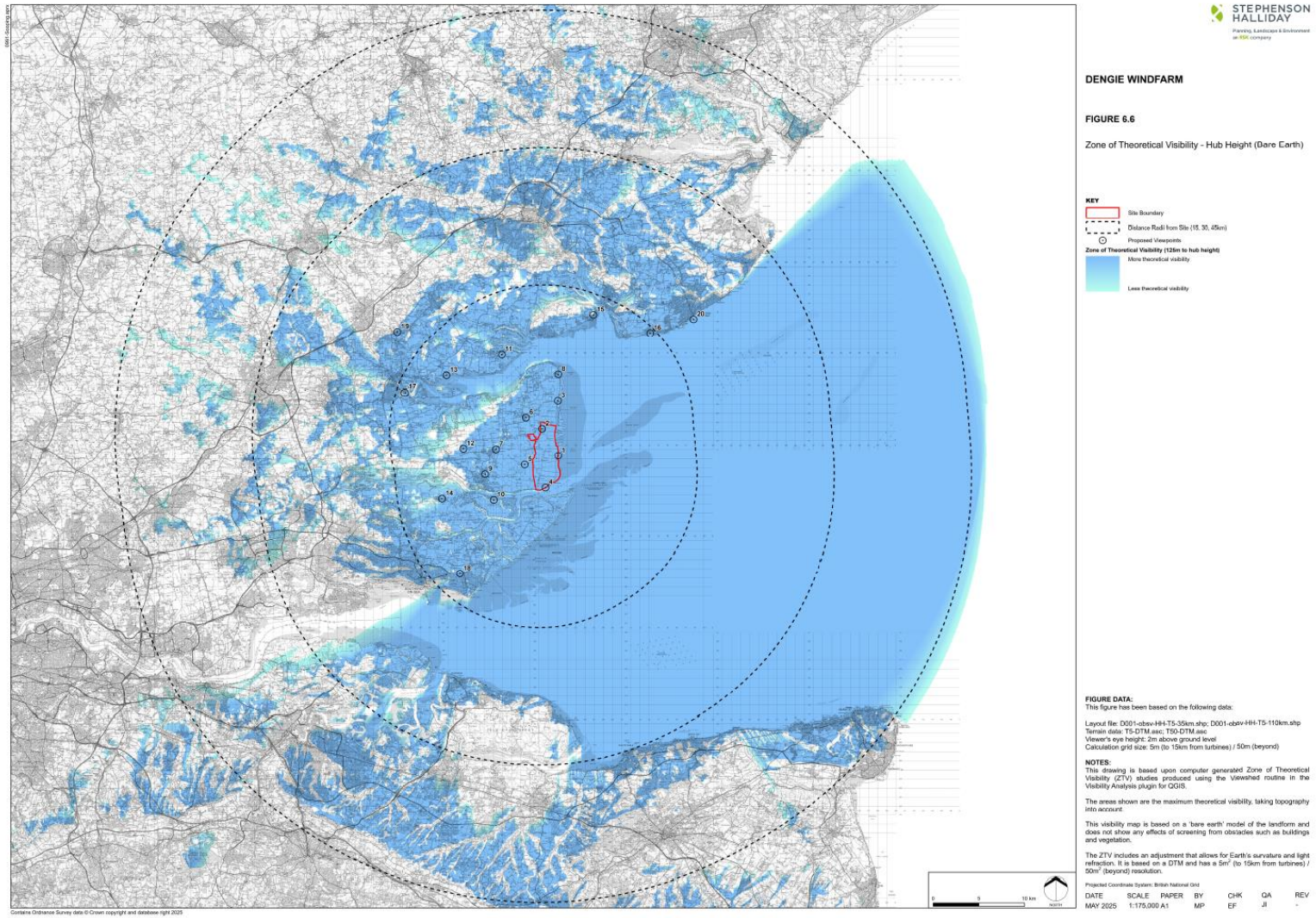

Figure 6-6: ZTV Hub Height (bare earth) 45km radius

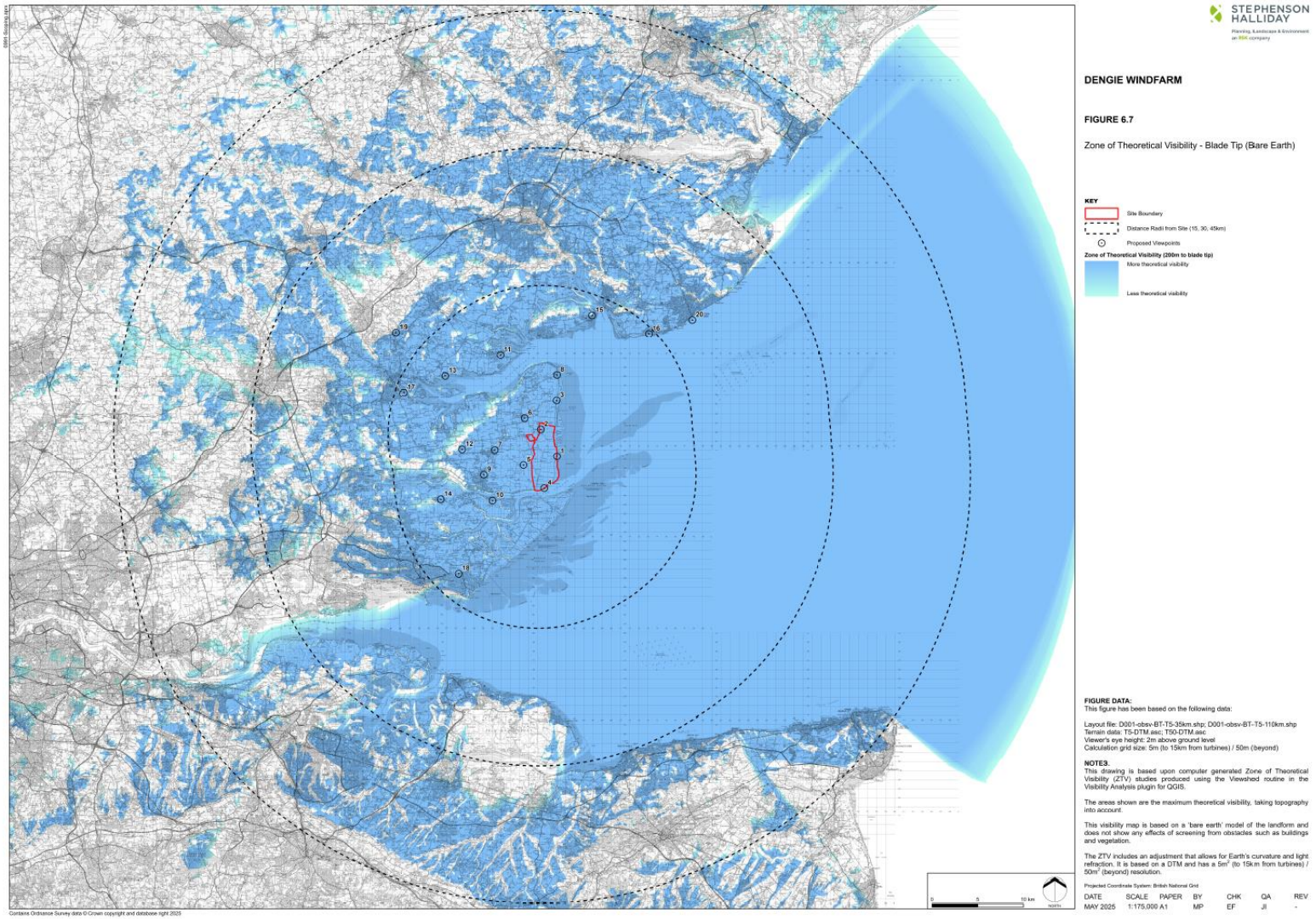

Figure 6-7: ZTV Blade Tip (bare earth) 45km radius

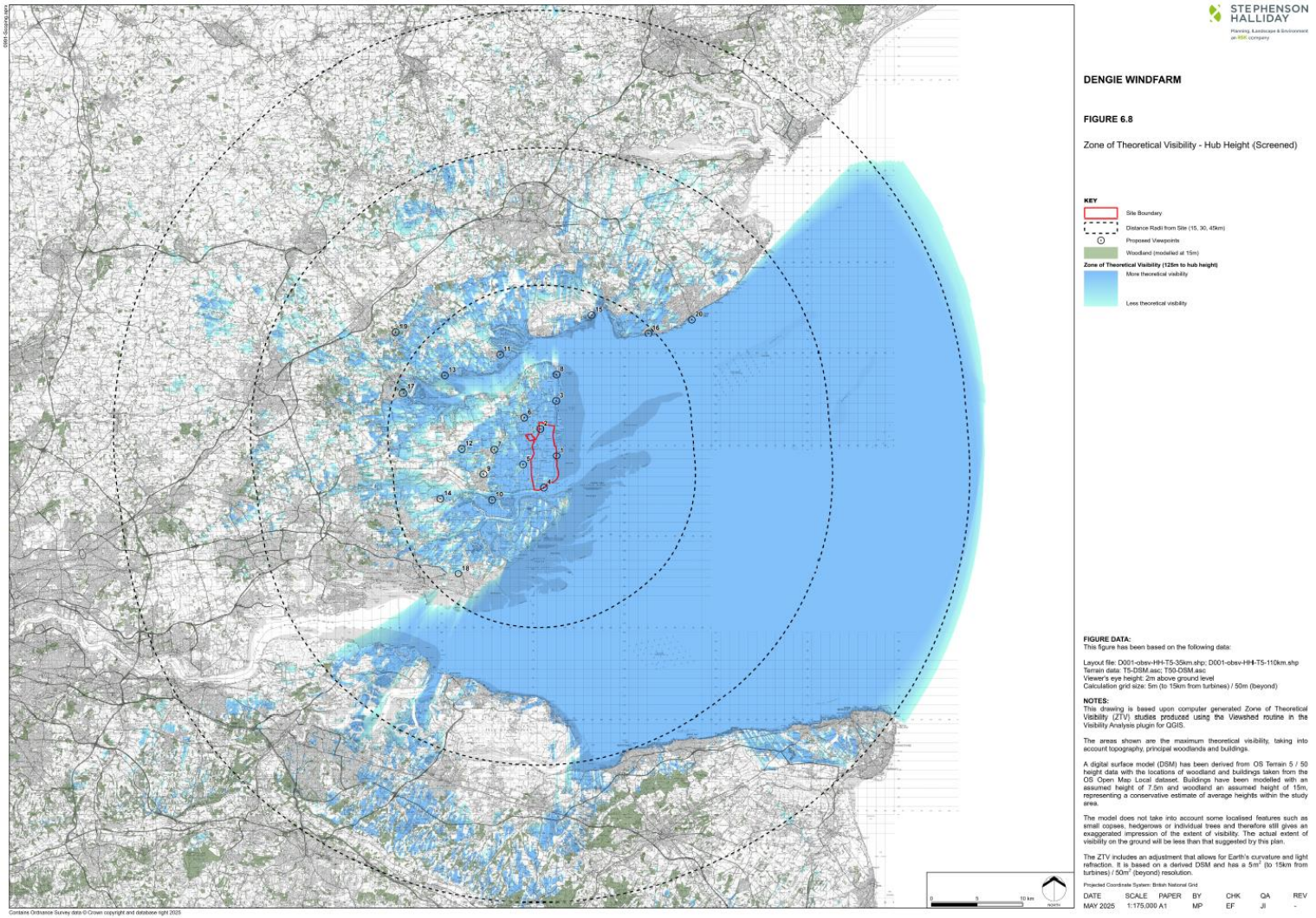

Figure 6-8: ZTV Hub Height (screened) 45km radius

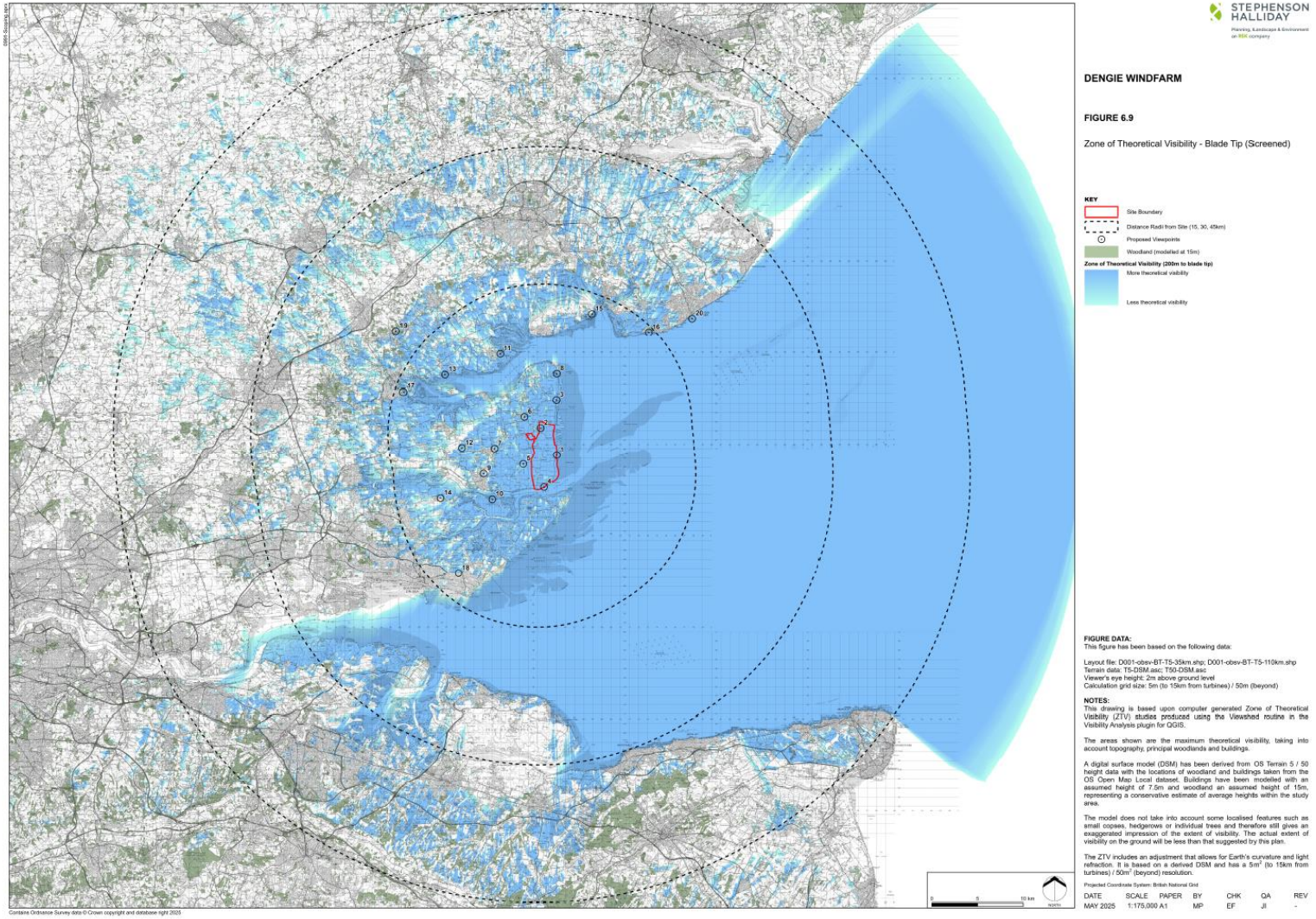

Figure 6-9: ZTV Blade Tip (screened) 45km radius

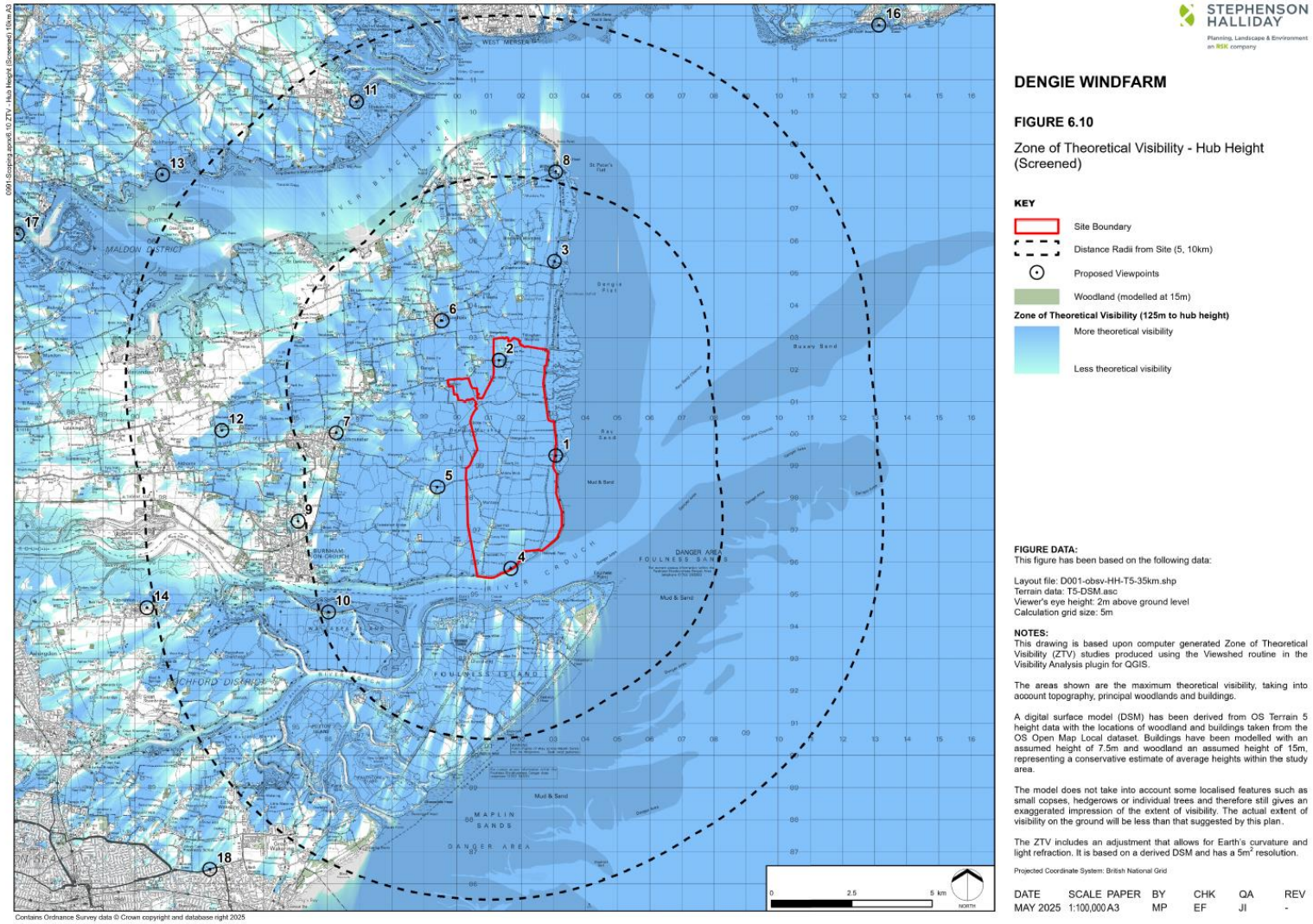

Figure 6-10: ZTV Hub Height (screened) 10km radius enlargement

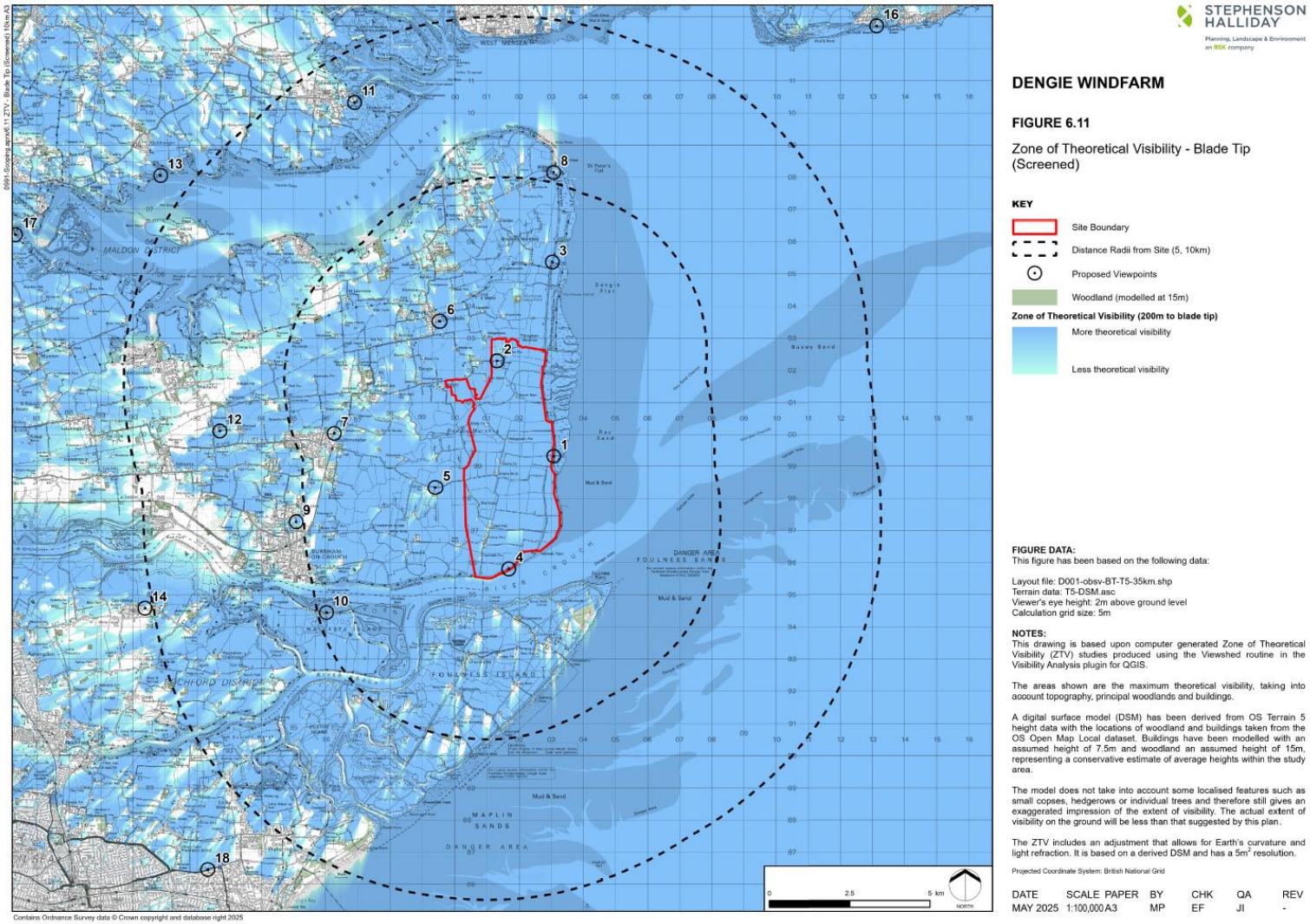

Figure 6-11: ZTV Blade Tip (screened) 10km radius enlargement

6.3.24 The ZTVs suggest that there may be views of the Proposed Development by both onshore and offshore visual receptors.

6.3.25 Visual receptors of the Proposed Development are likely to include:

- Residents (both within settlements and at isolated farmsteads/dwellings);
- Recreational users of the public rights of way and visitors to tourist attractions and nature reserves throughout the study area;
- Farmers working the land;
- Users of local roads; and
- Users of leisure craft on the rivers and coastal edge.

6.3.26 The nearest settlements are Dengie and Asheldham (approximately 2km and 3-4km to the west respectively), Tillingham (approximately 2-3km to the west), Bradwell on Sea (approximately 4-5km to the north west), Churchend on Foulness Island (approximately 3km to the south) Southminster (approximately 5-6km to the west) and Burnham on Crouch (approximately 6km to the west). On the northern side of the Blackwater Estuary, West Mersea is located approximately 8km to the north of the indicative site area and Tollesbury is located approximately 9km to the north.

6.3.27 Sparsely scattered farmsteads and individual properties are located across the Dengie Peninsula and a small number are located within 2km of the indicative site area.

6.3.28 It is noted that the King Charles III England Coastal Path (a national trail) follows the sea wall to the immediate east of the indicative site boundary and users of this route will be assessed as a specific receptor in the LVIA. Otherwise, there are relatively few public rights of way in the immediate vicinity of the proposed turbines and the lanes which link the nearest properties are mostly private tracks with no public access.

Study Area

6.3.29 Best practice guidance for the assessment of landscape and visual effects (Guidelines for Landscape and Visual Impact Assessment - GLVIA 3) states:

'Scoping should … identify the area of landscape that needs to be covered in assessing landscape effects. This should be agreed with the competent authority, but it should also be recognised that it may change as the work progresses, for example as a result of fieldwork, or changes to the proposal. The study area should include the site itself and the full extent of the wider landscape around it which the Proposed Development may influence in a significant manner.'

6.3.30 and:

'Scoping should identify the area that needs to be covered in assessing visual effect, the range of people who may be affected by these effects and the related viewpoints in the study area that will need to be examined. The study area should be agreed with the competent authority at the outset and should consider the area from which the Proposed Development will potentially be visible. The emphasis must be on a reasonable approach which is proportional to the scale and nature of the Proposed Development.'

6.3.31 The ZTVs presented in Figures 6-6 – 6-11 suggest that, in theory, the proposed turbines may be visible up to and beyond 45km from the site in excellent visibility. However, it does not necessarily follow that significant landscape or visual effects would occur at this distance.

6.3.32 There are no landscape designations within 20km and no elevated peaks, mountains or recognised vantage points within 45km which might be particularly sensitive to long distance views.

6.3.33 The screened ZTVs indicate that beyond 15km, theoretical visibility of the turbines starts to become intermittent. Comparison between the hub height ZTV and blade tip ZTV suggests that, onshore, beyond 15km there would generally only be distant glimpses of turbine blade tips. Once intervening vegetation which is not captured in any of the ZTVs is also taken into account, it is likely that any visibility of the turbines beyond this distance would be of negligible significance.

6.3.34 From offshore, where the proposed turbines are likely to be visible up to 45km away, the existing offshore wind turbines at Kentish Flats, Gunfleet Sands and London Array are already prominent.

6.3.35 It should also be noted that from onshore, at any viewpoint beyond approximately 5km of the indicative study area, the proposed turbines would be viewed behind the existing wind turbines at Bradwell Marshes, Middlewick and Turncole.

6.3.36 Based on the extensive professional experience of Stephenson Halliday and the analysis undertaken to date (including site visits), it is considered that significant landscape and visual effects are likely to be limited to within 15km of the indicative study area at the most.

6.3.37 It is therefore proposed that the primary study area for the LVIA is set at 15km and that the focus of the assessment is on landscape and visual effects within this distance from the site. This proposed study area radius is considered to be proportionate to the scale of the development and adequate to identify all non-negligible effects on landscape and visual receptors.

6.3.38 For completeness and to accord with best practice guidance, ZTVs extending out to 45km will be included in the assessment and several assessment viewpoints will be adopted just beyond this distance in order to illustrate and justify this conclusion.

6.4 Environmental Measures

6.4.1 To date, the layout and the Proposed Development has been developed iteratively, taking into account any potential effects on landscape and visual amenity. It will continue to evolve during the EIA process, taking account of survey and early assessment findings as well as consultation feedback, until the design will be 'frozen' to allow final assessment.

6.4.2 The mitigation for landscape and visual effects is likely to be embedded within the site layout ensuring for example appropriate offsets from residential properties.

6.4.3 It is unlikely any major new planting (secondary mitigation) will be proposed as part of the development as it would have a negligible impact in terms of screening the proposed turbines and in any case blocks of planting are not a frequent characteristic of the baseline landscape. Any requirements for mitigation planting around the substation or elsewhere will be considered as is considered to be appropriate.

6.5 Potentially Significant Environmental Effects (Scoped in)

6.5.1 It is considered that likely significant effects may potentially be experienced by the receptors identified in Table 6- and it is therefore proposed to scope these receptors into the detailed LVIA that will be documented within the ES.

6.5.2 It is considered most appropriate to report effects on landscape character with reference to the LCAs defined in the Maldon District Landscape Character Assessment where appropriate. Both north of the Blackwater Estuary and south of the Crouch Estuary, land within 15km of the indicative site boundary lies outside of Maldon District. Beyond Maldon District, it is considered most appropriate to report effects on landscape character with reference to LCAs defined in the Essex County Landscape Character Assessment.

Table 6-1: Receptors/Effects Scoped in to the LVIA

Effect	Receptor(s)	Applicable Phase of Development
Changes in landscape character	Maldon LCA D8: Dengie Drained Estuarine Marsh	Construction/Operation/ Decommissioning
	Maldon LCA C1: Tollesbury Fleet Estuarine Marsh/Mudflats;	Operation
	Maldon LCA C2: Blackwater Estuarine March/Mudflats;	Operation
	Maldon LCA C3: Dengie Flats Estuarine March/Mudflats;	Operation
	Maldon LCA D1: Old Hall Marshes and Tollesbury Wick Drained Estuarine Marsh;	Operation
	Maldon LCA D6: Ramsey Drained Estuarine Marsh;	Operation
	Maldon LCA D7: Bradwell Drained Estuarine Marsh;	Operation
	Maldon LCA E1: Tolleshunt Coastal Farmland	Operation
	Maldon LCA E2: Tillingham and Latchingdon Coastal Farmland.	Operation
	Essex LCA F3: Dengie and Foulness Coast (for areas south of the River Crouch and not in Maldon District)	Operation
	Essex LCA F6: Mersea Island	Operation
	Essex LCA F7: Brightlingsea-Clacton-Frinton Coast	Operation
Changes in views / visual amenity	Settlements within 5km: Dengie/Asheldham; Tillingham; Bradwell on Sea, Churchend (Foulness Island)	Construction/Operation/ Decommissioning
	Settlements between 5km and 15km: Southminster, Burnham on Crouch, Tollesbury, West Mersea	Operation
	King Charles III England Coastal Path (National Trail)	Construction/Operation/ Decommissioning
	St Peters Way Recreational Trail	Operation

Effect	Receptor(s)	Applicable Phase of Development
	Other PROWs and adopted highways within 2km	Construction/Operation/ Decommissioning
	Other PROWs and adopted highways between 2km and 15km	Operation
	Wallasea Island Wild Coast Project and Nature Reserve	Operation
	Old Hall Marshes Nature Reserve and Copt Hall Marsh (National Trust property)	Operation
	Beaches and coastal leisure facilities between West Mersea and Clacton on Sea	Operation
	Recreational boat users in the coastal waters and the Crouch and Blackwater Estuaries	Operation

6.6 Potential Effects to be Scoped Out

6.6.1 It is considered that effects on the receptors set out in Table 6- are unlikely to be significant and it is therefore proposed to scope these receptors out of the LVIA.

Table 6-2: Receptors/Effects Scoped out of the LVIA

Effect	Receptor(s)	Justification
Changes in landscape character	Maldon LCA D9: Fambridge Drained Estuarine Marsh;	ZTVs demonstrate that there would be very limited visibility of the turbines from this LCA
	All other LCAs in Maldon District	All other LCAs are located at least 10km away from the indicative site boundary and whilst there may be some distant glimpses of proposed turbine blades, in any location where this is the case, the turbines would be visible behind the existing windfarms at Bradwell Marshes, Middle Wick and Turncole.
	All other LCAs in Essex County	All other LCAs are located at least 15km away from the indicative site boundary and whilst there may be some distant glimpses of proposed turbine blades, at this distance the magnitude of change is unlikely to be sufficiently large to result in a significant effect on landscape character.
Changes in views / visual amenity	Settlements beyond 15km including Southend on Sea, Maldon, Clacton on Sea, Colchester, Witham, South Woodham Ferrers, Wickford, Rayleigh, Basildon and Canvey Island.	Whilst the ZTVs suggest that some distant glimpses may be possible of the turbine blades from the very outer edges of these settlements, at this distance, any glimpses would have a small to negligible magnitude of effect on the wider views.

Effect	Receptor(s)	Justification
	PROWs and recreational activities beyond 15km from the indicative site boundary.	Whilst the ZTVs suggest that some distant glimpses may be possible of the turbines beyond 15km, the landform within the study area is relatively low lying and at distances over 15km, it is likely that any glimpses of the turbine blades would be lost amongst intervening landscape fabric.

6.7 Consultation to Date

6.7.1 There has been no consultation to date with statutory consultees in relation to landscape and visual matters. Following the submission of this Scoping Report, efforts will be made to consult with Essex County Council and Maldon District Council as appropriate to agree certain matters with regard the detail of the LVIA.

6.8 Assessment Methodology

6.8.1 The LVIA will be undertaken in accordance with published best practice as outlined above. Wherever possible, identified effects will be quantified, but the nature of landscape and visual assessment requires interpretation using professional judgement. In order to provide a level of consistency to the assessment, the prediction of magnitude and assessment of significance of the landscape and visual effects will be based on pre-defined criteria.

6.8.2 Baseline information will be gathered through a combination of desk study and site visits. The following desk based sources of baseline information will be reviewed:

- Ordnance Survey Maps and GIS datasets;
- Aerial photography;
- Definitive Public Right of Way GIS datasets;
- Local guidebooks and literature as appropriate;
- Planning policy and guidance (as identified above);
- National Character Area Profile (NCA) 81: Greater Thames Estuary, Natural England;
- MMO 1134: Seascape Character Assessment for the South East Inshore Marine Plan Area (2018) Land Use Consultants for Marine Management Organisation;
- Essex Landscape Character Assessment for the Essex & Southend-on-Sea Replacement Structure Plan Review (2003) Chris Blandford Associates;
- Landscape Character Assessment of the Essex Coast for SAIL (Schéma d'Aménagement Intègre du Littoral) and Essex County Council (2006) Essex County Council; and
- Braintree, Brentwood, Chelmsford, Maldon and Uttlesford Landscape Character Assessments (2006) Chris Blandford Associates.

6.8.3 GLVIA3 states that 'professional judgement is a very important part of the LVIA' (paragraph 2.23) and that 'in all cases there is a need for the judgements that are made to be reasonable and based on clear and transparent methods so that the reasoning applied at different stages can be traced and

examined by others.' (paragraph 2.24). It goes on at paragraph 3.32 to state that 'there are no hard and fast rules about what effects should be deemed 'significant" but LVIAs should always distinguish clearly between what are considered to be the significant and non-significant effects.'

6.8.4 The LVIA will define the existing landscape and visual baseline environment; assess its sensitivity to change; describe the key landscape and visual related aspects of the Proposed Development; and describe the magnitude and significance of the anticipated effects arising during construction, operation and decommissioning. The full assessment criteria for the assessment will be presented in the LVIA.

6.8.5 Receptor sensitivity will be assessed taking into account the component judgments about the value and susceptibility of the receptor. Scale of effect is the primary factor in determining magnitude; which may be higher if the effect is particularly widespread and / or long lasting, or lower if it is constrained in geographic extent and / or timescale.

6.8.6 The level of any identified landscape or visual effect will be assessed as major, moderate, minor or negligible, or intermediates of those levels.

6.8.7 Landscape and visual effects can be beneficial or adverse and, in some instances, may be considered neutral. Neutral effects are those which overall are neither adverse nor positive but may incorporate a combination of both. Taking a precautionary stance, changes to rural landscapes involving construction of man-made objects of a large scale are generally considered to be adverse.

6.8.8 All above ground infrastructure will be considered in the LVIA as visible features which either individually or collectively have the potential to give rise to significant landscape and visual effects.

6.8.9 For the avoidance of doubt, operational wind farms in the landscape will be treated as part of the baseline against which effects are assessed. Any alteration to the future baseline will be acknowledged in the assessment.

6.8.10 A selection of viewpoints will be used in the LVIA to consider effects on different receptor groups, at various distances from the Site and to illustrate any particularly sensitive views. Based on the ZTVs and field work undertaken to date, a selection of proposed viewpoints has been identified. The viewpoints are illustrated on the ZTVs and outlined in Table 6.3. Not all viewpoints have been 'ground truthed' at this stage, so grid references are approximate, and locations may be micro-sited to obtain the most representative view or greatest extent of views. Following scoping and agreement with consultees regarding the final selection of viewpoints, site visits will take place to capture landscape and visual photography at the agreed locations. Comments are invited on the proposed viewpoints.

6.8.11 It is important to note that viewpoints are representative of views from fixed points in the landscape. However, it is the effects on visual receptors (people) which is important in LVIA and therefore the effects will be reported on visual receptors rather than the representative viewpoints.

6.8.12 Annotated photographs will be provided for each of the assessment viewpoints used in the LVIA. The annotated photographs will accord with guidance for 'Type 1' visualisations as defined in Landscape Institute Technical Guidance Note 06/19 (TGN 06/19).

6.8.13 A series of photomontages will be presented for key viewpoints (locations to be determined through further consultation). The photomontages will be produced using the same base photographs as the annotated photographs and accord with guidance for 'Type 3' or 'Type 4' visualisations as defined in TGN 06/19.

6.8.14 Mitigation measures will be developed as appropriate and taken into consideration in the assessment of effects.

6.8.15 The LVIA will conclude by summarising which of the landscape and visual effects are considered to be 'significant'. This will be determined by the assessed level of effect on the landscape.

Table 6-3: Proposed Viewpoint Locations

VP No.	Location	Grid Reference		Direction	Distance (km)
1	KCIII Coast Path - Coate Outfall	603075	199321	E	0.5
2	Grange Road - Tillingham Marshes	601309	202296	W	1
3	KCIII Coast Path - Sandbeach Outfall	603035	205356	N	1
4	KCIII Coast Path - WW2 Obs Point	601676	195805	SW	1.2
5	Turncole Farm	599409	198336	SW	3.2
6	Tillingham	599536	203528	NW	3.6
7	Southminster	596268	200038	W	6
8	Chapel of St Peter-on-the-Wall	603074	208150	NW	7.2
9	Burnham on Crouch	595081	197272	SW	7.7
10	Wallasea Island Wild Coast Project	596026	194447	SW	8.7
11	Tollesbury Wick Marshes	596901	210325	NW	8.5
12	Mayland Hill	592704	200111	W	9
13	KCIII Coast Path - south of Goldhanger	595594	210251	NW	13
14	Canewden	590372	194584	SW	13.5
15	East Mersea	606919	214721	NNE	14.8
16	St Osyth Beach	613131	202706	NE	16
17	KCIII Coast Path - Maldon	586339	206218	NW	16.7
18	Southend on Sea	592331	186461	SW	17.7
19	Beacon Hill - Great Totham	585573	212845	NW	20
20	Clacton Pier	617870	214220	NE	20.5

Residential Visual Amenity Assessment (RVAA)

6.8.16 As set out within LI Technical Guidance Note 02 / 19 'Residential Visual Amenity Assessment (RVAA)':

'Changes in views and visual amenity are considered in the planning process. In respect of private views and visual amenity, it is widely known that, no one has 'a right to a view.' and:

'It is not uncommon for significant adverse effects on views and visual amenity to be experienced by people at their place of residence as a result of introducing a new development into the landscape. In itself this does not necessarily cause particular planning concern. However, there are situations where the effect on the outlook / visual amenity of a residential property is so great that it is not generally considered to be in the public interest to permit such conditions to occur where they did not exist before.'

6.8.17 The LVIA will present, as an appendix of the main assessment, a residential amenity assessment of visual effects on residential properties for any property where these is a possibility that the visual effects may approach the threshold described above. The residential visual amenity assessment will initially identify residential properties within 2km of the proposed turbines and then focus on those where the effects on private residential visual amenity are likely to be greatest.

6.8.18 It is proposed as part of the RVAA that several residential properties will be visited. Annotated photographs and photo-wire illustrations will be presented in the appendix of the ES as necessary to illustrate the effects.

Cumulative Landscape and Visual Effects

6.8.19 Cumulative landscape and visual effects will be assessed as necessary using the same methodology as for the main LVIA and in accordance with guidance contained within Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments.

6.8.20 In a broad generic sense, cumulative impacts result from the incremental changes caused by other past, present or reasonably foreseeable actions together with the project. However, an assessment of cumulative landscape and visual effects should focus on whether there are any potential cumulative impacts which are reasonably foreseeable and which are likely to influence the decision making of the Proposed Development, rather than an assessment of every potential cumulative effect , which in practice means focusing on other nearby development proposals and the effects that might arise from the combined influence of those developments on landscape and visual receptors.

6.8.21 As recommended in Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments, the LVIA will focus on the additional cumulative change which would be brought about by the Proposed Development.

6.8.22 As noted above, operational developments and those under construction are included in the baseline. Consented but as yet unconstructed development will be considered as the first scenario of the cumulative assessment.

6.8.23 Proposals which are the subject of a full planning application and which may give rise to likely significant effects cumulatively with the Proposed Development will be considered in subsequent scenarios.

6.8.24 Cumulative effects on landscape receptors arise from combined direct and/or indirect effects on the same receptor – such as two developments within the same character area; or one development within, and one visible from and adjoining character area.

6.8.25 Cumulative effects on visual receptors arise either from two (or more) developments both being visible from the same place; or from sequential views as people travel through the landscape.

6.8.26 In order to simplify what may otherwise be a complex assessment, where appropriate, the following approaches will also used:

- The cumulative assessment will consider scenarios within which developments may be 'grouped' - for instance two nearby cumulative proposals may be considered in one scenario if it is considered that the cumulative effects arising if one or both are developed are likely to be similar.
- Receptors judged to receive Negligible or Slight-Negligible magnitude effects will not be considered for cumulative effects on the basis that any significant effects arising would primarily be caused by the cumulative developments and would be unlikely to be contributed to by the Proposed Development.
- Only those receptors judged likely to experience effects from the cumulative development(s) being considered within a given scenario will be described within that scenario.

6.8.27 The cumulative assessment will be illustrated with cumulative ZTVs and visualisations as required.

Night Time Assessment

6.8.28 Night time effects will be assessed in accordance with Guidance on Aviation Lighting Impact Assessment.

6.8.29 It is not considered that the Proposed Development is in a sensitive dark sky landscape and it is noted that aviation lighting is visible on the offshore windfarms. A small number of night time visualisations will be presented in the ES to illustrate potential effects on night time landscape and visual amenity.

7 Biodiversity

7.1 Introduction

7.1.1 This chapter describes the proposed scope of the assessment of effects with respect to Biodiversity arising from the Proposed Development. This chapter describes:

- The biodiversity policy and legislative context (with particular focus on ornithology);
- Baseline conditions, including data sources, the proposed approach for baseline data collection and a summary of data collected to date;
- Potential ornithological features and likely significant effects of the development on biodiversity; and
- The proposed assessment methodology.

7.2 Review of Legislation, Policy and Relevant Guidance

7.2.1 Legislation, planning policy and guidance relating to biodiversity, and relevant to the Proposed Development and which will inform the design and requirements for assessment comprise of:

Legislation

- The Environment Act 2021[6];
- Conservation of Habitats and Species Regulations 2017 ('the Habitats Regulations') as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[7];
- Natural Environment and Rural Communities Act 2006 (as amended by the Environment Act 2021) ('the NERC Act') [8];
- Countryside and Rights of Way Act 2000 ('the CRoW Act') [9];
- Wildlife and Countryside Act 1981 (as amended) (WCA) [10];
- Protection of Badgers Act 1992 ('the Protection of Badgers Act') [11];
- Hedgerow Regulations 1997 [12]; and

[6] The Environment Act 2021. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents?section-102-3
[7] The Conservation of Habitats and Species Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made
[8] The Natural Environment and Rural Communities Act 2006 c.16. Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents
[9] Countryside and Rights of Way Act 2000 c.37. Available at: https://www.legislation.gov.uk/ukpga/2000/37/contents
[10] Wildlife and Countryside Act 1981 c.69. Available at: https://www.legislation.gov.uk/ukpga/1981/69
[11] The Protection of Badgers Act 1992 c.51. Available at: https://www.legislation.gov.uk/ukpga/1992/51/contents
[12] The Hedgerow Regulations 1997. Available at: https://www.legislation.gov.uk/uksi/1997/1160/regulation/1/made (Accessed: 15th January 2022)

- The Town and Country Planning Act 1990[13].

Planning Policy

National

- National Planning Policy Framework[14]; and
- Overarching National Policy Statement for Energy (EN-1)[15].

Local

- Maldon District Local Development Plan 2014-2029[16]; and
- Mayland Parish Council Neighbourhood Plan 2021-2042[17].

7.3 Baseline Conditions

7.3.1 The baseline conditions and potential ecological constraints have been identified using a combination of desk and field-based study. Desk study information has been gathered from freely available sources including;

- JNCC Multi-Agency Geographic Information for the Countryside website (Magic.defra.gov.uk);
- Published reports from other nearby development and applications included Bradwell B Nuclear Power station and Turncole and Middlewick wind farms; and
- Wetland Bird Survey (WeBS) data published by the British Trust for Ornithology (BTO).

7.3.2 Baseline surveys completed to date are described in Table 7.1 further surveys are planned for 2025-2026, and are described in Table 7-7.

Table 7-1: Summary of surveys completed to date

Survey Type	Survey Guidance	Date completed
Extended Habitat Survey	UK Habitat Classification – UKHab Ltd (2023) UK Habitat Classification Version 2.0 (at www.ukhab.org)	Summer 2024
Otter and Water Vole Survey	Dean, M, Strachan, R., Gow, D., Andrews, R., Matthews, F. and Chanin,	Summer 2024 and Winter 2024

[13] Town and Country Planning Act 1990. Available at: https://www.legislation.gov.uk/ukpga/1990/8/contents/enacted (Accessed: 8th January 2024)
[14] Ministry of Housing, Communities, and Local Government (2024). National Planning Policy Framework. Available at: National Planning Policy Framework (publishing.service.gov.uk)
[15] Overarching National Policy Statement for Energy (EN-1), 2023, Available at: EN-1 Overarching National Policy Statement for Energy
[16] Maldon District Local Development Plan 2014-2029 https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf
[17] Mayland Parish Council Neighbourhood Plan 2021-2042 https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwi8gLmuqOSLAxXVW0EAHanmBsgQFnoECBUQAQ&url=https%3A%2F%2Fwww.maldon.gov.uk%2Fdownload%2Fdownloads%2Fid%2F19731%2F01_mayland_neighbourhood_plan_submission_version.pdf&usg=AOvVaw13o2wKjgvHJC6cGwaTyCtg&opi=89978449

Survey Type	Survey Guidance	Date completed
	P. (2016) The Water Vole Mitigation Handbook. Mammal Society Mitigation Guidance Series. Chanin P (2003). Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.	
Bat activity surveys (transects and static detection)	Collins, J (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition) The Bat Conservation Trust, London. NatureScot (2021) Bats and onshore wind turbines – survey, assessment and mitigation	Spring -Autumn 2024
Great Crested Newt (eDNA)	Biggs J., Ewald, N., Valentini, A., Gaboriaud C., Dejean, T., Griffiths R.A., Foster, J., et al. (2015). Using eDNA to develop a national citizen science-based monitoring programme for the great crested newt (*Triturus cristatus*). Biological Conservation 183, 19–28	Spring 2024
Winter Walkover Surveys for birds	Gilbert, G., Gibbons, D.W., & Evans, J. (1998) Bird Monitoring Methods: A Manual of Techniques for UK Key Species. The Royal Society for the protection of Birds, Sandy, Bedfordshire, England.	December 2023 – March 2024 September 2024 – March 2025
Vantage Point Surveys for birds	Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms.	April 2024 – August 2024 October 2024 – March 2025

Designated Sites

7.3.3 An initial desk study has been undertaken to identify designated sites which occur within the potential Zone of Influence (ZoI) of the Proposed Development. Search areas have been defined as follows;

- International Statutory Designated Sites (Special Protection Areas, Special Areas of Conservation and Ramsar Sites) – 10km, extended to 20km for SPAs
- National Statutory Designated Sites (Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs)); - 5km and
- Local Statutory Designated Sites (Local Nature Reserves (LNRs)) – 2km.

7.3.4 Figure 7-1 shows the International statutory designated sites within 10km (SACs) and 20km (SPAs and Ramsar sites only) and Figure 7-2 shows the National statutory designated sites within 5km. A summary of the designated sites identified, the distances from the Proposed Development and the features for which they are designated is provided in Table 7-2.

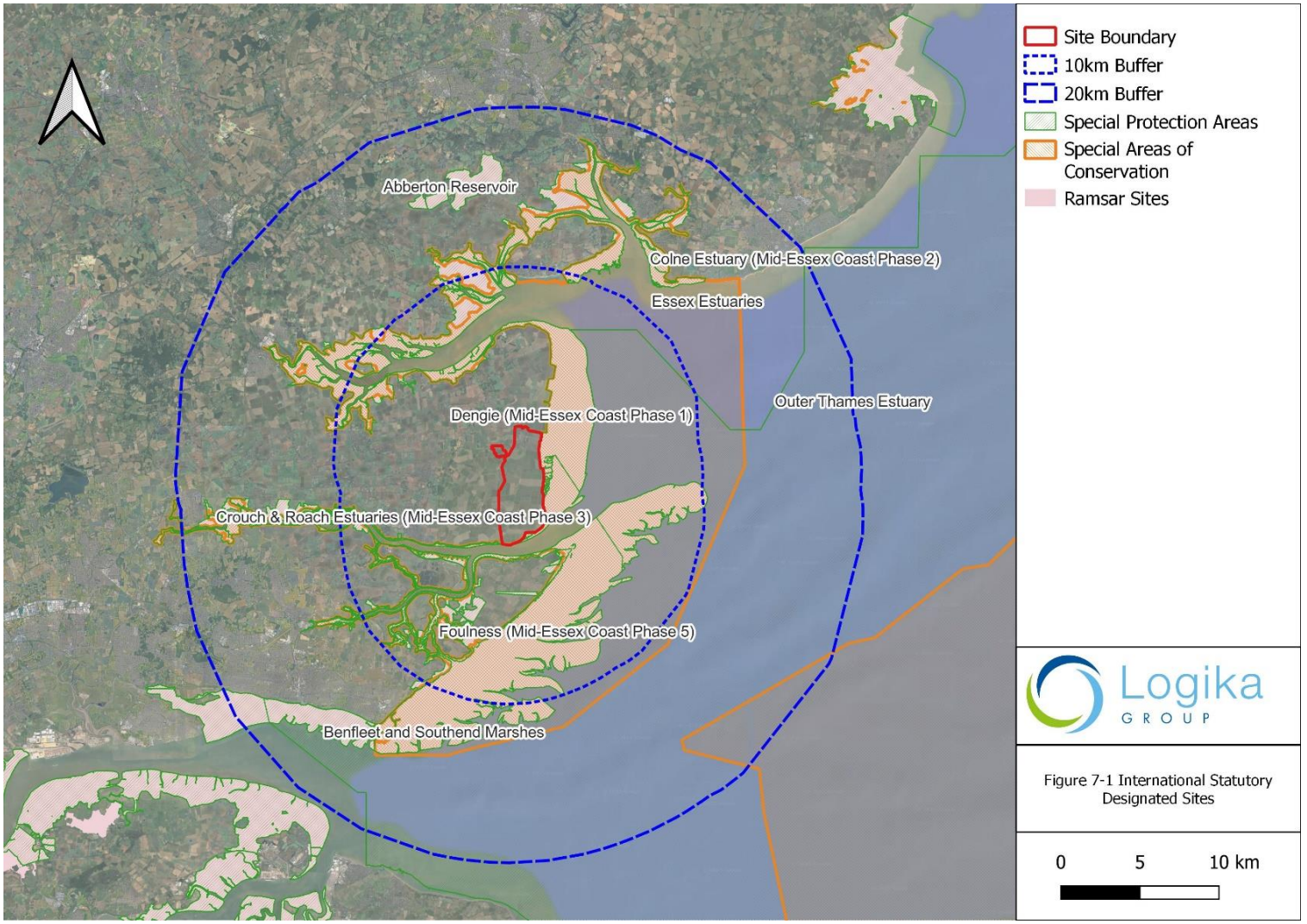

Figure 7-1: International statutory designated sites within 10km (SACs) and 20km (SPAs and Ramsar sites only)

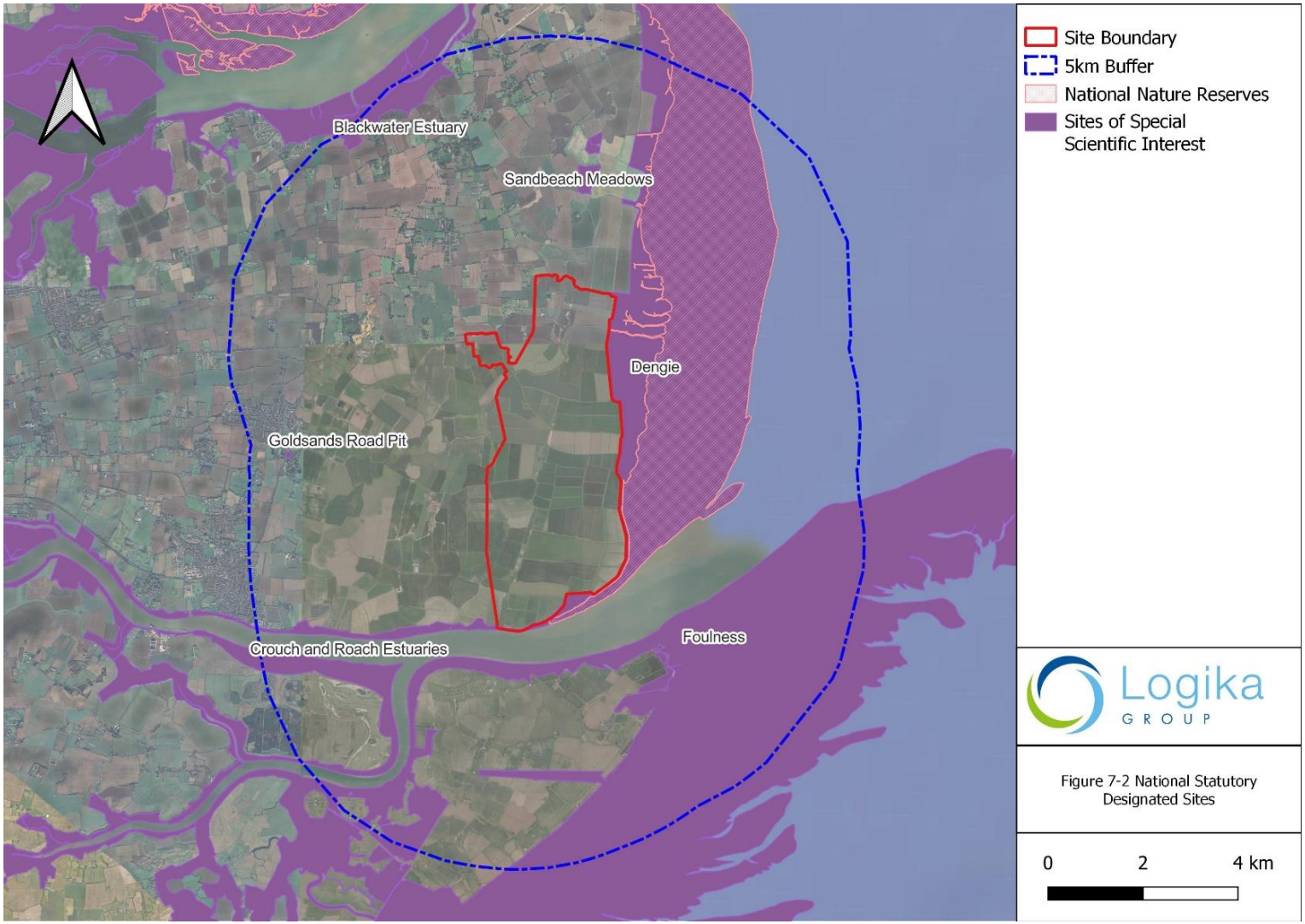

Figure 7-2: National statutory designated sites within 5km

Table 7-2: Summary of designated sites

Site Name (Site Code)	Distance and Direction from site	Summary of Designated features
Internationally Designated Sites		
Dengie SPA (UK9009242)	0km East	A046a *Branta bernicla bernicla*; Dark-bellied brent goose (non-breeding) A082 *Circus cyaneus*; Hen harrier (non-breeding) A141 *Pluvialis squatarola*; Grey plover (non-breeding) A143 *Calidris canutus*; Red knot (non-breeding) Waterbird assemblage
Dengie Ramsar (UK11018)	0km East	Dengie has 11 species of nationally scarce plants: Crambe maritima, Hordeum marinum, Inula crithmoides, Limonium humile, the glassworts Salicornia perennis and S. pusilla, Spartina maritima, Suaeda vera, and the eelgrasses Zostera angustifolia, Z. marina and Z. noltii. The invertebrate fauna includes Red Data Book Species including a weevil Baris scolopacea, a horsefly Atylotus latistriatus and a jumping spider Euophrys browningi. The Dengie regularly supports over 20,000 waterfowl in winter. The Dengie had, in the five-year period 1987/88 to 1991/92, an average peak count of 27,947 birds, comprising 3,146 wildfowl and 24,901 waders. In addition, the Dengie has over the same period regularly supported, in winter, internationally important populations of species of waterfowl: 2,250 Branta bernicla bernicla (1.3% of the total world population), 7,763 Calidris canutus (2.2% of east Atlantic flyway pop.) and 1,752 Pluvialis squatarola (1% of the east Atlantic flyway pop.).
Essex Estuaries SAC	0km East	H1110. Sandbanks which are slightly covered by sea water all the time; Subtidal sandbanks H1130. Estuaries H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats H1310. Salicornia and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand H1320. Spartina swards (Spartinion maritimae); Cord-grass swards H1330. Atlantic salt meadows (Glauco-Puccinellietalia maritimae) H1420. Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi); Mediterranean saltmarsh scrub
Outer Thames Estuary SPA (UK9020309)	0km east	A001 *Gavia stellata*; Red-throated diver (non-breeding) A193 *Sterna hirundo*; Common tern (Breeding) A195 *Sternula albifrons*; Little tern (Breeding)
Crouch & Roach Estuaries (UK9009244)	0km Southwest	A046a *Branta bernicla bernicla*; Dark-bellied brent goose (non-breeding)

Site Name (Site Code)	Distance and Direction from site	Summary of Designated features
Crouch and Roach Estuaries Ramsar (UK11058)	0km Southwest	Among the nationally scarce plants present are: Ceratophyllum submersum, Hordeum marinum, Limonium humile, Myosurus minimus, Parapholis incurva, Suaeda vera and Trifolium squamosum. The area also contains the following Red Data Book invertebrates: a damselfly Lestes dryas, which is classified as vulnerable, the following invertebrates which are classified as rare: a beetle Graptodytes bilineatus and the moths Malacosoma castrensis and Eucosma catoptrana. The area is also important for wintering water birds. During the period 1987/88 to 1991/92 an average peak count of 2,820 Branta bernicla bernicla was recorded.
Foulness Ramsar (UK11026)	0.75km South	Limosa lapponica; Bar-tailed godwit (wintering) *Branta bernicla bernicla*; Dark-bellied brent goose (wintering) *Pluvialis squatarola*; Grey plover (wintering) *Calidris canutus*; Red knot (wintering) *Haematopus ostralegus*; Oystercatcher (wintering) *Tringa totanus*; Common redshank (wintering) *Limosa limosa islandica*; Black-tailed godwit (wintering) *Recurvirostra avosetta*; Pied avocet (Breeding and wintering) *Sterna hirundo*; Common tern (Breeding) *Sterna albifrons*; Little tern (Breeding) *Sterna sandvicensis*; Sandwich tern (Breeding)
Foulness SPA (UK9009246)	0.75km South	A046a *Branta bernicla bernicla*; Dark-bellied brent goose (non-breeding) A082 *Circus cyaneus*; Hen harrier (non-breeding) A130 *Haematopus ostralegus*; Eurasian oystercatcher (non-breeding) A132 *Recurvirostra avosetta*; Pied avocet (Breeding) A137 *Charadrius hiaticula*; Ringed plover (Breeding) A141 *Pluvialis squatarola*; Grey plover (non-breeding) A143 *Calidris canutus*; Red knot (non-breeding) A157 Limosa lapponica; Bar-tailed godwit (non-breeding) A162 *Tringa totanus*; Common redshank (non-breeding) A191 *Sterna sandvicensis*; Sandwich tern (Breeding) A193 *Sterna hirundo*; Common tern (Breeding) A195 *Sterna albifrons*; Little tern (Breeding) Waterbird assemblage
Blackwater Estuary SPA (UK9009245)	4.3km Northwest	A046a *Branta bernicla bernicla*; Dark-bellied brent goose (non-breeding) A059 *Aythya ferina*; Common pochard (Breeding) A082 *Circus cyaneus*; Hen harrier (non-breeding) A137 *Charadrius hiaticula*; Ringed plover (Breeding) A141 *Pluvialis squatarola*; Grey plover (non-breeding) A149 *Calidris alpina alpina*; Dunlin (Non-breeding) A156 *Limosa limosa islandica*; Black-tailed godwit (non-breeding) A195 *Sterna albifrons*; Little tern (Breeding) Waterbird assemblage

Site Name (Site Code)	Distance and Direction from site	Summary of Designated features
Blackwater Estuary Ramsar (UK11007)	4.3km Northwest	Twenty-two nationally scarce plant species are present: Bupleurum tenuissimum, Carex divisa, Ceratophyllum submersum, Chenopodium botryodes, Euphorbia paralias, Limonium humile, Inula crithmoides, Myosurus minimus, Hordeum marinum, Puccinellia fasciculata, P. rupestris, Ranunculus baudotii, Ruppia cirrhosa, Salicornia perennis, S. pusilla, Spartina maritima, Suaeda vera, Trifolium ornithopodioides, T. squamosum, Zostera angustifolia, Z. marina and Z. noltii. The invertebrate fauna is well represented and includes at least 16 Red Data Book species. Among these are the endangered water beetle Paracymus aeneus and the vulnerable damselfly Lestes dryas, and vulnerable flies Aedes flavescens, Erioptera bivittata, and Hybomirra expollicata. Notable also are nationally important numbers of breeding waterbirds: Aythya ferina, Sterna albifrons and Charadrius hiaticula; and nationally important wintering numbers of Phalacrocorax carbo, Tadorna tadorna, Anas strepera, Anas crecca, Bucephala clangula, Charadrius hiaticula, Numenius arquata and Tringa totanus.
Colne Estuary Ramsar (UK11015)	9.4km North	Twelve species of nationally scarce plants are present: Bupleurum tenuissimim, Carex divisa, Frankenia laevis, Hordeum marinum, Inula crithmoides, Limonium binervosum, Salicornia perennis, S. pusilla, Spartina maritima, Suaeda vera, Zostera marina and Z. noltii. The invertebrate fauna is particularly rich, reflecting the diversity of wetlands habitats, and includes at least 38 national Red Data Book species. The rarest of these include the endangered Dyschirius extensus, Cloeophora fuscicornis and Ethmia terminella. The site regularly supports over 20,000 waterfowl in winter. In the five-year period 1987/88 to 1991/92 the average peak count was 22,012 waders and 8,675 wildfowl. The Colne Estuary regularly supports, in winter, internationally important populations of two waterfowl species. During the same five-year period the following average peak counts were recorded: 5,315 Branta bernicla bernicla (3.1% of total world population) and 1,252 Tringa totanus (1.1% of the east Atlantic flyway pop.). Notable also are nationally important breeding populations of Aythya ferina, Charadrius hiaticula and Sterna albifrons; and nationally important wintering populations of Phalacrocorax carbo, Cygnus olor, Tadorna tadorna, Bucephala clangula, Charadrius hiaticula, Pluvialis squatarola, Calidris alba, Calidris alpina, Limosa limosa and Numenius arquata.
Colne Estuary SPA (UK90009245)	9.4km North	A046a *Branta bernicla bernicla*; Dark-bellied brent goose (non-breeding) A059 *Aythya ferina*; Common pochard (Breeding) A082 *Circus cyaneus*; Hen harrier (non-breeding) A137 *Charadrius hiaticula*; Ringed plover (Breeding) A162 *Tringa totanus*; Common redshank (non-breeding)

Site Name (Site Code)	Distance and Direction from site	Summary of Designated features
		A195 *Sterna albifrons*; Little tern (Breeding) Waterbird assemblage
Abberton Reservoir Ramsar (UK11001)	13.9km Northwest	Peak counts of wintering water birds regularly exceed 20,000 individuals (34,732*), including internationally important numbers* of Anas strepera (482), A. crecca (4,569) and A. clypeata (636) and nationally important numbers of several other species, notably Fulica atra (11,329). Moulting concentrations of Anatidae in late summer include nationally important numbers of Cygnus olor, Aythya ferina and A. fuligula. The damp, unimproved pasture bordering parts of the reservoir support feeding waders in winter, whilst, in other areas, improved grassland is important for grazing Anas penelope. The site also supports the UK's only tree-nesting colony of Phalacrocorax carbo
Abberton reservoir SPA (UK9009141)	13.9km Northwest	A005 *Podiceps cristatus*; Great crested grebe (non-breeding) A017 *Phalacrocorax carbo*; Great cormorant (Breeding) A036 *Cygnus olor*; Mute swan (non-breeding) A050 *Anas penelope*; Eurasian wigeon (non-breeding) A051 *Anas strepera*; Gadwall (Non-breeding) A052 *Anas crecca*; Eurasian teal (non-breeding) A056 *Anas clypeata*; Northern shoveler (non-breeding) A059 *Aythya ferina*; Common pochard (non-breeding) A061 *Aythya fuligula*; Tufted duck (non-breeding) A067 *Bucephala clangula*; Common goldeneye (non-breeding) A125 *Fulica atra*; Common coot (non-breeding) Waterbird assemblag
Benfleet and Southend Marshes SPA (UK9009171)	14km Southwest	A046a *Branta bernicla bernicla*; Dark-bellied brent goose (non-breeding) A137 *Charadrius hiaticula*; Ringed plover (Non-breeding) A141 *Pluvialis squatarola*; Grey plover (Non-breeding) A143 *Calidris canutus*; Red knot (Non-breeding) A149 *Calidris alpina alpina*; Dunlin (Non-breeding) Waterbird assemblage
Benfleet and Southend Marshes Ramsar (UK11006)	14km Southwest	The site is regularly host to over 20,000 waterfowl in winter. During the five year period 1985/86 to 1989/90 an average peak of 30,400 birds was recorded, comprising 22,800 waders and 7,600 wildfowl. During this period the site also supported internationally important wintering populations of the following migratory waterfowl species: 7,200+ Branta bernicla bernicla (4% of the world population); 2,500 Pluvialis squatarola (1% of the east Atlantic flyway pop.); and 8,400 Calidris canutus (2% of E. Atlantic flyway pop.). Notable also are nationally important wintering populations of Charadrius hiaticula and Calidris alpina.
Nationally Designated sites		

Site Name (Site Code)	Distance and Direction from site	Summary of Designated features
Dengie SSSI	0km east	Aggregations of breeding birds - Bearded tit *Panurus biarmicus*, Ringed plover *Charadrius hiaticula* Aggregations of non-breeding birds - Brent goose (dark-bellied), Dunlin, Grey plover, Knot and Turnstone Coastal vegetated shingle (SD1-3) IA - Saltmarsh Morphology Nationally scarce plant - Limonium humile, Lax-flowered Sea-lavender SM4-28 – Saltmarsh Vascular plant assemblage
Dengie NNR	0km east	Archaeological and historical features Inter-tidal mud Public access and Site Infrastructure Research
Sandbeach Meadows SSSI	0.02km North	Aggregations of non-breeding birds - Brent goose (dark-bellied)
Blackwater Estuary SSSI	4km Northwest	Aggregations of breeding birds - Bearded tit, Pochard *Aythya farina* Aggregations of non-breeding birds - Black-tailed godwit, Bar-tailed godwit, Brent goose (dark-bellied), Curlew, Dunlin, Gadwall, Goldeneye, Grey plover, Redshank, Ringed plover, Shelduck, Spotted redshank and Teal Coastal vegetated shingle (SD1-3) EC - Mesozoic - Tertiary Fish/Amphibia Invert. assemblage M3 saltmarsh, estuary and mudflat SM4-28 – Saltmarsh Vascular plant assemblage

Habitats

7.3.5 The majority of habitat present within the indicative site boundary is intensively managed arable farmland that is delineated by hedgerows (often defunct) and ditches. Ditches within the search area/the indicative site are typically subject to regular management and clearance, however areas of marginal and wetland vegetation has established in some cases with areas of reedbed present. There are occasional small stands of trees and a small number of ponds (often associated with tree planting).

7.3.6 There is very little habitat within the indicative site that is listed on the Priority Habitat Inventory (also referred to as Habitats of Principal Importance). The very small pockets that do exist are either areas of coastal and floodplain grazing marsh (including Sandbeach Meadows SSSI and Bridgewick Marshes) or copses of deciduous woodland which often appear to be associated with farmyards and residential dwellings. There is no woodland listed on the Ancient Woodland Inventory present, although there is a single veteran oak and six notable trees (five smooth-leaved elm and one elm) shown on the Ancient Tree Inventory.

7.3.7 Full details of habitat surveys will be provided in support of the Environmental Statement

Birds

7.3.8 As described in Table 7-2, the Dengie Peninsula is surrounded by a range of designated sites for which non-breeding birds are a particular interest. This includes internationally important numbers of waders and wildfowl. The habitats also support a range of breeding birds associated with the farmland, ditch and wetland habitats.

7.3.9 Data from the BTO Webs counts for Dengie Flats is summarised in Table 7-3. This includes summarised counts for overwintering bird species for the mudflat areas that stretch between the Blackwater Estuary to the north of the peninsula and the Crouch Estuary to south. In the 5 non-breeding seasons between 2018/19 – 2022/23, the total number of birds recorded in this area has varied between 16,521 and 43,932 with internationally important numbers of dark-bellied brent geese, knot and grey plover all recorded.

Table 7-3: Summary of Wetland Bird Survey data from Dengie Flats for 2018/19 – 2022/23 – reproduced from British Trust for Ornithology

Species	Count					
	2018/19	2019/20	2020/21	2021/22	2022/23	Current 5yr Mean
Brent Goose (Dark-bellied - bernicla)	4670+	7358+	3000+	4000+	5342+	4874
Shelduck	170	192	61+	34+	109+	181
Shoveler	4	14	0	8+	30+	16
Gadwall	12	0	0	0	0	3
Wigeon	546	235+	220+	294+	530+	546
Mallard	124	58+	100	60+	410	211
Pintail	276	350	274	19	370	258
Teal	22	8	9	13+	200	60
Pochard	14	0	0	0	2+	5
Tufted Duck	16	0	1	0	6	6
Cormorant	500	13+	87+	5+	29	265
Oystercatcher	2000	4834+	1230+	2550+	2508	2973
Avocet	0+	0	0	0	1	0
Lapwing	831	485	250+	62	180	390
Golden Plover	3500	4850	5000+	650+	4200+	4388
Grey Plover	7820+	2051	600+	608+	950	3607

Species	Count					
	2018/19	2019/20	2020/21	2021/22	2022/23	Current 5yr Mean
Ringed Plover	285+	239+	35+	120+	330+	202
Whimbrel	6	2	2+	1+	4	4
Curlew	323+	272+	210+	62+	282	303
Bar-tailed Godwit	296	862	1+	40+	1200	786
Black-tailed Godwit	400+	8+	0	0	25	213
Turnstone	85+	110+	109+	70+	74+	90
Knot	15250	10000+	4000+	6000+	15006	15128
Sanderling	52	30	0+	0+	24+	41
Dunlin	5400+	4050+	970+	3300+	7000+	4144
Redshank	666+	220+	140+	214+	137+	275
Spotted Redshank	0	0	0	0	0	0
Greenshank	1	0	0	0	2	1
Sandwich Tern	2	0	0	2	3	1
Little Tern	3+	0	0	0	0	1
Common Tern	21+	8+	12+	0	1+	11

7.3.10 Surveys completed to date are detailed in Table 7-1. The text below provides a summary of results so far for both non-breeding and breeding birds.

Non-breeding Birds

7.3.11 Initial walkover surveys, completed in 2023/2024 focused on identifying areas of the search area which were used regularly by aggregations of wintering birds for feeding and/or roosting. The main focus of these surveys were species which are associated with the adjacent designated sites including dark-bellied brent geese, golden plover, wigeon and shelduck. Full details are provided in the summary report – Logika 2024 – Winter Bird Report 2023/2024 which is included as **Appendix 7A.** Figure 7-3 shows the transect routes completed for these surveys.

7.3.12 Dark-bellied brent geese were recorded throughout the survey period (December 2023 – March 2024) with a peak count of 3,821 individuals recorded during the December survey visit. Counts in excess of 3,000 birds were recorded in both January and February, though numbers reduced significantly during the March visit.

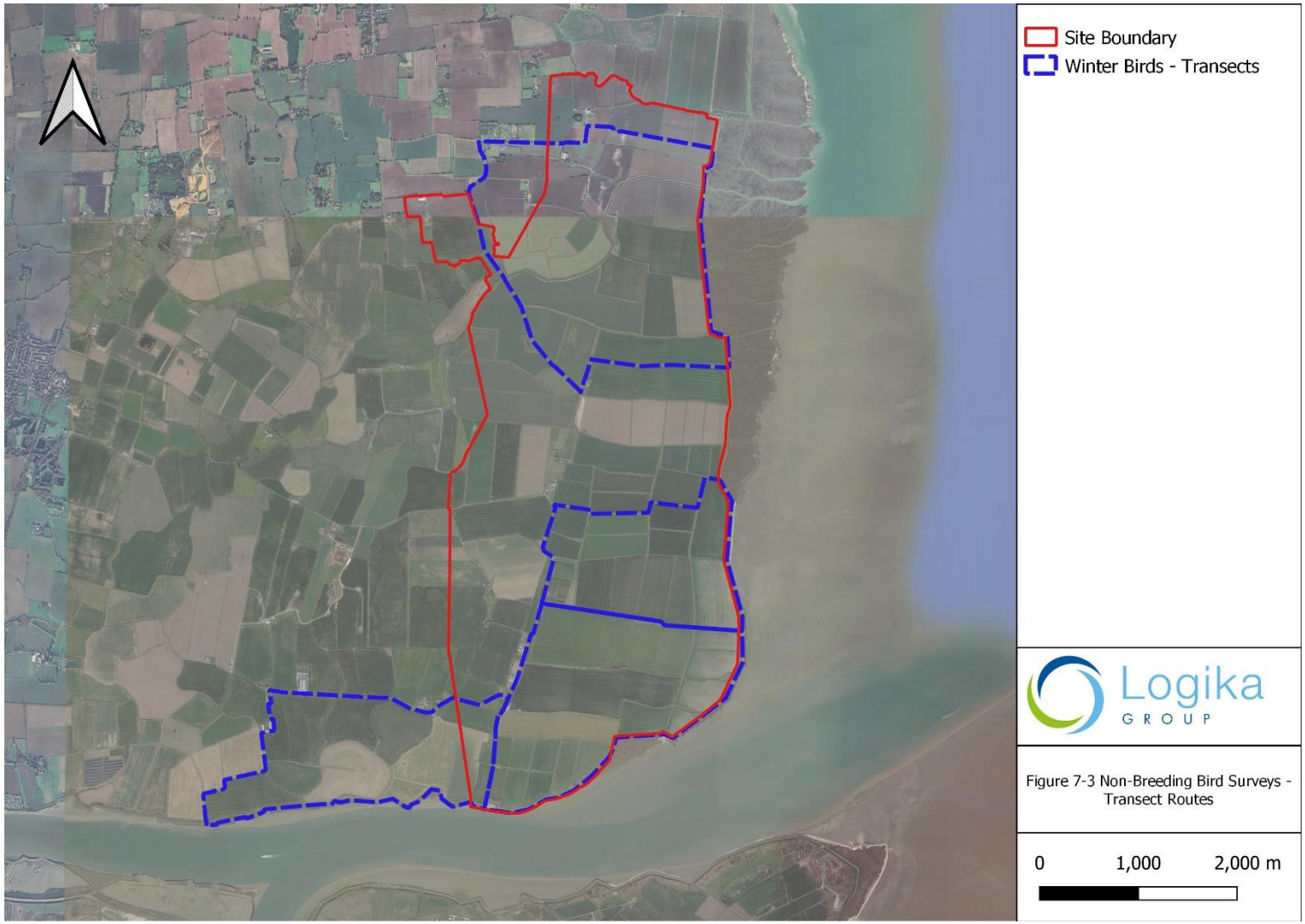

Figure 7-3: Non-breeding bird survey – transect routes

7.3.13 Other notable species recorded, specifically those which are designated features of the Dengie SPA and Ramsar sites, included grey plover (peak count of 50 birds) and hen harrier (recorded as individual birds).

7.3.14 In addition to hen harrier, Schedule 1 listed birds of prey, including marsh harrier, merlin, short-eared owl and peregrine were observed foraging in low numbers within the Site and over the adjacent saltmarshes; a peak count of five marsh harrier in March included a displaying male at a regular nesting location.

7.3.15 Waterfowl considered for their overall wintering assemblage within the Dengie were evident only in low numbers with peak counts of ducks including shelduck, shoveler, teal and wigeon below the numbers expected within Sites of importance. The peak counts of Shelduck (90 birds), Shoveler (225), Teal (240) and wigeon (100) all occurred in February, suggesting the birds utilise the area during periods of passage rather than over-winter.

7.3.16 Flocks of farmland birds, including corn bunting, linnet and yellowhammer were present foraging within fallow crops during the survey. With sizeable flocks of corn bunting and linnet forming between January and March, particularly in Transects 2 and 4; with peak counts of 600+ linnet in February, and 600 + corn bunting in March.

7.3.17 During the 2024/2025 non-breeding period, both winter walkover surveys and vantage point surveys were being conducted. Winter walkover surveys repeated the transects completed in 2023/2024 and a series of 3 vantage points were established. Figure 7-4 shows the location and direction of each vantage point and their associated 2km viewshed.

7.3.18 Vantage point surveys are being completed following best practice guidance produced by NatureScot, as described in Table 7-1, with the amount of monitoring being extended to account for the designated sites within the wider area and the population of non-breeding birds.

7.3.19 Survey results to date have recorded similar species to those recorded during the 2023/2024 winter walkover seasons with dark-bellied brent geese, golden plover, lapwing, marsh harrier, hen harrier, peregrine and kestrel all being recorded regularly. Full survey results will be provided alongside the Environmental Statement. It is also anticipated that further surveys would be completed during the non-breeding season in 2025/2026, as described in Section 7.6

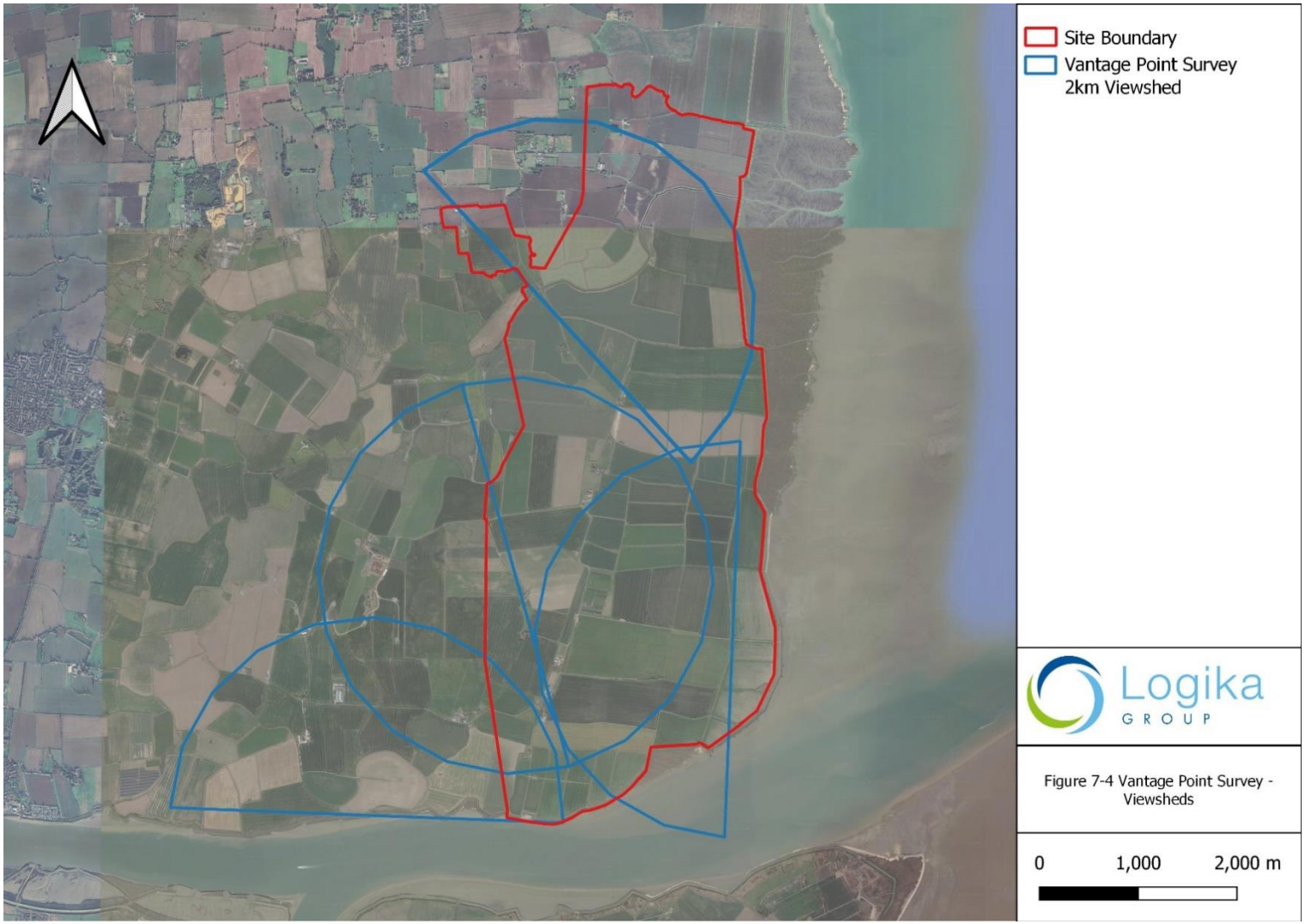

Figure 7-4: Vantage point survey – 2km viewsheds

Breeding Birds

7.3.20 Breeding bird surveys were completed in March – August 2024, focusing on vantage point surveys. A baseline report – Logika (2025)- Breeding Birds – Vantage Point Surveys, is provided as **Appendix 7B.** Surveys completed included completion of 36 hours of observation at each of the five vantage points (as described in Figure 7-4).

7.3.21 Marsh harrier were the most commonly recorded target species during the 2024 breeding bird surveys with 88 records. Marsh harriers were recorded from all five vantage point locations but flights were concentrated around VP1 and VP4.

7.3.22 Species which are features of nearby designated sites were recorded infrequently with relatively small numbers of oystercatcher and shelduck observed. Both are features of the Foulness Ramsar site and SPA, although noted as wintering features only.

7.3.23 Other target species recorded included raptors listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) including barn owl, hobby and merlin, though all were only recorded rarely – with fewer than five flights recorded of each species.

7.3.24 Further surveys for breeding birds will be completed in 2025 with a repeat of vantage point surveys. These will also be augmented with surveys for breeding raptors and territory mapping for passerines and other species as described in Section 7.6.

Bats

7.3.25 During the Extended habitat survey, consideration was given to the potential for the habitats within the Site to support foraging and commuting bats. This followed guidance developed by the Bat Conservation Trust.

7.3.26 In addition, bat activity surveys were also completed during 2024, comprising bat transect surveys and deployment of static bat detectors throughout the Site. A full baseline report will be provided alongside the planning application.

7.3.27 The habitats on site offer Low potential for foraging and commuting bats with arable habitats offering sub-optimal habitats for foraging. Hedgerows and ditches may offer potential for bats to commute or follow throughout the landscape but they are subject to intensive management and are not connected to optimal habitat in the wider area.

Results from the transects and static detector surveys recorded up to nine bat species with common pipistrelle, soprano pipistrelle and myotis sp. being the most commonly recorded.

7.3.28 Opportunities for roosting bats are limited on site with small areas of woodland and very few mature trees present. Potential roost sites within the wider area are likely limited to buildings and the small areas of woodland present.

7.3.29 Further consideration for bat roost potential will be completed in Summer 2025 along with further static analysis.

Badger

7.3.30 No observations of badger setts or field signs were made during walkover surveys completed in 2024 and 2025.

7.3.31 [redacted]

7.3.32 The habitats within the search area/the site, offer potential for foraging and commuting badger with field margins and the extensive ditch network providing suitable habitat. Habitats within the site are sub-optimal for sett building, though ditches and woodland areas may be used by badger.

Otter and water vole

7.3.33 Observations for otter and water vole signs were recorded as part of the Extended Habitat survey with a repeat survey completed in December 2024/January 2025.

7.3.34 Whilst ditches on site are subject to intensive management areas of marginal vegetation and reedbed are retained and offer suitable habitat for foraging, resting and breeding for both otter and water vole.

7.3.35 Field signs for water vole have been recorded including feeding stations and latrines. No confirmed burrows have been identified.

7.3.36 No field signs have been identified for otter to date.

Amphibians including great crested newt

7.3.37 The habitats on site offer limited potential to support amphibians, including great crested newt. Permanent ponds and waterbodies are scarce, and ditches are typically subject to intensive management. Where aquatic vegetation is able to persist, in ditches with reedbeds associated, the absence of suitable terrestrial habitat limits the ability of the ditch network to support significant populations of amphibians.

7.3.38 A review of aerial imagery identified twenty ponds within 500m of the Site. Of these, eleven ponds were excluded from the survey due to access restrictions, as they were located within private residential properties. Consequently, ten ponds were accessible for survey purposes. Locations of these ponds are shown on Figure 7-5.

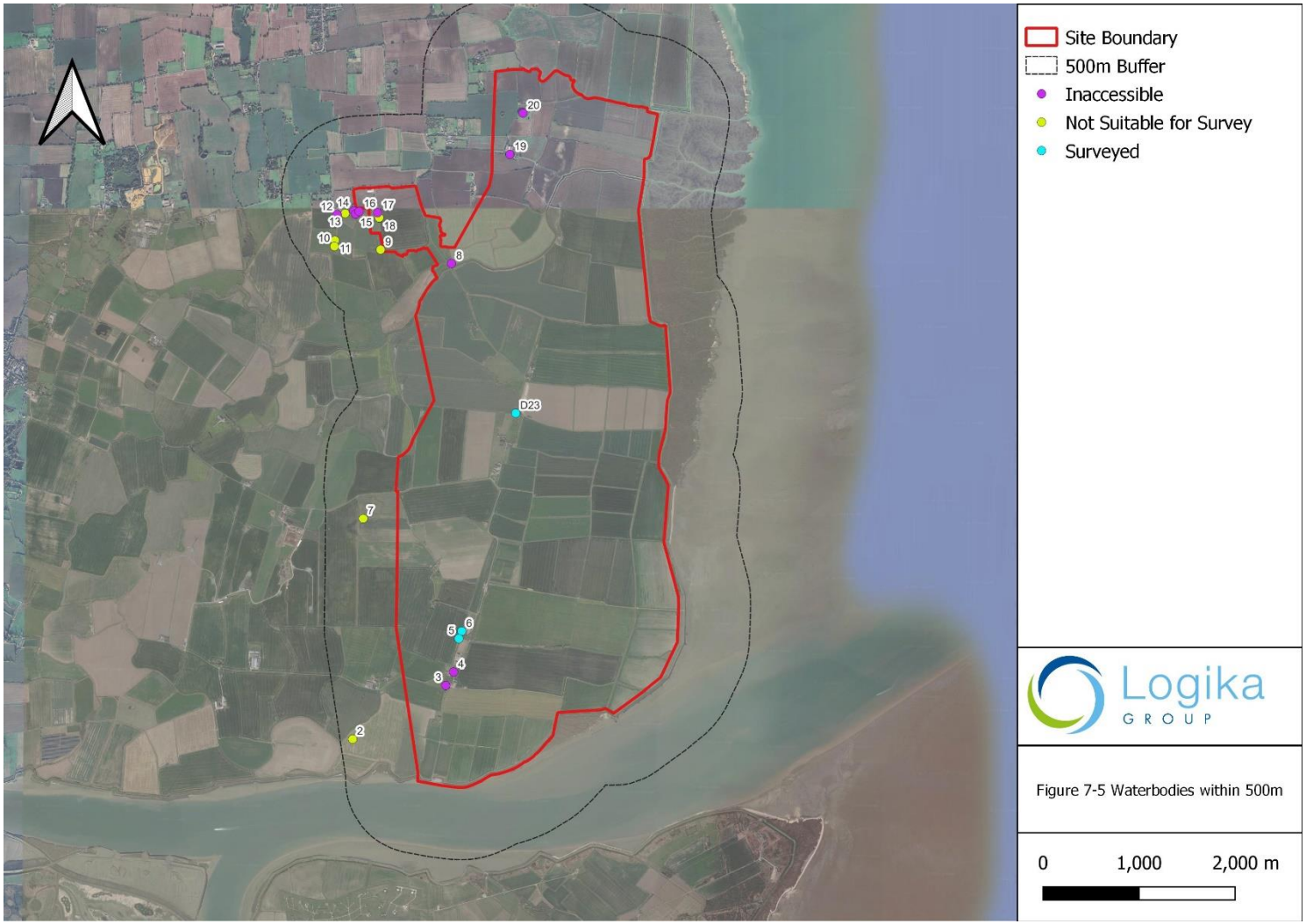

Figure 7-5: Map showing waterbodies within 500m considered for great crested newts

7.3.39 During the field survey, it was observed that five ponds (Ponds 2, 7, 9, 13, and 18) were dry at the time of the visit and two ponds (Ponds 10 and 11) were primarily filled with slurry, and so eDNA samples could not be obtained. The remaining two ponds (Ponds 5 and 6) were deemed suitable for sampling, and eDNA samples were collected from these locations.

7.3.40 To improve the reliability and comprehensiveness of the survey, the surveyors expanded their sampling to include nearby ditches, ensuring a broader representation of the Site's waterbodies. One ditch, Ditch 23, in the centre of the Site was accessible and subject to survey. Other ditches were inaccessible due to their depth and steep slopes.

7.3.41 A positive result for great crested newt eDNA was returned from Pond 5 and negative results for Ponds 6, and Ditch 23. Pond 5 is associated with a pooled area of water within an agricultural drainage ditch just outside of the southern end of the Site.

7.3.42 Consideration of impacts on water bodies will be reviewed before any further surveys for great crested newt are completed.

Reptiles

7.3.43 The habitats on site offer limited potential to support reptiles with arable habitats dominant. The ditch network offers potential to support species such as grass snake, which favour aquatic habitats and the Essex coast does support populations of adder in the wider area. However, given the high levels of human management and absence of areas of woodland, scrub or heath, it is unlikely that any significant population of reptiles occur.

7.4 Environmental Measures

7.4.1 The mitigation hierarchy will be applied to biodiversity (CIEEM 2018) to ensure designs first seek to avoid significant harm, to mitigate where it is unavoidable, and, as a last resort, to compensate for residual effects that remain after avoidance and mitigation measures are implemented. The avoidance of significant harm is being considered through the design process and potential mitigation measures associated with conservation notable and legally protected flora and fauna will also be actively considered. These measures include determining the extent and distribution of suitable habitats required within the development to account for the likely effects on legally protected (e.g. reptiles, bats etc.) and other conservation notable species, the types of habitats that they may require and how these can be incorporated within developing designs. As more information becomes available from the ongoing field survey programme and as the development design and construction phase plans develop mitigation plans will evolve.

7.4.2 In addition, the development will identify potential ecological enhancements that would be proportionate to the scheme and which would deliver ecological benefits commensurate to the wind farm. Such enhancements would be proposed following consultation with relevant stakeholders to ensure that any measures proposed were compatible with ongoing management of the site.

Biodiversity Net Gain

All development projects consented under the Town & Country Planning Act 1990 (as amended), unless of very small scale or being permitted development, are required to provide a BNG of 10% or more calculated using a standard approach (which is known as The Statutory Biodiversity Metric).

Biodiversity Net Gain (BNG) will be applicable to the Proposed Development and the project will target delivery of at least 10% BNG.

A BNG Information Note will be produced to be submitted alongside the planning application.

7.5 Scope of Assessment

Potential ecological features

7.5.1 The starting point for defining which ecological features will be taken forward to the detailed assessment stage will be to use the baseline data collected through the desk study and field surveys to determine which of the identified ecological features are 'important' at the level of the project. Following CIEEM (2018, version 1.3) guidance, the importance of ecological features will be determined using a geographic scale and described in relation to UK legislation and policy, and with regard to the extent of habitat or size of population that may be affected by the Proposed Development.

7.5.2 The importance of ecological features can therefore differ from that which would be conferred solely by legislative protection or identification as a conservation notable species. For example, house sparrow is important at a national level (in policy terms) because it is a Section 7 species and features on the Birds of Conservation Concern red list. However, a small population that could be affected by a development might be assessed as being of local importance only due to the large, albeit declining, UK population (in excess of 5 million pairs).

7.5.3 Wherever possible, information regarding the extent and population size, population trends and distribution of the ecological features will be used to inform the categorisation and determine importance at the project level. Where detailed criteria or contextual data are not available,

professional judgement will be used to determine importance. A justification of all determinations of importance are provided in Table 7-4.

Table 7-4: Importance of the Proposed Development for Ecological Features

Geographic context of importance	Description
International or European	European sites including SPAs, SACs, candidate SACs and Sites of Community Importance (SCI). Potential SPAs (pSPA), and Ramsar sites (designated under international convention). Areas of habitat or populations of species which meet the published selection criteria based on discussions with Natural England and field data collected to inform the EcIA for designation as a European site, but which are not themselves currently designated at this level.
National (UK)	A nationally designated site including SSSIs and National Nature Reserves (NNRs). Areas (and the populations of species which inhabit them) which meet the published selection criteria guidelines for selection of biological SSSIs but which are not themselves designated based on field data collected to inform the EcIA, and in agreement with NRW. NERC Section 41 habitats and species, Red listed and legally protected species that are not addressed directly in Part 2 of the "Guidelines for Selection of Biological SSSIs" but can be determined to be of national importance using the principles described in Part 1 of the guidance. Areas of Ancient Woodland e.g. woodland listed within the Ancient Woodland Inventory and ancient and veteran trees
County (Essex)	LNRs and Non-Statutory Designated sites including: SINCs of County Importance. Areas which based on field data collected to inform the EcIA meet the published selection criteria for those sites listed above (for habitats or species, including those listed in relevant Local Biodiversity Action Plans) but which are not themselves designated.
Local	NERC Section 41 habitats and species, Red listed and legally protected species that based on their extent, population size, quality etc are determined to be at a lesser level of importance than the geographic contexts above. Common and widespread semi-natural habitats occurring within the study area in proportions greater than may be expected in the local context. Common and widespread native species occurring within the study area in numbers greater than may be expected in the local context
Negligible	Common and widespread semi-natural habitats and species that do not occur in levels elevated above those of the surrounding area. Areas of heavily modified or managed land uses (e.g. hard standing used for car parking, as roads etc.)

7.5.4 Where protected species are present and there is the potential for a breach of the legislation, those species will be considered as 'important' features. With the exception of such species receiving specific legal protection, or those subject to legal control (e.g. invasive species), all ecological features determined to be important at negligible level will be scoped out of the assessment.

7.5.5 Further, ecological features of local importance, where there is a specific technical justification, will also be scoped out. This is because effects on them would not influence the decision-making about whether or not consent should be granted for the development (in other words a significant effect in EIA terms could not occur). This approach is consistent with that described in CIEEM 2018.

7.5.6 All legally protected species and ecological features that are of sufficient importance will then be taken through to the next stage of the scoping assessment.

7.5.7 Based on the findings of the desk study and initial survey results the following potential ecological receptors have been identified:

- Designated Sites – International, National and Local
- Bats – Foraging and commuting
- Badger
- Great crested newt
- Reptiles
- Otter and Water vole
- Birds – Breeding
- Birds – Non-breeding

7.5.8 Following completion of the baseline surveys, the full breeding and wintering bird assemblage will be considered with individual species or species groups taken through to assessment where appropriate and following agreement with relevant consultees.

Likely Significant Effects

7.5.9 In accordance with the EIA Regulations 2017, the EIA for Dengie Marshes Wind Farm will consider those impacts where there is a risk of a likely significant effect only. The following section draws on industry experience and expertise to identify those effect-receptor pathways that may potentially lead to a significant effect.

7.5.10 The likely significant effects relating to biodiversity that will be taken forward for assessment in the ES are summarised in Table 7-5.

Table 7-5: Likely significant effects relating to biodiversity

Activity	Effect	Receptors
Construction		
Change of land use including ground clearance for construction sites (including	Degradation and/or loss of habitat (including through soil compaction). Reduction in the availability of foraging, resting and breeding sites.	Designated Sites – International, National and Local

Activity	Effect	Receptors
laydown areas, staff facilities etc.), enabling works and accesses.	Loss of ecological connectivity through severance of habitats resulting in fragmentation.	Bats – Foraging and commuting Badger Great crested newt Reptiles Otter and Water vole Birds – Breeding Birds – Non-breeding
Production of aural and visual stimuli and vibration from construction activities such as vehicular movements, piling or site personnel.	Disturbance and displacement of species susceptible to noise/visual disturbance resulting in a reduction of energy intake and/or an increase in energy expenditure potentially leading to a reduction in survival and productivity rates.	
Construction/alteration of drainage to facilitate construction works.	Changes to local hydrology resulting in changes or loss of surrounding habitats with subsequent effects on fauna that they support.	
Use of chemicals (e.g. fuels, solvents etc.) and liberation of pollutants and fine material through excavation, demolition or surface water flows during rainfall events	The introduction of toxic pollutants or sediments into the environment resulting in changes, loss or damage to terrestrial or freshwater environments and the birds they support.	
Operation		
Permanent changes to the landscape	Presence and operation of wind turbine may result in indirect habitat loss with birds being displaced from nesting, feeding or resting sites.	Designated Sites – International, National and Local Bats – Foraging and commuting Birds – Breeding Birds – Non-breeding
Operation of wind turbines	Collision with turbine blades resulting in injury or death.	Designated Sites – International, National and Local Bats – Foraging and commuting Birds – Breeding Birds – Non-breeding
Decommissioning		
Change of land use including ground clearance for construction sites (including laydown areas, staff facilities etc.), enabling works and accesses.	Degradation and/or loss of habitat (including through soil compaction). Reduction in the availability of foraging, resting and breeding sites. Loss of ecological connectivity through severance of habitats resulting in fragmentation.	All receptors as listed for construction
Production of aural and visual stimuli and vibration from	Disturbance and displacement of species	

Activity	Effect	Receptors
construction activities such as vehicular movements, piling or site personnel.	susceptible to noise/visual disturbance resulting in a reduction of energy intake and/or an increase in energy expenditure potentially leading to a reduction in survival and productivity rates.	
Use of chemicals (e.g. fuels, solvents etc.) and liberation of pollutants and fine material through excavation, demolition or surface water flows during rainfall events	The introduction of toxic pollutants or sediments into the environment resulting in changes, loss or damage to terrestrial or freshwater environments and the birds they support.	

Assessment Methodology

7.5.11 The generic project-wide approach to the assessment methodology is set out in Chapter 4. However, whilst this will inform the approach used in the ornithology assessment, it is necessary to align with the standard industry guidance provided by CIEEM (2018).

7.5.12 The assessment will be based upon not only the results of the desk study and field surveys, but also relevant published information (for example on the status, distribution, sensitivity to environmental changes and ecology of the features scoped into the assessment, where this information is available), and professional knowledge of ecological processes and functions.

7.5.13 For each scoped-in ecological feature effects will be assessed against the predicted future baseline conditions for that feature during construction, operation and decommissioning.

7.5.14 Throughout the assessment process, the initial results of the assessment regarding potentially significant effects will be used to inform whether additional baseline data collection is required, together with the identification of environmental measures that should be embedded into the development proposals to avoid or reduce adverse effects or to deliver enhancements.

7.5.15 Where part of a designated site is located within the ecological Zone of Influence (ZoI) relating to a particular biophysical change as a result of the Proposed Development, an assessment will be made of the effects on the designated site as a whole. A similar approach will be taken for areas of notable habitat.

7.5.16 For species that occur within the ZoI, the assessment will consider the total area that is used by the affected individuals or the local population of the species (e.g. for foraging or as breeding territories).

Significance evaluation methodology

7.5.17 CIEEM (2018) defines a significant effect as one "that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general".

7.5.18 When considering potentially significant effects on ecological features, whether these be adverse or beneficial, the following characteristics of environmental change are taken into account:

- Extent – the spatial or geographical area over which the environmental change may occur;
- Magnitude – the size, amount, intensity or volume of the environmental change;
- Duration – the length of time over which the environmental change may occur;

- Frequency – the number of times the environmental change may occur;
- Timing – the periods of the day/year etc. during which an environmental change may occur; and
- Reversibility – whether the environmental change can be reversed through restoration actions.

Magnitude of change

7.5.19 Although the characteristics described above are all important in assessing effects by using information about the way in which habitats and species are likely to be affected, a scale for the magnitude of the environmental change, as a result of the Proposed Development, has been described in Table 7-6 to provide an understanding of the relative change from the baseline position, be that adverse or beneficial changes.

Table 7-6: Guidelines for the assessment of the scale of magnitude

Scale of change	Criteria and resultant effect
High	The change permanently (or over the long-term) affects the conservation status of a habitat/species, reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource/species population, a large area of habitat or large proportion of the wider species population is affected. For designated sites, integrity is compromised. There may be a change in the level of importance of the receptor in the context of the project.
Medium	The change permanently (or over the long term) affects the conservation status of a habitat/species reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource/species population, a small-medium area of habitat or small-medium proportion of the wider species population is affected. There may be a change in the level of importance of this receptor in the context of the project.
Low	The quality or extent of designated sites or habitats or the sizes of species' populations, experience some small-scale reduction or increase. These changes are likely to be within the range of natural variability and they are not expected to result in any permanent change in the conservation status of the species/habitat or integrity of the designated site. The change is unlikely to modify the evaluation of the receptor in terms of its importance.
Very Low	Although there may be some effects on individuals or parts of a habitat area or designated site, the quality or extent of sites and habitats, or the size of species populations, means that they would experience little or no change. Any changes are also likely to be within the range of natural variability and there would be no short-term or long-term change to conservation status of habitats/species receptors or the integrity of designated sites.
Negligible	A change, the level of which is so low, that it is not discernible on designated sites or habitats or the size of species' populations, or changes that balance each other out over the lifespan of a project and result in a neutral position

Determining significance - adverse and beneficial effects

7.5.20 Adverse effects are assessed as being significant if the favourable conservation status of an ecological feature would be lost as a result of the Proposed Development. Beneficial effects are assessed as those where a resulting change from baseline improves the quality of the environment (e.g. increases species diversity, increases the extent of a particular habitat etc., or halts or slows down

an existing decline). For a beneficial effect to be considered significant, the conservation status would need to positively increase in line with a magnitude of change of "high" as described in Table 7-6.

7.5.21 Conservation status is defined as follows (as per CIEEM 2018):

"For habitats, conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and typical species within a given geographical area;

For species, conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area".

7.5.22 The decision as to whether the conservation status of an ecological feature would alter has been made using professional judgement, drawing upon the information produced through the desk study, field survey and assessment of how each feature is likely to be affected by the Proposed Development.

7.5.23 A similar procedure is used where designated sites may be affected by the Proposed Development, except that the focus is on the effects on the integrity of each site; defined as:

"The coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified".

7.5.24 The assessment of effects on integrity draws upon the assessment of effects on the conservation status of the features for which the site has been designated.

7.6 Information to be Submitted Alongside the Planning Application

Further surveys

Table 7-7 presents a summary of further surveys planned for 2025 and 2026. Following best practice guidance, two years of ornithological data will be collected to inform collision risk modelling and bat surveys will also continue until autumn 2025. Whilst this continues beyond the proposed submission date for the planning application, it is assumed that an addendum to the environmental statement would be produced, summarising the findings of any additional surveys and updating the assessments made within the biodiversity chapter.

Table 7-7: Summary of further surveys planned for 2025-2026

Survey Type	Description	Timing
Bat activity surveys	This will involve the installation of an acoustic bat detector as close as possible to proposed turbine locations and monitoring for a period of ten nights in spring, summer and autumn. Subsequent analysis will be carried out using software to aid in species identification. Surveys will follow NatureScot (2021) and Bat Conservation Trust (2023)	April – October 2025
Habitat Surveys	Habitat surveys were completed of the Proposed Development in 2024 covering the search area. As the site boundary	March – June 2025

Survey Type	Description	Timing
	has developed and additional areas have been included with the scope, additional surveys are required to provide coverage of those areas which were not previously included. Where crossing points are identified over ditches, these will be subject to detailed survey. This will comprise a habitat survey which will follow the methodology detailed in the and 'UK Habitat Classification Use Manual (V2.0)' (UKHab, 2023). The survey will include habitat condition assessments to feed into BNG calculations as prescribed by Defra (2023).	
Mammal Surveys	Walkover surveys of the Site will be conducted to continue observations for signs of badger, otter and water vole, in particular, focusing on areas identified for development in close proximity to or overlapping with ditches.	April – December 2025
Breeding birds survey – territory mapping and raptor surveys	Territory mapping would be completed of the windfarm footprint and any additional infrastructure to identify the assemblage, distribution and density of breeding birds within the Proposed Development. Surveys would follow a territory mapping approach based on the Common Bird Census. A nocturnal visit would also be included to identify owl or other nocturnal species (such as quail) which may occur. To confirm the status and distribution of breeding raptors, targeted surveys are recommended which will follow best practice guidance and include; Recording of behavioural cues which may suggest breeding or breeding attempts; Identification of nesting locations; and Monitoring of nest sites to record breeding success for any active breeding pairs. Surveys will follow methods provided in Scottish Natural Heritage (2017), Hardey *et al* (2013) and Gilbert *et al* (1998)	March – August 2025
Vantage Point Surveys (Breeding Season 2025)	Surveys will record flightlines of target species and also contextual records of secondary species. The full methodology was previously provided in the breeding bird survey report 2024 (Logika 2025)	March/April – August 2025
Vantage Point Surveys (Non-	Surveys will record flightlines of target species and also contextual records of	September 2025 – March 2026

Survey Type	Description	Timing
breeding Season 2025/2026)	secondary species. The full methodology was previously provided in the breeding bird survey report 2024 (Logika 2025)	
Winter walkover surveys birds	Surveys will record use of "functionally linked land" within the Proposed Development and wider area to understand use of non-designated habitats including farmland by features of the adjacent designated sites and other notable non-breeding birds.	September 2025 – March 2026
Intertidal Surveys	Proposals to use the marine transfer facility in the south of the site may require further survey of non-breeding birds in intertidal areas to assess potential impacts on the designated features of the adjacent SPA and Ramsar Sites. This will only be required if the proposed construction programme requires use of the marine transfer facility during passage and winter months.	August 2025 -March 2026 (as required)

Reports, assessments and other supporting documentation

7.6.1 Alongside the Environmental Statement a number of additional documents will be required both to inform the overall assessment for biodiversity but also to detail approaches to mitigation, compensation and monitoring. Table 7-8 provides a summary of the reports, assessments and other supporting documentation that is expected to be provided.

Table 7-8: Summary of reports, assessments and other supporting documentation to be provided alongside the planning application

Document	Description
Habitats Regulations Assessment Report	Due to the location of the Proposed Development, a shadow Habitats Regulations Assessment (HRA) is required. This will include all available information (up to planning submission, anticipated in Q3 2025) to enable production of a screening and appropriate assessment report. If necessary, this would be updated following completion of the second year of non-breeding bird monitoring in March 2026.
Biodiversity Net Gain Information	A Biodiversity Net Gain (BNG) calculation and supporting information (to be provided as a BNG Information Note) will be produced. This will detail the baseline "value" of the Site and a predicted loss/gain calculation based on proposed habitat enhancement or creation on Site. .

Document	Description
Outline Code of Construction Practice (CoCP)	Specific measures to mitigate potential effects of construction would be identified (as part of the EcIA process) and summarised in a CEMP. This will include measures designed to avoid or mitigate impacts on protected species, valuable habitats and designated sites. This would form part of a package of "embedded measures" that would be expected as part of the Proposed Development.
Collision Risk Modelling and report	Collision Risk Modelling would be carried out following methods described by NatureScot.[18] This would be produced based on the results of vantage point surveys completed in the breeding season 2024 and the non-breeding season 2024/2025.This will be based on the "frozen" design to include locations of turbines and details of the preferred turbine specification. Updated collision risk modelling would be submitted following completion of the second year of surveys.
Draft Collision Monitoring and Mitigation Strategy (CMMS)	Given the sensitive location of the Proposed Development and adjacent protected sites, a comprehensive collision monitoring and mitigation strategy (CMMS) will be needed.
Outline Landscape and Ecology Management Plan	To support the BNG information note and EcIA, an outline Landscape and Ecology Management Plan (LEMP) will be produced. Our team will work with the appointed landscape team to identify specific constraints and requirements and ensure that cohesive approach to habitat creation and enhancement is developed. The LEMP will focus on delivery of onsite enhancements and the development of concepts for offsite compensation.

[18] Band, W. (2024). Using a collision risk model to assess bird collision risks for onshore wind farms. NatureScot Research Report 909.

8 Hydrology and Hydrogeology

8.1 Introduction

8.1.1 Potential effects on the water environment relate to increases in runoff associated with increased impermeable area, and any associated effects on flood risk, groundwater recharge and surface water and groundwater quality.

8.2 Review of Legislation, Policy and Relevant Guidance

8.2.1 Legislation, planning policy and guidance relating to hydrology and hydrogeology, and relevant to the Proposed Development comprises:

Legislation

- The Water Environment (Water Framework Directive (WFD)) (England and Wales) Regulations (2017).
- Flood and Water Management Act (2010).
- Environmental Protection Act (1990).
- Water Resources Act (1991) as amended 2009.
- Land Drainage Act (1991).
- Environment Act (1995).
- Environment Act (2021).
- Water Act (2014).

Planning Policy

National

- National Planning Policy Framework (2024) specific reference to Section 14.

Local

- Approved Local Development Plan 2014 – 2029[19]

Technical Guidance

- Planning Practice Guidance (2023). Flood Risk and Coastal Change Planning Practice Guidance (PPG) (updated 2022).
- DEFRA Non-statutory technical standards for sustainable drainage systems (2015).

[19] Maldon District Council (2017), *Approved Local Development Plan 2014 – 2029*, [Online], Available: https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf

- Construction Industry Research and Information Association (CIRIA) Report C753 The SuDS Manual (2015)

8.3 Summary of Baseline Conditions

8.3.1 The indicative site is within Flood Zone 3 and has a high probability of flooding from rivers and the sea. Environment Agency mapping[20] does not indicate that the area benefits from any flood defences. With regard to surface water flooding, very limited, small areas of low risk (i.e. between 0.1% and 1% chance of flooding each year) exist in relation to the numerous ditches which criss-cross the indicative site, aligned north to south and east to west.

8.3.2 The south eastern part of the indicative site is within a Secondary A aquifer (superficial drift), with a small sliver within a Secondary (undifferentiated) aquifer (superficial drift) towards the central - southern part of the indicative site. Most of the indicative site is within an area of unproductive strata, with the south eastern quarter of the indicative site within an area noted as being of medium to low groundwater vulnerability.

8.3.3 The indicative site is not within a groundwater source protection zone, a drinking water protected area (surface water) or a drinking water safeguard zone (groundwater).

8.3.4 The south western part of the indicative site lies within a nitrate vulnerable zone (2017 designation). Nitrate Vulnerable Zones (NVZs) are areas designated as being at risk from agricultural nitrate pollution.

8.3.5 MAGIC[21] indicates that the majority of the indicative site has loamy and clayey soils associated with the coastal flats, with naturally high groundwater, and small areas of slightly acid loamy and clayey soils with impeded drainage to the north west. A small area of saltmarsh soils is located towards the north eastern edge of the indicative site.

8.3.6 The Essex and Suffolk Water draft Water Resource Management Plan (2024) notes that East Anglia is one of the driest parts of the country and has been confirmed by the Environment Agency as being a Serious Water Stressed Area. Essex and Suffolk Water has forecast that there will not be enough water supplies to meet forecast demand over the next 25 years and beyond. With specific reference to non-household water demand, the amount of water used by businesses and industry is forecast to increase from an average of 61.1 megalitres per day (2020/21 figure) to 89.2 megalitres per day (2050) due to a growth of new businesses in the area, such as new free ports and power stations in Essex and new food processing and cosmetic factories, and a nuclear power station in Suffolk. The company is aiming to address water shortage through a series of measures that reduce demand and increase supply.

8.4 Scope of the Assessment

Potential Effects

Construction

8.4.1 There is the potential for effects on surface water quality within the ditches that cross the site and groundwater quality as a result of leaks, spills and sedimentation during site preparation and construction activities. Standard and proven best practice construction measures, such as those set out in CIRIA (2001) C532 Control of water pollution from construction sites: Guidance for consultants

[20] Environment Agency, 2024, *Get flood risk information for planning in England*, [Accessed: February 2025] Available at: https://flood-map-for-planning.service.gov.uk/
[21] DEFRA, 2024, *MAGIC*, [Accessed: February 2025] Available at: https://magic.defra.gov.uk/

and contractors, are available to minimise the potential for pollution and such measures will be implemented through the CEMP, an outline version of which will form a technical appendix to the ES. However, given the proximity and high sensitivity of the adjacent designated sites, it is considered that there is the potential for significant adverse effects and therefore this issue has been scoped into the EIA.

8.4.2 Activities at the proposed marine transfer facility (the footprint of which already exists) would involve the use of a crane for the receipt of wind turbine components. It is considered that this activity has limited potential to cause pollution of coastal waters. Robust mitigation measures will be applied through the outline CEMP to ensure that there will be limited potential for significant adverse effects to arise. Coastal water quality has therefore been scoped out of the EIA. Similarly, no significant effects on coastal water quality are considered to arise during operation.

8.4.3 The Proposed Development will increase the demand for potable water supply during both construction and operation, the latter in relation to maintenance activities and fire risk. While there are general capacity issues in the region, the requirements during both phases of development will be very limited and no significant adverse effects are considered likely to arise. Capacity issues will nevertheless be considered in the utilities statement that will be prepared in support of the application.

Operation

8.4.4 There is also the potential for pollution of the surface water within the ditches and the groundwater as a result of maintenance activities and contaminated runoff from access tracks and hard standing during operation. The former will be managed through best practice site management measures. Surface water runoff from access tracks will be managed through sustainable drainage systems (SuDS), such as swales, which will include measures to improve water quality in line with guidance such as CIRIA's (2015) C753 The SuDS Manual. With the use of SuDS and the very limited nature and extent of maintenance activities during operation, it is considered that there will be no significant adverse effects on surface water or groundwater quality during operation.

8.4.5 The relatively small footprints of the proposed wind turbines and associated infrastructure are unlikely to affect surface water hydrology significantly and, although dewatering activities during construction and the creation of foundations may affect local groundwater hydrology through changes in the direction of flows, flow capacity and changes to infiltration rates, any changes are likely to be small and no significant effects are predicted. Surface water and groundwater hydrology during both construction and operation are therefore scoped out of the EIA. This approach also applies to substations and site compounds.

8.4.6 The indicative site is within flood zone 3 and any development within the floodplain has the potential to displace flood water and possibly reduce floodplain storage capacity, leading to increased flood risk at the site and to neighbouring properties. Although the Proposed Development will be designed to be resilient and not increase flood risk, the effect of development still has the potential to be significant.

8.4.7 In addition to the above, alterations to the existing drainage regime and an increase in surface water runoff due to increased hardstanding (turbine foundations, crane pads, hardstanding for the substation, etc.) have the potential to increase surface water flood risk during construction and operation. While the increase in impermeable surface will not be large and SuDS measures, as referred to above, will help control runoff rates as necessary, given the high sensitivity of flood risk within the indicative site, it is considered that there is the potential for significant adverse effects during construction and operation and therefore surface water flood risk is also scoped into the EIA.

Likely Significant Effects Scoped Out from Detailed Assessment

8.4.8 Table 8-1 presents the elements which have been scoped out from the detailed assessment, as it is considered no likely significant effects will occur.

Table 8-1: Potential Likely Significant Effects Scoped out from the Hydrology and Hydrogeology Detailed Assessment

Potential Effect	Justification
Surface water temperature	No activities / processes are proposed that could change surface water temperature
Groundwater temperature	No activities / processes are proposed that could change groundwater temperature
Coastal water quality (Operation only)	Site preparation and construction activities associated with the use of the marine transfer facility (if utilised) could mobilise contaminants and lead to potential for effects on the quality of local coastal waters. However strong mitigation measures will be implemented in line with general best practice.
Coastal water temperature	No processes are proposed that could change coastal water temperature
Coastal processes / hydrodynamics	The construction and operation of the Proposed Development will not affect coastal processes

Likely Significant Effects Scoped in to the Detailed Assessment

8.4.9 Table 8-2 presents the elements which have been scoped in to from the detailed assessment, as it is considered likely significant effects will occur.

Table 8-2: Potential Likely Significant Effects Scoped in to from the Hydrology and Hydrogeology Detailed Assessment

Potential Effect	Justification
Surface water quality	Pollution arising from construction activities and routine runoff, and potential leaks and spillages During operational maintenance activities may affect surface water quality in local ditches
Surface water hydrology	Increased runoff rates as a result of the increased impermeable area and alterations to ground profile of the site during construction and operation. Potential effects on the hydrology / hydromorphology of the local ditch network during operation if the amount of water abstracted from or discharged to the ditches changes
Groundwater quality	Pollution arising from construction activities and routine runoff and potential leaks and spillages from operational maintenance activities may affect groundwater quality
Groundwater hydrology / recharge	Dewatering may be required during construction. Potential for reduced infiltration rates during operation as a result of the increased impermeable area

Potential Effect	Justification
Coastal water quality (Construction only)	Site preparation and construction activities associated with the use of the marine transfer facility (if utilised) could mobilise contaminants and lead to potential for effects on the quality of local coastal waters.
Flood risk	Increased flood risk as a result of the increased impermeable area on the site. Building within the floodplain has the potential to increase flood risk elsewhere as floodplain capacity is reduced, both during construction and operation
Availability of utility services – wastewater and potable water	Temporary increase in demand for potable water during construction. Increase in demand during operation for potable water for fire mitigation purposes.

9 Cultural Heritage and Archaeology

9.1 Introduction

9.1.1 This Chapter of the Scoping Report presents the scope of detailed environmental assessment for Cultural Heritage and Archaeology. Specially, the Chapter presents the policy and legislative context, the approach to collecting baseline data and then an overview of the relevant baseline conditions within the Site and surrounding area, based on current knowledge and understanding. It concludes by setting out the scope of assessment including, with justification, those Cultural Heritage and Archaeology matters that are proposed to be scoped out and in for detailed assessment and concludes by outlining the method that will be used to undertake the detailed assessment.

9.2 Review of Legislation, Policy and Relevant Guidance

Legislation

- Ancient Monuments and Archaeological Areas Act 1979 – Part I Ancient Monuments: Protection of Scheduled Monuments

Planning Policy

National

- Overarching National Policy Statement for Energy (EN-1) 2011: Section 5.8 (Historic Environment);
- Draft National Policy Statement for Renewable Energy Infrastructure (EN-3), (2011); and
- National Planning Policy Framework (NPPF), 2021: Section 16 (Conserving and enhancing the historic environment).

Local

- Approved Local Development Plan 2014 – 2029[22]

Technical Guidance

- Planning Practice Guidance (2023) – Historic Environment (2019)
- English Heritage (2008) Conservation Principles, Policies and Guidance
- Historic England (2015) Managing Significance in Decision-Taking in the Historic Environment – Historic Environment Good Practice Advice in Planning: 1. The Historic Environment in Local Plans
- Historic England (2015) Managing Significance in Decision-Taking in the Historic Environment – Historic Environment Good Practice Advice in Planning: 2. Historic England and Historic Environment Forum
- Historic England (2017) The Setting of Heritage Assets – Historic Environment Good Practice Advice in Planning: 3. Historic England and Historic Environment Forum

[22] Maldon District Council (2017), *Approved Local Development Plan 2014 – 2029*, [Online], Available: https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf

- Historic England (2020) Good Practice in Planning 4: Enabling Development and Heritage Assets
- Historic England (2022) Planning and Archaeology: Historic England Advice Note 17
- Ministry of Housing, Communities & Local Government (2018 – 2021) and Department for Levelling Up, Housing and Communities. Planning Practice Guidance: Historic Environment. Advises on Enhancing and Conserving the Historic Environment. Published 10th April 2014 (last revised 23rd July 2019)
- Historic England (2015), Managing Significance in Decision-Taking in the Historic Environment – Historic Environment Good Practice Advice in Planning: 1. The Historic Environment in Local Plans ('GPA2')
- Historic England (2017) Historic Environment Good Practice Advice in Planning Note 3. The Setting of Heritage Assets, Third Edition ('GPA3')
- Historic England (2021) Historic Environment Advice Note 15. Commercial Renewable Energy Development and the Historic Environment ('HEAN15', Historic England)
- IEMA, IHBC, CIfA (2021) Principles of Cultural Heritage Impact Assessment

9.3 Summary of Baseline Conditions

9.3.1 The Dengie peninsula is a complex and distinctive historic landscape, which is divided between villages and early fieldscapes in the west and the coastal marshes to the east. During much of the prehistoric period the tidal limit was much further inland on the Dengie peninsula than it is today (in areas further west these had extensive areas of dry land in the prehistoric now part of the Blackwater and Crouch estuaries). Dengie formed a complex environment of salt marsh, tidal plats and ridges of beach although the creeks with rich food resources would have attracted human activity. During the Iron Age a small fort was constructed on a gravel hillock at Asheldham and evidence suggests the area was mainly open grassland. Parts of the linear field system may have been initially laid out from the late Iron Age. The low-lying areas of the marsh were used for sheep grazing from Roman times and this continued into the early post medieval period where the area was still known for its wool, meat and cheese production.

9.3.2 During the Iron Age and Roman periods the salt industry was established on the coastal margins. Salt was evaporated in clay vessels and the crushed remains of this pottery formed shallow mounds known as red hills, these are now well inland. They may have been used as refuges by sheep and people at times of flood. Salt continued to be manufactured into the medieval period using a process of ponds and tanks.

9.3.3 As sea levels rose from the 13th century sea defences were built, responsibility for the upkeep of sea walls lay with individual landowners. The remains of these can be seen between the main settlements and the current coastline. This period also sees the first areas of enclosure of the marshes. The main phase of reclamation of Dengie Marsh occurred from the 17th century, when it was drained by a process known as 'inning' to convert the land to arable. Shell banks or chenier (demarking a former coastline) runs north-south, along the bank the easternmost farms were built within the reclaimed area, mainly from the 17th century onwards. Further areas on the seaward side were drained in the 19th century. The regular drainage channels on the landward side are the result in the 20th century of straightening the originally sinuous field pattern created by the creeks. Oyster pits mainly from the post medieval period can be found in the area between the remote farmsteads and the coast.

9.3.4 Wild fowling was important in the area and decoy ponds were introduced from Holland in the 17th century. The large-scale conversion of grazing marsh to arable in the 20th century led to many of the

star shaped ponds in the wider area to be filled in, there is evidence of four former decoy ponds in the marshes.

9.3.5 There are extensive military defences around the Malden coast which were constructed during WWII, including pillboxes and 'Diver' anti-aircraft gun sites and a large area of the flats beyond the coastline was a bombing range.

Heritage Assets

9.3.6 The closest designated asset to the proposed turbine array is the scheduled decoy pond near Marsh House Farm (1013835) at over 1.5km from the closest wind turbine and is remarkable for its survival. The next closest designated assets are grade II listed farmsteads which were created from the 17th century when the marsh areas were reclaimed as grazing land. These lie approximately 1km and more from the turbines. The grade II listed farmsteads at Old Montsale, Court Farm and the locally listed Middewick Farm are located on or close to the chenier or shell bank in the centre of the marsh, now followed by the line of Bridgewick Road.

9.3.7 The listed buildings of higher grade include the churches at Southminster, Tillingham and Bradwell-on-Sea, all listed grade II*. There is also Bradwell Lodge and Bradwell Manor in the north and Stows Farmhouse in the west. The isolated Saxon chapel St Peter-on-the-Wall, which was built in 654 AD at the site of the scheduled Roman shore fort, is listed grade I and is approximately 5.5km from the closest turbine, with the existing Bradwell Wind Farm in between.

9.3.8 The historic centres of Southminster, Tillingham, Bradwell-on-Sea, Southminster and Burnham-on-Crouch are designated conservation areas. Tillingham at 3km to the west of the turbines is the closest conservation area to the site. On the south of the River Crouch, on Foulness Island, Foulness Churchend is also a conservation area. The island has been used since 1915 for weapons testing and is managed as part of MoD Shoeburyness, restricting public access to this area.

9.3.9 The remaining scheduled monuments within 5-6km of the turbines are an Iron Age hill fort at Asheldham, and two sites close to Southminster on what was then an island within the tidal marshes: the cropmarks of a large area of prehistoric settlement, and an earthwork identified as a possible Iron Age or Viking settlement. On the shoreline at Holliwell Point is a WWII control tower and pill box which were constructed as part of the minefield that defended the mouth of the River Crouch.

Archaeology

9.3.10 The area is of known archaeological interest, there are gravel ridge areas of head and river terrace deposits which are occupied by the main settlements and one small area around East Ware Farm. These gravel deposits are of known Palaeolithic potential and for remains of settlement and occupation from the Neolithic period onwards, the area in the marshes including the site is mainly of low Palaeolithic potential. A distinctive feature of the archaeology of the marshes are the red hills, mounds of ceramic debris created by salt production in the late Iron Age and Roman periods although these are found west of the site. The recorded examples on the former shoreline show as a line across the peninsula and along the river shoreline. Evidence for the gradual reclamation of the area will be present within the Site, including former sea walls. There are also decoy ponds, former defensive sites from WWII, oyster beds and evidence of later salt production.

9.4 Embedded Environmental Measures

Construction

9.4.1 Where archaeological remains within the Site do not require preservation in situ and cannot be avoided through embedded mitigation, it is anticipated that additional mitigation to off-set adverse impacts will take the form of a programme of archaeological investigation and recording.

9.4.2 Such a programme may include pre-commencement phases of archaeological excavation and/or archaeological "watching brief" during construction. The need for, and scope of such mitigation, will be agreed with the archaeological advisors to Essex County Council and Historic England where necessary. The scope and methodology of the mitigation will be set out in a Project Design (or Written Scheme of Investigation (WSI)) in line with Chartered Institute for Archaeologists Standards and Guidance for archaeological field evaluation, monitoring and recording and excavation as appropriate.

Operation

9.4.3 Potential significant effects of the Proposed Development can arise from the operational phase of the Proposed Development. This could include changes to the setting of heritage assets and indirect or secondary effects may also arise during operation.

9.4.4 Impacts on the setting of heritage assets within the study area would be mitigated through embedded design.

Opportunities for enhancing the environment

9.4.5 Potential enhancement opportunities may include measures to enhance the significance of heritage assets, which would provide additional beneficial effects to be counted in the planning balance. This could include improving the energy efficiency of listed buildings in the Study Area, repair heritage assets on the Risk Register, provide access to the Decoy Pond (1013835) scheduled monument such as create a new footpath, restore the boat house and provide information boards to improve understanding and access to the asset. Improve access to and understanding of the scheduled fort in Asheldham (1014142). Assets will be identified as part of discussions with the LPA and Historic England.

9.5 Scope of the Assessment

9.5.1 Potential significant effects of the Proposed Development can arise from direct or indirect physical effects during construction or from changes to the setting of heritage assets during operation.

9.5.2 Direct physical effects describe those development activities that directly cause damage to the fabric of a heritage asset. Typically, these activities are related to construction works and would only occur within the Site boundary.

9.5.3 Indirect effects describe secondary processes, triggered by the development, that lead to the degradation or preservation of heritage assets. For example, changes to hydrology may affect archaeological preservation; or changes to the setting of a building may affect the viability of its current use and thus lead to dereliction.

9.5.4 An effect on the setting of a heritage asset occurs when the presence of a development changes the surroundings of a heritage asset in such a way that it affects (beneficially or adversely) the heritage significance of that asset. Visual changes are most commonly encountered but other environmental factors such as noise, light or air quality can be relevant in some cases. Effects may be

encountered at all stages in the life cycle of a development from construction to decommissioning but they are only likely to lead to significant effects during the prolonged period which is the operational life of the development.

9.5.5 Potential effects on unknown heritage assets will be discussed in terms of the risk that a significant effect could occur. The level of risk depends on the level of archaeological potential combined with the nature and scale of disturbance associated with construction activities and may vary between 'High' and 'Negligible' for different elements or activities associated with a development, or for the development as a whole.

9.5.6 The layout of the Proposed Development is still being designed and surveys to establish the archaeological resource of the Site are ongoing. As such, there remains uncertainty regarding both the direct physical impacts on heritage assets as a result of construction, and the extent of visual change within the setting of heritage assets within the wider area.

Likely Significant Effects Scoped Out from Detailed Assessment

9.5.7 No elements or potential effects have been scoped out from further detailed assessment.

Likely Significant Effects Scoped into the Detailed Assessment

Construction

9.5.8 The archaeological potential of the site is currently unknown. Without mitigation, the destruction of below ground archaeology by construction works would be a high adverse effect, depending on the importance of the asset, this could be significant.

Operation

9.5.9 The Proposed Development of the wind farm, potential substation and related infrastructure, would result in additional tracks and other divisions across the site area and will change the setting of the surrounding area. The development therefore has the potential to result in positive significant effects on the settings of the scheduled monuments, conservation areas and listed buildings in the area. Traffic may be reduced in the area and therefore can provide a positive effect on impacts on listed buildings and monuments.

Assessment Methodology

9.5.10 The Proposed Development would result in a change to the existing baseline, which may result in impacts to heritage significance. In accordance with the EIA Regulations, the assessment would identify impacts and effects as direct or indirect, adverse or beneficial, and short-term, long-term or permanent. Direct impacts are those which physically alter an asset and therefore its heritage significance.

9.5.11 Changes within the setting may alter the heritage significance of an asset by causing visual or sensory change that affects the ability to understand, experience or appreciate the asset's heritage significance. The assessment of effects upon heritage significance resulting from change within the setting of heritage assets will follow steps one to four, the process laid out in Historic England's Good Practice Advice Note 3: The Setting of Heritage Assets. The conclusions of the assessment of heritage assets within the Study Areas will be presented in accordance with the policies described in paragraphs 195, 200, 206, 208, 209, 211 and 213 of the National Planning Policy Framework (NPPF; 2023) and the MHCLG's (2019) NPPG.

9.5.12 The assessment of effects upon heritage significance will be supported by an analysis based on a series of viewpoints to, from and looking across heritage assets, including selected listed buildings as

appropriate. These will be agreed with Maldon District Council's conservation officer and Historic England as required. The assessment will be informed by and cross referenced with the landscape and visual, noise and traffic and transport assessments as appropriate.

9.5.13 The assessment of effects will follow the significance criteria described in sections below. The residual effect is a product of the importance of the heritage asset and the magnitude of impact following mitigation. The level of importance assigned to a heritage asset reflects any statutory or non-statutory designation or in the case of non-designated assets the professional judgement of the assessor with reference to regional research frameworks. Conclusions of the assessed magnitude of impacts is a product of the consideration of the elements of an asset and its setting that contribute to its heritage significance and the degree to which the Proposed Development would change these contributing elements. The assessment therefore reflects the varying degrees of sensitivity of different assets to change brought about by different types of development.

Study Area

9.5.14 Overlapping study areas are proposed for the identification of heritage assets that may be affected by the Proposed Development.

9.5.15 The Site boundary will be used to identify known and potential heritage assets that may experience direct (physical) construction effects or which could be at risk from accidental damage such as from construction traffic. Assets beyond the boundary but, for example, close to access routes for the Proposed Development will also be assessed for potential risk.

9.5.16 An archaeological desk-based assessment (DBA) will require a 1 km study area around the Site to identify all known heritage assets and will seek to identify areas of archaeological potential for consideration within the EIA.

9.5.17 An Outer Study Area (OSA) will extend up to a maximum 20 km from the Site within which heritage assets will be considered based on their importance and distance from the Site in order to focus the assessment on likely significant effects:

- Up to 1 km from, and including, the Site: all designated heritage assets and non-designated heritage assets (including locally listed buildings) for which the wider setting makes a contribution to their significance and there is theoretical intervisibility with the Proposed Development based on the zone of theoretical visibility (ZTV) or where important views of or across the asset which could include the turbines.
- Up to 5 km from the Site: all Scheduled Monuments, Listed Buildings and Conservation Areas (there are no World Heritage Sites, Registered Battlefields, Designated Wrecks or Registered Historic Parks within 5 km) and non-designated assets of recognised regional importance where there is theoretical intervisibility with the Proposed Development based on the ZTV or where important views of or across the asset which could include the turbines.
- Up to 10 km from Site: Registered Parks and Gardens, World Heritage Sites, grade I and II* Listed Buildings, Scheduled Monuments and non-designated assets of national importance where there is theoretical intervisibility with the Proposed Development based on the ZTV or where important views of or across the asset which could include the turbines.
- Up to 20 km from the Site: in the opinion of the assessor or consultees, designated heritage assets which are considered exceptionally important, and where long-distance views from or towards the asset are thought to be particularly sensitive to change within their setting. Between 10 – 20 km, the baseline will thus be screened in order to identify those assets of particular sensitivity or importance.

Assessment of Heritage Significance

Importance of Heritage Assets

9.5.18 The importance of a heritage asset is a measure of the degree to which the heritage significance of that asset is sought to be protected through legislation and planning policy. The level of importance will therefore reflect any statutory and non-statutory heritage designation or, in the case of non-designated assets, the professional judgement of the assessor as to the degree of importance that the asset has with reference to regional research frameworks.

9.5.19 The criteria presented in Table 9-1 will be used to establish the importance of heritage assets.

Table 9-1: Criteria for Establishing Importance of Heritage Assets

Importance	Description of receptors
Very High	World heritage sites; assets of acknowledged international importance; assets that can contribute significantly to acknowledged international research objectives; Historic landscapes of international value (designated or not) and extremely well preserved historic landscapes with exceptional coherence, time depth or other critical factor(s).
High	Scheduled monuments and non-designated assets of schedulable quality and importance; Grade I and II* listed buildings and Grade II listed buildings that can be shown to have exceptional qualities in their fabric or associations; Conservation Areas with exceptional qualities; non-designated structures of clear national importance; designated and non-designated historic landscapes of historic interest; assets that can contribute significantly to acknowledged national research objectives.
Medium	Grade II listed buildings; Non-designated assets that contribute to regional research objectives; Locally listed buildings and other historic unlisted buildings that have exceptional qualities; Conservation Areas.
Low	Non-designated assets of local importance including locally listed assets and those compromised by poor preservation; assets of limited value but with the potential to contribute to local research objectives; robust non-designated historic landscapes.

Magnitude of Impact

9.5.20 The assessed impact magnitude will reflect the scale of change which would be caused by the Proposed Development and the effect this would have on the ability to interpret significance and appreciate the heritage asset. Impacts can result either from physical changes to a heritage asset or through sensory changes within its setting.

9.5.21 An impact may be beneficial where for example, as part of the Proposed Development, an intrusive building or feature is removed or replaced with a more harmonious one; historic features are restored or revealed; a new feature is added which adds to public appreciation; new views are introduced that add to public experience of an asset; or public interpretation or access is improved to an asset or its setting.

9.5.22 Impacts may impart major change, for example where groundworks completely destroy important archaeological remains, to minor change to part of a heritage asset's setting, leading to a limited impact on our ability to interpret it, or its context.

9.5.23 Utilising the key principles for assessing the implications of change outlined above, an assessment of the magnitude of impact will be implemented for each baseline heritage asset using the criteria presented in Table 9-2 below.

9.5.24 Conclusions of the assessed magnitude of impacts are a product of the consideration of the elements of an asset and its setting that contribute to its heritage significance and the degree to which the Proposed Development would change these contributing elements. The assessment therefore reflects the varying degrees of sensitivity of different assets to change brought about by different types of development.

9.5.25 This definition of magnitude and assessment methodology applies to likely impacts resulting from change in the setting as well as likely physical impacts on the fabric of an asset.

Table 9-2: Criteria for Classifying Magnitude of Impact

Impact Magnitude	Criteria
Major	Change to key historic building elements so that an asset is totally altered; OR change to most/all key archaeological materials such that the resource is totally altered; OR comprehensive change to the setting such that the significance of the asset is severely compromised.
Moderate	Change to many key historic building elements, such that the asset is significantly modified; changes to many key archaeological materials such that the resource is clearly modified; changes to setting of an asset, such that the significance of the asset is compromised.
Minor	Change to key historic building elements, such that the asset is slightly different; changes to key archaeological materials such that the asset is slightly altered; changes to setting of an historic building, such that its significance is slightly compromised.
Negligible	Very minor changes to historic building elements, archaeological materials or setting that hardly affect them/it.
No Change	No change to fabric, archaeological materials or setting.

9.5.26 The NPPF refers to "harm" to heritage assets which can be either substantial or less than substantial. Substantial harm can be considered to equate to an impact of major magnitude, whilst less than substantial harm would equate to an impact of moderate, minor or negligible magnitude.

Significance of Effect

9.5.27 The assessment of effects will combine analysis of the data gathered during the desk-based assessment and site visit, photographs and any wireframe visualisations of the topography and Proposed Development.

9.5.28 These assessments will be carried out using professional judgement, taking into account designations and heritage significance as assessed against national standards. Significance of effect will be based on a combination of importance (in other disciplines sometimes referred to as sensitivity of the receptor) and magnitude of impact. The significance of effect matrix is presented Table 9.3 below and provides a guide to decision-making but is not a substitute for professional judgement and interpretation, particularly where the importance or impact magnitude levels are not clear or are borderline between categories. EIA significance may be described on a continuous scale from negligible to major.

9.5.29 It is also common practice to identify effects as significant or not significant, and in this sense major and moderate effects are regarded as significant, while minor and negligible effects are not significant.

Table 9-3: Criteria for Assessing the Significance of Effect

Magnitude of Impact	Importance and/or Sensitivity				
	Negligible	Low	Medium	High	Very High
Major	Minor	Moderate	Moderate	Major	Major
Moderate	Negligible	Minor	Moderate	Moderate	Major
Minor	Negligible	Negligible	Minor	Minor	Moderate
Negligible	Negligible	Negligible	Negligible	Minor	Minor
No Change	No effect	No effect	No effect	No effect	No effect

Data Sources to inform the EIA Baseline Characterisation

9.5.30 The following sources of information will be used:

- Malden District Local Development Plan (approved 21st July 2017), Policy D3: Conservation and Heritage Assets;
- Information on designated heritage assets from the National Heritage List for England;
- Data on heritage assets and previous archaeological investigations from the Essex HER;
- Historical Ordnance Survey (OS) mapping;
- LiDAR data obtained from the Environment Agency.
- Aerial photographs held by Historic England Archives, Essex HER, and Cambridge University Collection of Aerial Photography;
- Maps and other relevant primary and secondary sources held in Essex Archives; and
- Portable Antiquities Scheme (PAS) data.

9.5.31 The following locations are initially proposed for visualisations (wirelines or viewpoint photography) if the ZTV predicts visibility of the Proposed Development:

Table 9-4: Wirelines of Grade II Listed farm buildings & Locally Listed buildings within 2 km of turbines

Ref	Name	Grade
1111785	Bridgewick Cottages	II
1111787	Landwick Farmhouse	II
1111789	Bacons Cottages	II
1147295	Small Gains	II

Ref	Name	Grade
1147314	Vinnies	II
1237455	Old Montsale	II
1237603	Shingleford	II
1237606	Bridgemans Farmhouse	II
1237607	Teal Cottage	II
1247737	Thatched Cottage	II
1264005	Midlands Farmhouse	II
1337007	Dengie Manor	II
1337009	Court Farmhouse	II
1337011	Keelings	II
1382194	Merchants House	II
	Middewick Farm	Locally listed

Table 9-5: Viewpoint photography of Grade I & II* Listed buildings and Grade II churches, conservation areas and scheduled monuments within c. 5 km of turbines

Ref	Name	Grade/Type
1110942	Chapel Of St Peter On The Wall	I
1013834	Roman Shore Fort And Anglo-Saxon Monastery At Bradwell-On-Sea	Scheduled Monument
1013835	Decoy Pond 700m North East Of Marsh House Farm	Scheduled Monument
1247743	Church Of St Nicholas	II*
1014142	Slight Univallate Hillfort South Of End Way Farm	Scheduled Monument
1337401	Bradwell Lodge	II*
1147175	Bradwell Hall	II*
1002145	Crop Mark Site SW Of Oldmoor	Scheduled Monument
1002123	Earthworks In And E Of Pandole Wood	Scheduled Monument
1308856	Church Of St Thomas	II*
1111784	Church Of St James	II
1264082	Church Of St Leonard	II*
1123763	Church Of St Mary The Virgin	II*

Ref	Name	Grade/Type
1020997	World War II Minefield Control Tower 940m And Pillbox 980m South East Of Holliwell Farm	Scheduled Monument
	Bradwell On Sea	Conservation Area
	Tillingham	Conservation Area
	Southminster	Conservation Area

Surveys to inform the EIA baseline characterisation

9.5.32 The following surveys are proposed to inform the EIA:

- A targeted walkover of the Site will be carried out. This will seek to confirm the location and state of preservation of previously recorded assets within the Site, confirm the nature of any features detected in LiDAR survey (if data is available for the Site) and aerial photography, and will seek to identify currently unrecorded archaeological remains in areas of potential impact.
- Heritage assets within the OSA which the Stage 1 desk-based study identified as potentially drawing significance from their wider setting will be viewed from publicly accessible locations to confirm their baseline setting and to identify locations for visualisations to assist with the assessment of impacts in the EIA.
- Subsequent detailed setting assessment visits to assets identified (through the above stages of assessment) as potentially experiencing significant effects will also be carried out following design freeze and receipt of wireline visualisations in order to more fully assess potential impacts.

10 Land and Soils

10.1 Introduction

10.1.1 This Chapter of the Scoping Report presents the scope of detailed environmental assessment for Land and Soils. Specifically, the Chapter presents the policy and legislative context, the approach to collecting baseline data and then an overview of the relevant baseline conditions within the Site and surrounding area, based on current knowledge and understanding. It concludes by setting out the scope of assessment including, with justification, the matters that are proposed to be scoped out and in for detailed assessment and concludes by outlining the method that will be used to undertake the detailed assessment.

10.2 Review of Legislation, Policy and Relevant Guidance

Legislation

- Environmental Protection Act, 1990
- Control of Pollution Act, 1974
- Environmental Permitting Regulations 2016 (as amended)

Planning Policy

National

- National Planning Policy Framework (2024)[23];
- Environmental Improvement Plan (2023)[24];

Local

- Approved Local Development Plan 2014 – 2029[25]

Technical Guidance

- Natural England (1988) 'Agricultural land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land (ALC011)[26];

[23] Department for Levelling Up, Housing and Communities (DLUHC) (2024) National Planning Policy Framework, [Online], Available: https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf [Accessed January 2025]
[24] Defra (2023) Environmental Improvement Plan 2023, [Online], Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf [Accessed January 2025]
[25] Maldon District Council (2017), *Approved Local Development Plan 2014 – 2029*, [Online], Available: https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf
[26] Natural England (1998). *Agricultural Land Classification of England and Wales: Revised criteria for grading the quality of agricultural land (ALC011)*. [Online], Available: https://publications.naturalengland.org.uk/publication/6257050620264448 [Accessed January 2025]

- Natural England (2017) Likelihood of Best and Most versatile Agricultural Land[27];
- Department for Food, Environment and Rural Affairs (Defra) Local Lands, Soils and Groundwater Management Technical Guidance (TG22);
- Land Contamination Risk Management (Environment Agency, 2023)[28]
- Construction Industry Research and Information Association (CIRIA) document 'Contaminated land risk assessment, A guide to good practice (C552)[29]';
- Institute of Environmental Management and Assessment (IEMA) Guide: A New perspective on Land and Soil in Environmental Impact Assessment (2022)[30];
- Technical Information Note TIN049: Agricultural Land Classification: protecting the best and most versatile agricultural land, 2nd edition (2012)[31];
- A Green Future: Our 25 Year Plan to Improve the Environment (2023)[32];
- The Environment Agency's approach to groundwater protection, (2018)[33]; and
- The Environment Agency, protect groundwater and prevent groundwater pollution (2024)[34].

10.3 Summary of Baseline Conditions

10.3.1 The indicative site is largely agricultural land and there are no existing or historic industrial uses on or in the immediate vicinity of the area with the potential to lead to significant contamination. The undeveloped nature of the indicative site means that contamination is unlikely, although there is the limited potential for hotspots of contamination associated with the agricultural use of the land, for example from localised fuel spills / leaks and the use of pesticides or herbicides.

10.3.2 The indicative site is largely in agricultural use, with isolated dwellings / farmsteads / small businesses. Defra's MAGIC website identifies the western half of indicative site as largely Grade 3 (good to moderate quality) agricultural land, with the eastern half classified as Grade 2 (high quality). The land is mainly in arable use, with some grassland, rough grazing (eastern edge), and a small orchard to the

[27] Natural England (2017). *Likelihood of Best and Most versatile Agricultural Land*. [Online], Available: https://publications.naturalengland.org.uk/category/5208993007403008 [Accessed January 2025]
[28] Environment Agency (2023). *Land contamination risk management (LCRM)*. [Online], Available: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm [Accessed January 2025]
[29] Rudland, D J, Lancefield, R M and Mayell, P N (2001). *Contaminated land risk assessment. A guide to good practice (C552D)*. CIRIA: London
[30] IEMA (2022). A New Perspective on Land and Soil in Environmental Impact Assessment. IEMA: Lincoln
[31] Natural England (2012). Technical Information Note TIN049: Agricultural Land Classification: protecting the best and most versatile agricultural land. Natural England: Crewe
[32] DEFRA (2023). *A Green Future: Our 25 Year Plan to Improve the Environment*. [Online], Available: https://assets.publishing.service.gov.uk/media/5ab3a67840f0b65bb584297e/25-year-environment-plan.pdf [Accessed January 2025]
[33] Environment Agency (2018). *The Environment Agency's approach to groundwater protection*. [Online], Available: https://assets.publishing.service.gov.uk/media/5ab38864e5274a3dc898e29b/Envirnment-Agency-approach-to-groundwater-protection.pdf [Accessed January 2025]
[34] Environment Agency (2024). Protect groundwater and prevent groundwater pollution [Online], Available: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution [Accessed January 2025]

north of indicative site. There are also small areas of unimproved saltmarshes on the north east and south east edges of the indicative site.

10.3.3 The indicative site is not within a minerals safeguarding area or minerals consultation zone, and from the current Essex Minerals Local Plan (adopted July 2014) sand and gravel resources are limited in the area. Asheldham Quarry, to the east of Asheldham and north of Hall Road, will be investigated for the potential to supply suitable materials for the project. However, the consultation that took place on the Essex Minerals Local Plan (consultation period 29 May – 24 July 2024) includes Land East of Asheldham Quarry and Land South of Asheldham Quarry on the list of candidate sites.

10.3.4 The majority of the indicative site is at low risk from unexploded ordnance, although the area to the south of the indicative site, adjacent to the River Crouch, is shown as an area of high risk. The area between Dengie and Asheldham is also noted as a Luftwaffe Target. South of the River Crouch, as far as Rayleigh, the land is identified as being at moderate risk.

10.3.5 There are three existing wind farms in the vicinity of the indicative site and an offshore wind farm is also visible from the indicative site. There is existing hardstanding near the River Crouch and tracks across the Proposed Development area that were used for the landing (from the sea) and transportation of wind turbine components for the existing wind farms. The tracks also continue to be used for maintenance of these wind turbines. There is an extensive network of tracks which are in constant use for farming activities across the indicative site.

10.3.6 With regard to the surrounding area, the closest settlements to the indicative site include Southminster to the west, Burnham-on-Crouch and Ostend to the west / south west, and Tillingham to the north west. Approximately 4 km to the north of the indicative site is the disused RAF Bradwell Bay aerodrome and to the immediate north of this is the decommissioned Bradwell nuclear power station (it is worth noting that Bradwell-on-Sea has been identified by central government as a potentially suitable location for the construction of a new nuclear power station in the future). To the south of the River Crouch is Foulness Island, which is used, in part, for weapons testing and is managed as part of MOD Shoeburyness (with restricted public access to this area).

10.3.7 There are a number of airstrips and a regional airport in the wider area surrounding the indicative site. Those close enough for consideration are Tillingham Airfield / Airstrip (GB-0433) which is located to the west of Tillingham and London Southend Airport to the south west.

10.4 Scope of the Assessment

Potential Effects – Ground Conditions

Construction

10.4.1 The existing land uses within the indicative site mean that the potential for contamination is limited to isolated hotspots that could have arisen from the area's agricultural use. However, it is considered that any hotspots found during construction can be mitigated through the use of standard personal protective equipment and good practice construction techniques, which will be set out in the CEMP. No significant effects are therefore predicted on human health and the water environment as a result of mobilisation of, or contact with, existing contamination during construction.

10.4.2 The Proposed Development will require excavations of varying depths for the foundations of the turbines and substation buildings, the power collection cable runs and the anemometry mast (if used). Crushed stone pads will be required for the wind turbine installation cranes hardstanding and construction compound and locating other equipment on. Access tracks will also be required between the various infrastructure on site. It is proposed to transport the necessary volumes of crushed stone / aggregate to site via road utilising locally available quarries where available and suitable.

The creation of foundations will have localised effects on the geology / geomorphology and minerals resource of the site; however, these effects are considered unlikely to be significant.

10.4.3 A desk-top phase 1 study considering geology, and information on existing and past land uses will be undertaken to identify previous potential for contamination, pathways and receptors (conceptual model). At this stage, given no notable sources of contamination have been identified on or adjacent to the indicative site, it is not anticipated that intrusive site investigations will be required. Statutory regulators, including Maldon District Council and the Environment Agency, will be consulted on all contamination matters.

10.4.4 A preliminary-desk study unexploded ordnance (UXO) assessment will be undertaken to determine whether further detailed risk assessment is required. If necessary, this would be undertaken prior to construction works to identify the standard and proven mitigation measures necessary for works to proceed in the safest acceptable manner (as low as reasonably practicable to achieve), in compliance with current legislation and best practice. Examples of such mitigation measures, depending on the final determined level of risk, include risk communication, safety planning and training during construction, site surveys and watching briefs. With appropriate measures in place, the potential for significant effects to arise in relation to UXO during the construction phase of the development is not likely to be significant.

Table 10-1: Potential effects scoped in to and out of detailed assessment for Ground Conditions

Potential effect	Receptor importance / sensitivity(1)	Magnitude or scale of effect(2)	Likely significant ?	To be included in the EIA?
Effect on geology / geomorphology during construction	Low (Local geology)	Negligible to small Short and long term	X	No
Mobilisation of ground contaminants during site preparation and construction	High (Construction workers, groundwater, surface water)	Negligible to small Short term	X	No
Unexploded ordnance during site preparation and construction	High (Construction workers, local residents),	Negligible to small Short term	X	No
Notes: (1) Categories = high, medium, low, negligible (takes into account geographical level of importance) (2) Categories = large, medium, small, negligible (takes into account whether effect is short or long term)				

Potential Effects – Land Use and Soil

Construction

10.4.5 It is considered unlikely that suitable material exists within the indicative site area for the localised winning of road stone and other construction materials and therefore on-site borrow pits are not

included in the proposals. . No significant adverse effects are therefore considered likely to arise in relation to this.

Operation

10.4.6 The proposed built development (i.e. wind turbine foundations, crane pads, substation foundations and access tracks) will lead to the loss of a small area of land from agricultural production. Given the relatively small area of land to be lost in relation to the total area of farmed land in Maldon (27,460 ha) and in Essex more widely (the Essex Minerals Local Plan (adopted July 2014) refers to 70% of the 369,394ha land area of Essex is productive farmland, with half of this land graded as Grade 1, 2 or 3a under the Agricultural Land Classification) and the fact that no grade 1 land and only a very small area of grade 2 land could be lost, it is considered that this is a negligible effect that will not be significant.

10.4.7 All the PROW will remain in place and open during operation and therefore no significant adverse effects are considered likely to arise during this phase of the development. Temporary diversions will be required during the construction phase in some locations, in particular during the construction of site tracks and the installation of wind turbines.

10.4.8 The proposals will result in the introduction of renewable energy generating infrastructure to a largely agricultural area. However, as noted previously, there are three existing onshore wind farms in the vicinity of the indicative site and a solar array to the east of Burnham-on-Crouch. Some of the supporting infrastructure that was put in place for the sustainable construction of the existing wind farms remains in situ (i.e. access tracks and the marine transfer facility hardstanding). It is proposed that this existing infrastructure is utilised as far as possible. It is therefore not considered likely that land uses on or in close proximity to the indicative site will be significantly affected by the Proposed Development.

10.4.9 The Proposed Development is not considered likely to have an adverse effect on the operation of the MOD's weapons testing activities on Foulness Island. Nevertheless, the MOD will be contacted for their comments regarding the proposals.

10.4.10 The presence of London Southend Airport raises the potential for a number of issues in relation to aviation activities and any associated communication installations in the vicinity of the indicative site. Such issues have been considered in section 6, community, social and economic effects and have been scoped into the EIA.

Table 10-2: Potential effects scoped in to and out of detailed assessment for Land and Soils

Potential effect	Receptor importance / sensitivity(1)	Magnitude or scale of effect(2)	Likely significant ?	To be included in the EIA?
Loss of agricultural land on the site	Medium to high (Agricultural land on the site)	Negligible Long term	X	No
Effects on the existing public rights of way on the site during construction	Low (Public rights of way on the site)	Small Short term	X	No

Potential effect	Receptor importance / sensitivity(1)	Magnitude or scale of effect(2)	Likely significant ?	To be included in the EIA?
Introduction of new renewable energy infrastructure land use on the site	Low (Land uses on the site)	Small Long term	X	No
Effect on nearby land use – MOD weapons testing	High (MOD weapons testing area)	Negligible Long term	X	No
Effects on aviation and communication	High (Local aviation activity)	Uncertain Short and long term	?	Yes (to be covered elsewhere in the EIA)
Effect on existing residential properties during construction and operation	High (Residential receptors)	Small to large (Short and long term)	ü	Yes (to be covered elsewhere in the EIA)

Notes:
(1) Categories = high, medium, low, negligible (takes into account geographical level of importance)
(2) Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

11 Transport and Access

11.1 Introduction

11.1.1 This Chapter of the Scoping Report presents the scope of the environmental assessment for Transport and Access. Specifically, the Chapter presents the policy and legislative context, the approach to collecting baseline data and then an overview of the relevant baseline conditions within the Site and surrounding area, based on current knowledge and understanding. It concludes by setting out the scope of assessment including, with justification, the transport and access matters that are proposed to be scoped out and in for detailed assessment and concludes by outlining the method that will be used to undertake the detailed assessment.

11.2 Review of Legislation, Policy and Relevant Guidance

11.2.1 Legislation, planning policy and guidance relating to hydrology and hydrogeology, and relevant to the Proposed Development comprises:

Planning Policy

National

- National Planning Policy Framework (2024)[35];

Local

- Approved Local Development Plan 2014 – 2029[36]

Technical Guidance

- IEMA 'Environmental Assessment of Traffic and Movement' (2023)[37];
- Planning Practice Guidance "Travel Plans, Transport Assessments and Statements[38]"; and
- Department for Transport, et al, Design Manual for Roads and Bridges[39].

11.3 Summary of Baseline Information

11.3.1 The marine transfer facility used by Turncole Wind farm and for Middlewick Wind Farm for the delivery of wind turbine components by sea remains in-situ adjacent to the sea wall on the River Crouch. Existing site tracks connect the marine transfer facility to the indicative site.

[35] Department for Levelling Up, Housing and Communities (DLUHC) (2024) National Planning Policy Framework, [Online], Available: https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf
[36] Maldon District Council (2017), *Approved Local Development Plan 2014 – 2029*, [Online], Available: https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf
[37] Institute of Environmental Management & Assessment (IEMA) (2023), Environmental Assessment of Traffic and Movement.
[38] Department of Levelling Up, Housing & Communities (2014), Planning Practice Guidance "Travel Plans, Transport Assessments and Statements.
[39] Depart for Transport (DfT) et al, (Undated), Design Manual for Roads and Bridges (DMRB).

11.3.2 The indicative site is accessible by road from minor road which come of the B1021, B1018 and the B1010 from the west. These roads ultimately link to the A130 that connects Chelmsford and Southend-on-Sea, and the A12, A127 and the M25.

11.3.3 Department for Transport road traffic statistics indicate that for the B1021, through the centre of Tillingham (manual count point 941082) that the annual average daily flow (AADF) in 2008 was 1,244 (of which 61 were HGVs). Another manual count point along the B1021, just to the north of Asheldham (manual count point 941115) identified the AADF in 2019 as 2,074 (of which 93 were HGVs). The B1021 south of Southminster (manual count point 951525) had a recorded AADF in 2019 of 4,668 (85 HGVS). The closest manual count point along the B1018 to the indicative site is south of Latchingdon (manual count point 941097), which recorded an AADF of 5,942 in 2009 (of which 252 were HGVs). The closest manual count point along the B1010 to the indicative site is west of Althorne (manual count point 966372), which recorded an AADF of 7,602 in 2009 (of which 243 were HGVs).

11.3.4 There are bus stops in the vicinity of the indicative site, focussed mainly within the villages of Tillingham, Dengie, Asheldham, Southminster, Ostend and Burnham on Crouch, and at key junctions along the B1021, B1018, etc. Southminster Railway Station, to the west of the indicative site, is the eastern terminus of the Crouch Valley Line in Essex, serving the town and other settlements (including Burnham on Crouch) on the Dengie Peninsula. It is approximately 45 miles down the line from London Liverpool Street.

11.3.5 PROW on and in the vicinity of the indicative site include Footpaths 17, 20, 22, 23, 24 and 25 Burnham-On-Crouch, Footpaths 21, 22 and 24 Southminster, Footpaths 8 and 11 Dengie, and Footpaths 31, 35 and 36 Tillingham. Several of these form part of the King Charles III England Coast Path.

11.3.6 Tillingham Airfield (GB-0433) is located to the west of Tillingham and London Southend Airport is located to the south west.

11.4 Embedded Environmental Measures

11.4.1 The timing of construction vehicles arriving and leaving the site will be managed to avoid peak hours where possible through a construction traffic management plan (CTMP), which it is anticipated would be required by a planning condition attached to any consent. Initial information on the construction traffic management will be provided in the outline CEMP that will form a technical appendix to the ES. Appropriate traffic management measures, such as directional signage, banksmen and escorts, will be implemented as necessary. Traffic management will also be put in place to manage construction traffic within the site where needed. The outline CEMP will also set out high level details of construction routes, signage, delivery hours and escorting loads as required.

11.5 Scope of the Assessment

Likely Significant Effects Scoped Out from Detailed Assessment

11.5.1 The marine transfer facility has already been permitted and has been subject to the relevant assessments for a previous operation, therefore has been scoped out.

11.5.2 Site preparation and construction activities may result in the need to temporarily divert public rights of way for short periods of time to allow for the construction of access tracks and the movement of project materials and components to their required position. The need for short term, temporary footpath diversions is not considered to give rise to significant adverse effects and therefore this potential issue has been scoped out of the EIA.

11.5.3 The Proposed Development will also generate operational traffic movements; however, the number will be very limited and will not increase flows on local roads by more than 10%. No significant adverse effects are therefore predicted as a result of increased road traffic during operation.

11.5.4 There is the potential for effects on existing PROW within the indicative site if temporary diversions are required as a result of construction activities. However, any effects would be short term and the public rights of way will not be closed or permanently diverted, so the effects are not considered likely to be significant.

11.5.5 All the PROW will remain in place and open during operation and therefore no significant adverse effects are considered likely to arise during this phase of the development .

Likely Significant Effects Scoped in to the Detailed Assessment

11.5.6 Road traffic will increase during the site preparation and construction phase of development, principally comprising construction worker / passenger car movements. There will also be an increase in HGV movements during this period, although these will be kept to the minimum through the use of a concrete batching plant on site. As previously noted, the existing marine transfer facility will be the primary route for all activities, this will significantly reduce construction road traffic.

11.5.7 IEMA's (2023) Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement state that traffic flows need to change by 10% to have the potential for significant effects in areas with specifically sensitive receptors (such as schools, hospitals, recreational areas and places of worship) and 30% in other areas. There are some existing sensitive receptors in the vicinity of the B1021, B1018 and the B1010, so consideration of the 10% threshold is appropriate.

11.5.8 Given that existing traffic levels on the B1021, B1018 and the B1010 are relatively low, and are likely to be more so towards their western extents where they are in closer proximity to the indicative site, there is the possibility that the percentage increase in vehicle movements during the site preparation and construction phase could exceed 10%. Construction traffic is therefore scoped into the EIA.

11.5.9 The Proposed Development could have an adverse effect on aviation users / airport operators during operation (due to the presence and movement of the wind turbine blades) and therefore there is the potential for significant adverse effects on air traffic. Therefore, aviation / air traffic are scoped into the EIA.

Proposed Assessment Methodology

11.5.10 A transport assessment (TA), which will assess the impact of construction traffic on the capacity of highway infrastructure, will be scoped with Essex County Council and National Highways and will be submitted in support of the planning application. The EIA will summarise the findings of this but will focus on the environmental issues associated with potential increases in traffic flow and any consequent effects on the local community, such as severance, increased driver and pedestrian delay and changes to pedestrian fear / intimidation and amenity.

11.5.11 The assessment will take account the NPPF, the MHCLG's (2014) NPPG: Travel plans, transport assessments and statements and the Institute of Environmental Management and Assessment's (2023) Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement. Close consultation will be undertaken with key stakeholders, such as the county council and National Highways.

11.5.12 A desk study and site visits will be undertaken to identify key features of the existing road and pedestrian / cycle networks in the vicinity of the site, obtain data on existing accident rates and identify existing public transport services. It is proposed that traffic surveys will be undertaken at key

junctions and links in the vicinity of the site, trip generation will be estimated for the construction phase of the Proposed Development, and predicted traffic flows and junction capacities will be modelled using appropriate software. The significance of traffic and transport effects on sensitive receptors will be determined by combining the sensitivity of identified receptors with the predicted magnitude of change, using a matrix.

12 Air Quality

12.1 Introduction

12.1.1 This Chapter of the Scoping Report presents the scope of the environmental assessment for air quality. Specifically, the Chapter presents the policy and legislative context, the approach to collecting baseline data and then an overview of the relevant baseline conditions within the Site and surrounding area, based on current knowledge and understanding. It concludes by setting out the scope of assessment.

12.1.2 New windfarm development can affect air quality and can generate dust during site preparation and construction, including by increasing emissions to air from traffic.

12.2 Review of Legislation, Policy and Relevant Guidance

12.2.1 Legislation, planning policy and guidance relating to hydrology and hydrogeology, and relevant to the Proposed Development comprises:

Legislation

- EU Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe[40] (now written into UK law)
- The Environmental Protection Act (1990)[41]
- Part IV of the Environment Act (1995)[42]
- The Clean Air Act (1993)[43]
- The Air Quality (England) Regulations (2000)[44]
- The Air Quality (England) (Amendment) Regulations (2002)[45]
- The Air Quality Standards Regulations (2010)[46]
- The Environment Act (2021)[47]
- The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023

[40] The European Parliament and the Council of the European Union (2008) Directive 2008/50/EC of the European Parliament and of the Council, Available: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32008L0050.
[41] Environmental Protection Act 1990 (1990), Available: http://www.legislation.gov.uk/ukpga/1990/43/contents.
[42] Environment Act (1995), HMSO, Available: http://www.legislation.gov.uk/ukpga/1995/25/contents.
[43] Clean Air Act 1993 (1993), HMSO, Available: http://www.legislation.gov.uk/ukpga/1993/11/contents.
[44] The Air Quality (England) Regulations 2000 Statutory Instrument 928 (2000), HMSO, Available: http://www.legislation.gov.uk/uksi/2000/928/contents/made.
[45] The Air Quality (England) (Amendment) Regulations 2002, Statutory Instrument 3043 (2002), HMSO, Available: https://www.legislation.gov.uk/uksi/2002/3043/contents/made.
[46] The Air Quality Standards Regulations 2010 Statutory Instrument 1001 (2010), HMSO, Available: http://www.legislation.gov.uk/uksi/2010/1001/pdfs/uksi_20101001_en.pdf.
[47] Environment Act 2021 (2021).

Planning Policy

National

- National Planning Policy Framework (2024)[48]
- Environmental Improvement Plan (2023)[49]
- Clean Air Strategy (2019)[50]
- Air Quality Strategy (2007)[51]
- Air Quality Strategy (2023)[52]
- Reducing Emissions from Road Transport: Road to Zero Strategy (2018)[53]
- National Air Quality Plan (2017) and Supplement (2018)[54]

Local

- Air Quality Action Plan 2020 - 2025[55]
- Approved Local Development Plan 2014 – 2029[56]

Technical Guidance

- Planning Practice Guidance (2023)[57], Air Quality (2019)[58]

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[48] Department for Levelling Up, Housing and Communities (DLUHC) (2024) National Planning Policy Framework, [Online], Available: https://www.gov.uk/government/publications/national-planning-policy-framework--2. https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf

[49] Defra (2023) Environmental Improvement Plan 2023, [Online], Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf.

[50] Defra (2019) Clean Air Strategy 2019, Available: https://www.gov.uk/government/publications/clean-air-strategy-2019.

[51] Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Defra.

[52] Defra (2023) Air Quality Strategy: Framework for Local Authority Delivery, [Online], Available: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery.

[53] DfT (2018) The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy.

[54] Defra (2018) Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations, Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/746100/air-quality-no2-plan-supplement.pdf.

[55] Maldon District Council and Essex County Council (2020), *Air Quality Action Plan 2020 – 2025* [Online], Available: https://laqm.defra.gov.uk/wp-content/uploads/2023/09/Maldon-District-Council_8946_9031__AQAP_Update_April_2020_Updated_2_July-5.pdf

[56] Maldon District Council (2017), *Approved Local Development Plan 2014 – 2029*, [Online], Available: https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf

[57] DLUHC (2023) 'Planning Newsletter'.

[58] Ministry of Housing, Communities & Local Government (2019) Planning Practice Guidance, Available: https://www.gov.uk/government/collections/planning-practice-guidance.

- Environmental Protection UK (EPUK) & Institute of Air Quality Management (IAQM) Guidance: Land-Use Planning & Development Control: Planning for Air Quality (2017)[59]
- IAQM Guidance on the Assessment of Dust from Demolition and Construction (2024)[60]
- Defra Local Air Quality Management Technical Guidance (TG22) (2022)[61]
- Design Manual for Roads and Bridges (DMRB) (2024)[62]

12.3 Summary of Baseline Conditions

12.3.1 MDC has declared one air quality management area (AQMA) at Market Hill, Maldon which is approximately 15km from the indicative site. MDC does not undertake automatic continuous monitoring, but it did undertake passive monitoring of nitrogen dioxide (NO_2) at 26 sites in 2021. The closest monitoring point to the indicative site is at Latchingdon (the Latchingdon / Burnham Road junction), approximately 12 km away. The annual mean (annualised and bias adjusted) NO_2 concentration at this monitoring point was 24.3 µg/m3 in 2023[63], which is well below the annual mean objective of 40 µg/m3, indicating that air quality in the area is good.

12.3.2 The main source of emissions to air in the vicinity of the indicative site is likely to be vehicles using local roads (i.e. B1021, B1018, B1010).

12.3.3 New windfarm development can affect air quality and can generate dust during site preparation and construction,

12.3.4 Data from the National Atmospheric Emissions Inventory show that 342.9 kt $CO2_e$ were emitted in the Maldon District area in 2022, 90.3 kt $CO2_e$ of which were from domestic energy use and 88.1 kt $CO2_e$ was from road transport.

12.4 Scope of the Assessment

Construction

12.4.1 The movement of materials and personnel to and from a construction site will have associated emissions. Guidance[64] suggests that an assessment is not required if traffic flows will increase by fewer than 100 HGVs or 500 other vehicles (annual average daily traffic (AADT)) outside an AQMA. The quantum of vehicles will be assessed in more detail as designs develop during the EIA process, however the total number of HGVs required to deliver all materials to the project in a 12 month period is not expected to exceed 36,500 as would be required to reach the threshold. Whist it is the intention

[59] Moorcroft and Barrowcliffe et al (2017) Land-Use Planning & Development Control: Planning For Air Quality v1.2, IAQM, London, Available: http://iaqm.co.uk/guidance/.
[60] IAQM (2024) Guidance on the Assessment of Dust from Demolition and Construction v2.2, [Online], Available: http://iaqm.co.uk/guidance/.
[61] Defra (2022) Review & Assessment: Technical Guidance LAQM.TG22 August 2022 Version, [Online], Available: https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf.
[62] Standards For Highways (2024) Design Manual For Roads and Bridges: LA 104 – Air quality. Available: https://www.standardsforhighways.co.uk/tses/attachments/10191621-07df-44a3-892e-c1d5c7a28d90?inline=true
[63] Maldon District Council, 2024 *Air Quality Annual Statement Report* [Accessed: February 2025] Available at: https://www.maldon.gov.uk/download/downloads/id/19708/maldon_air_quality_annual_status_report_2024.pdf
[64] Institute of Air Quality Management, 2017, *Land-Use Planning & Development Control: Planning For Air Quality* [Accessed: February 2025] Available at: https://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf

that wind turbine components will be delivered by sea, the potential impact of deliveries by road will be included in the assessment.

12.4.2 If, as intended, project components, equipment and/or materials are transported to the site via the temporary marine facility, this would generate emissions from the associated vessel movements. However, given that these emissions will be temporary in nature and dispersal of air pollutants will be rapid and distant from sensitive receptors, no significant adverse effects are predicted.

12.4.3 The contributions of exhaust emissions (i.e. CO_2, NO_2 and particulate matter (PM_{10})) from construction plant would likely be low and orders of magnitude below current Air Quality Objectives. Therefore it is considered that there are unlikely to be significant effects arising from the temporary use of construction plant. An outline Construction Environmental Management Plan (CEMP) will be prepared in support of the planning application which will set out the best practice and general pollution control measures for construction plant.

12.4.4 Subject to the nature of the ground conditions, site preparation and construction activities, and meteorological conditions, construction sites have the potential to mobilise dust that can then be deposited on surrounding areas. The significance of dust deposition tends to decrease with increasing distance from the source and is only commonly significant within 100 m of the dust generation source. Standard and proven best practice construction measures are set out in guidance[65] to minimise temporary effects from dust generation, such as regular site inspections, erecting barriers around dusty activities, covering, seeding or fencing stockpiles and using water for dust suppression. A construction dust risk assessment will be prepared as part of the outline CEMP. This construction dust risk assessment will identify the necessary measures that will be implemented during construction and therefore no significant adverse effects are predicted.

Operation

12.4.5 The Proposed Development will generate operational traffic movements associated with maintenance activities. However, the number of staff visiting the site on a daily basis will be very limited and therefore increases in vehicle emissions from staff vehicles will not be significant. There may be occasions when more intensive maintenance activities take place and generate additional Heavy Goods Vehicles (HGV) and passenger vehicle movements; however, these will be for very limited time periods and will not breach the thresholds set out above. No significant effects are therefore predicted on air quality as a result of operational vehicle emissions.

12.4.6 During operation, the Proposed Development will lead to carbon emission savings through the generation of renewable energy. It is considered that these carbon emission savings have the potential to give rise to a significant beneficial effect, although this will need to be calculated in relation to the carbon emission savings from the turbines and PV panels (based on emissions from different generating sources) and the CO_2 produced through the lifecycle of the wind turbines and PV panels, including their manufacture and construction. Overall, it is anticipated that the Proposed Development will reduce carbon emissions compared to conventional fossil fuel generation and contribute to the government's climate change renewable energy target. This effect has the potential to be significant.

[65] Institute of Air Quality Management, 2024, *Guidance on the assessment of dust from demolition and construction*, [Accessed: February 2025] Available at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf

12.5 Scoped In/Out

12.5.1 It is proposed that the general topic of air quality is scoped **out of the EIA**.

13 Noise and Vibration

13.1 Introduction

13.1.1 This chapter presents the proposed scope and methodology of environmental assessment for Noise and Vibration within the EIA. This includes information on those effects proposed to be scoped out, those that are proposed to be scoped in and the methods that will be used to undertake the detailed assessment. The Proposed Development will generate noise during both the construction and the operational phases. This includes noise from construction traffic, noise from onsite plant and equipment associated with the construction of the Proposed Development and noise generated by the operational wind turbines, as well as ancillary plant such as substations.

13.2 Review of Legislation, Policy and Relevant Guidance

13.2.1 Legislation, planning policy and guidance relating to noise and vibration, and relevant to the Proposed Development comprises:

Legislation

- Environmental Protection Act, 1990;
- Control of Pollution Act, 1974.

Planning Policy

National

- National Planning Policy Framework 2024 (NPPF)

Local

- Approved Local Development Plan 2014 – 2029[66]

Technical Guidance

- ETSU-R-97, Assessment and Rating of Noise from Wind Farms, Department of Trade and Industry, 1996.
- A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise, Institute of Acoustics, 2013
- Institute of Environmental Management and Assessment Guidelines for Environmental Noise Impact Assessment (IEMA)
- BS 7445-1: 2003 'Description and measurement of environmental noise. Guide to quantities and procedures' (BS 7445-1)
- BS 5228:2014+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise' (BS 5228-1)

[66] Maldon District Council (2017), *Approved Local Development Plan 2014 – 2029*, [Online], Available: https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf

- BS 5228:2014+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration' (BS 5228-2)
- BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound' (BS 4142)
- BS 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233)
- Design Manual for Roads and Bridges LA111 'Noise and Vibration' 2020 (DMRB)
- Department of Transport, Calculation of Road Traffic Noise 1998 (CRTN)

13.3 Baseline Conditions

Existing Baseline Conditions

13.3.1 Measurements of the existing baseline noise conditions in the vicinity of the proposed site commenced in late January 2025 and were completed in early March 2025. The measurement locations used for the survey have been selected in line with the recommendations set out in the Institute of Acoustic Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise, 2013 (IOA GPG). The monitoring locations are indicated in Figure 13-1 in section 13.4 below. In particular, the monitoring locations have been selected to provide representative measurements of baseline noise levels in the absence of noise from existing wind farms in the local area. Given that the Turncole, Middlewick and Bradwell wind farms are currently existing and operational, the locations have been selected to allow the influence of existing wind turbine noise from these developments to be removed from the data, e.g. by filtering the data by wind direction.

13.3.2 Results from the baseline monitoring indicate that existing background noise levels in the local area, in the absence of noise from the existing turbines, are characterised by predominantly natural sources, such as wave action at the coast, birdsong and the sound of wind in foliage. The baseline survey is described in further detail in section 14.5 below.

Future Baseline

13.3.3 Given that the current noise climate within the vicinity of the Proposed Development predominantly consists of natural sources, it is not likely that there would be a material change in baseline noise levels in the future compared to the existing. Current baseline noise level measurements are therefore proposed to be used directly, with no adjustments, to represent future baseline noise levels when the Proposed Development becomes operational.

13.4 Scope of Assessment

Potential Significant Effects

13.4.1 The following elements of the noise and vibration assessment have the potential to lead to significant effects, and are therefore proposed to be scoped in to the assessment.

Construction Traffic Noise

13.4.2 Construction traffic has the potential to lead to noise impacts on existing local roads, depending on the number of vehicle movements that are needed during construction and the route that those vehicles take to and from the Proposed Development. At this point, construction traffic flows and

routes are not known, therefore the assessment of construction traffic noise is proposed to be scoped in to the assessment.

Onsite Construction Noise

13.4.3 There is the potential for onsite construction activities to lead to noise impacts during the more intense phases of construction (e.g. construction of turbine foundations). This scale of construction noise impacts will depend upon the precise locations of construction works within the proposed site and the plant and equipment required. At this stage, it is therefore proposed that noise impacts from onsite construction activities are scoped in to the assessment.

Operational Noise – Turbines

13.4.4 There is the potential for operational noise from the proposed wind turbines to result in impacts at the nearest noise sensitive receptors to the Proposed Development. As such, these potential noise impacts are proposed to be scoped in to the assessment.

Operational Noise – Ancillary Equipment

13.4.5 Depending on the final locations of ancillary equipment, and the distance of this equipment from noise sensitive receptors, there is the potential for impacts due to operational noise from ancillary equipment. In particular, substation and BESS equipment has the potential to generate noise at a level that could feasibly lead to operational noise impacts, depending on the locations of these items of plant relative to noise sensitive receptors. As such, operational noise from ancillary plant and equipment is proposed to be scoped in to the assessment.

Cumulative Operational Noise – Turbines

13.4.6 Given the presence of the existing Turncole, Middlewick and Bradwell turbines, there is the potential for cumulative operational turbine noise impacts at receptors in the vicinity of the Proposed Development. As such, the cumulative operational noise impacts of the operation of turbines associated with the Proposed Development operating with the Turncole, Middlewick and Bradwell turbines are proposed to be scoped in to the assessment. Other existing wind farms that are further from the Proposed Development than Turncole, Middlewick and Bradwell are at too great a distance to affect the outcome of the noise assessment and will therefore not be considered in the cumulative noise assessment.

Non-Significant Effects

13.4.7 The following potential elements of noise and vibration assessment are not likely to lead to impacts at nearby sensitive receptors, and therefore are proposed to be scoped out of the noise and vibration assessment.

Construction Traffic – Vibration

13.4.8 Construction traffic will make use of the existing road network, and whilst this will result in some increase in road traffic flows on local roads, the majority of this traffic will be similar in nature to existing traffic (e.g. conventional light and heavy vehicles). The exception to this is abnormal loads (e.g. turbine blade deliveries), which would travel at low speed and are therefore not expected to generate high levels of vibration. Where the local road network is not of sufficient standard to carry the required traffic (e.g. not appropriately surfaced, not of sufficient width etc.), the roads would be upgraded or alternative access routes established. As such, levels of vibration due to construction traffic are not expected to be generated at levels sufficient to result in significant effects. Therefore, vibration due to construction traffic is proposed to be scoped out of the assessment.

Onsite Construction – Vibration

13.4.9 The construction of the Proposed Development is not likely to make use of construction methods that generate high levels of vibration (e.g. piling, vibratory compaction etc.) at distances close enough to sensitive receptors to result in material vibration impacts (e.g. within a few tens of metres). As such, vibration due to onsite construction activities is proposed to be scoped out of the assessment.

Operational Traffic – Noise and Vibration

13.4.10 Once operational, the site is expected to generate minimal traffic flows, consisting only of occasional traffic to site for maintenance staff and to deliver parts and materials for maintenance purposes. As such, road traffic flows during operational will be too low to result in any material noise or vibration impacts at sensitive receptors. Both noise and vibration from operational road traffic flows are therefore proposed to be scoped out of the assessment.

Operational Vibration – Turbines and Ancillary Equipment

13.4.11 None of the equipment associated with the Proposed Development, including the wind turbines and the ancillary equipment (e.g. substation and BESS equipment) will generate levels of vibration that are likely to be perceptible beyond the site boundary. Consequently, vibration from the operation of plant and equipment is proposed to be scoped out of the assessment.

Assessment Methodology

Study Area and Spatial Scope

13.4.12 For the assessment of noise from construction traffic, receptors will be considered which are within 50m of any road link that is predicted to experience an increase in road traffic noise levels due to construction traffic of at least 1 dB. For the assessment of onsite construction noise, sensitive receptors will be considered which are within 300 m of any area of construction activity that could take place for a period longer than a single day. For operational noise from the proposed wind turbines, all sensitive receptors that are within 2 km from the proposed turbine locations will be included in the assessment. For the assessment of operational noise from ancillary equipment such as substations and battery storage equipment, sensitive receptors within 300 m of these items of plant and equipment will be included in the assessment.

13.4.13 Given that the precise construction access routes, main construction works areas, turbine locations and locations of ancillary equipment are not finalised at the time of writing of this report, these study areas will be defined in detail in the Noise and Vibration chapter of the EIA, once further details of the Proposed Development are available.

Baseline Assessment

13.4.14 A baseline noise survey has already been conducted between January and March 2025 in the vicinity of the development site. The survey locations have been selected in line with the guidance set out in the Institute of Accoustics Good PracticeGuide (IOA GPG)for carrying out baseline noise monitoring for wind energy developments. Specifically, the monitoring locations have been selected to be as far as is reasonably practicable from the existing turbines, whilst also being representative of the residential amenity spaces associated with the nearest residential properties to the Proposed Development. Given the presence of the existing wind farms in the area, it is not possible to carry out measurements at locations that will not experience noise from existing wind farms under all wind conditions. As such, there will be some combination of wind speed and wind direction for each monitoring location under which it is likely that there will be some contribution to the measured baseline noise levels from the existing wind farms. As such, the measured baseline data will be filtered to remove wind directions under which the monitoring locations are downwind of the existing turbines,

to minimise the effect of noise from the existing wind farms on the baseline measurements. This is consistent with the recommendations of the IOA GPG.

13.4.15 The monitoring locations used for the baseline noise survey are:

- ML1: Deal Hall;
- ML2: Bridgewick Farmhouse South;
- ML3: East Ware Farm; and
- ML4: Howe Farmhouse

13.4.16 The locations of these monitoring locations are indicated in Figure 13-1 below.

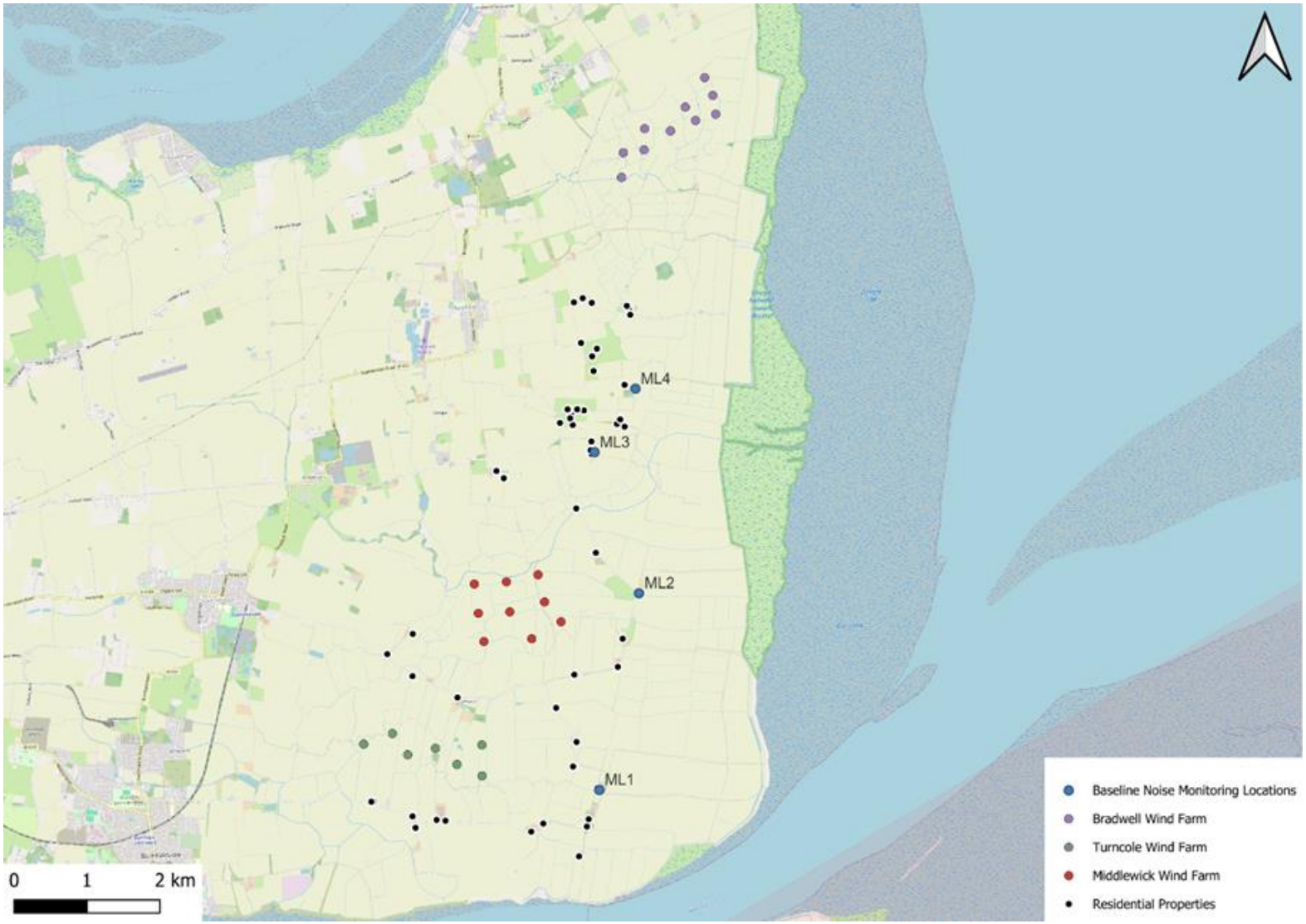

Figure 13-1: Baseline Noise monitoring locations

Assessment Approach

13.4.17 The noise assessment will be carried out in line with national noise and planning policy, including that laid out in the Noise Policy Statement for England, 2010 (NPSE) and the National Planning Policy Framework, 2024 (NPPF). The specific standards and guidance that will be referred to for each of the different aspects of the noise and vibration assessment that are proposed to be scoped in to the assessment are set out in the following sections.

Construction Traffic Noise

13.4.18 The assessment of noise from construction traffic will be carried out with reference to the assessment methodology set out in the Design Manual for Roads and Bridges, Sustainability and Environmental Appraisal, LA 111, Noise and Vibration, 2020 (LA 111). Calculations of road traffic noise on the local road network will be carried out using the calculation methodology set out in the Calculation of Road Traffic Noise, 1988.

Onsite Construction Noise

13.4.19 The prediction and assessment of noise from onsite construction activities will be carried out using the guidance set out in British Standard BS 5228, Code of Practice for Noise and Vibration Control on Construction and Open Sites, Part 1, Noise, 2009 incorporating 2014 amendments (BS 5228-1). Since source data is unlikely to be available for the precise plant and equipment that will be used on site during construction, indicative source data for the various construction sources will be determined from the database of construction noise sources set out in BS 5228-1.

Operational Noise – Turbines

13.4.20 Operational noise from the proposed wind turbines will be assessed in line with the methodology contained in ETSU-R-97, The Assessment and Rating of Noise from Wind Turbines, 1996 (ETSU-R-97), and taking into account the good practice guidance set out in the Institute of Acoustics Good Practice Guide to the Application of ETSU-R-97 for the Assessment of Noise from Wind Turbines, 2013 (IOA GPG). Modelling of wind turbine noise levels will be carried out using commercial noise modelling software that implements the calculation methodology set out in ISO 9613, Acoustics – Attenuation of Sound during Propagation Outdoors, Part 2, Engineering Method for the Prediction of Sound Pressure Levels Outdoors, 2024 (ISO 9613-2).

Operational Noise – Ancillary Equipment

13.4.21 Operational noise from ancillary plant and equipment, such as substation equipment, will be assessed using the methodology set out in British Standard BS 4142, Methods for Rating and Assessing Industrial and Commercial Sound, 2019 (BS 4142).

Cumulative Assessment

13.4.22 Cumulative noise from the combined operation of the turbines associated with the Proposed Development and the neighbouring Turncole, Middlewick and Bradwell turbines will be carried out in line with the guidance set out in the IOA GPG. Where such information is available, the noise data for the turbines associated from the neighbouring wind farms will be taken from the published assessments for the respective developments. Where this information is not available, reasonable assumptions for source noise levels will be made based on the known turbine parameters such as hub height and rotor diameter.

Summary

13.4.23 The proposed assessment scope, including the potential sources of noise and vibration and whether each item is proposed to be scoped in or scoped out of the assessment, are set out in Table 13-1 below.

Table 13-1: Proposed assessment scope for Noise and Vibration

Potential effect	To be included in the EIA?
Construction Traffic Noise	Yes
Onsite Construction Noise	Yes
Operational Noise – Turbines	Yes
Operational Noise – Ancillary Equipment	Yes
Cumulative Operational Noise – Turbines	Yes
Construction Traffic – Vibration	No
Onsite Construction – Vibration	No
Operational Traffic – Noise and Vibration	No
Operational Vibration – Turbines and Ancillary Equipment	No

14 Community, Tourism, Recreation and Health

14.1 Introduction

14.1.1 The Proposed Development has the potential to cause a range of community, social and economic effects. These include generation of employment and contribution to the economy, effects on tourism and recreation in the vicinity of the site, and effects on health, safety and amenity during construction and operation.

14.2 Review of Legislation, Policy and Relevant Guidance

14.2.1 Legislation, planning policy and guidance relating to socio-economics, and relevant to the Proposed Development comprises:

Planning Policy

National

Overarching National Policy Statement for Energy (EN-1) (2023) ;

National Policy Statement for Renewable Energy Infrastructure (EN-3) (2023) ; and

National Planning Policy Framework (NPPF) (updated February 2025) .

Local

- Approved Local Development Plan 2014 – 2029[67]

Technical Guidance

14.2.2 While no specific guidance exists for assessing the socio-economic effects of onshore wind farms in England, the assessment will comply with the EN-1 Overarching National Policy Statement (listed above) for Energy, which sets out how energy-related developments should be assessed.

In Section 5.13, this guidance outlines the impacts which need to be considered as part of any socio-economic impact assessment of an energy project in England. These include:

- the creation of jobs and training opportunities;
- the contribution to the development of low-carbon industries at the local and regional level as well as nationally;
- the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities;
- any indirect beneficial impacts for the region hosting the infrastructure, in particular in relation to use of local support services and supply chains;
- effects on tourism;

[67] Maldon District Council (2017), *Approved Local Development Plan 2014 – 2029*, [Online], Available: https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf

- the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure; and
- cumulative effects.

14.3 Baseline Conditions

Approach to the Collection of Baseline Data for Scoping

14.3.1 The potentially likely significant effects of the Proposed Development will be assessed against a relevant baseline scenario, taking into account social and economic conditions at different spatial levels. Those used in the baseline set out below are:

- Site (where relevant data are available);
- District;
- Region; and
- National.

14.3.2 Baseline conditions have been determined for a range of key indicators and measures, namely:

- Demographics;
- Labour market;
- Local economy;

14.3.3 A range of sources has been used to establish the existing socio-economic conditions within the study area:

- Office for National Statistics

Relevant Baseline Conditions

14.3.4 The unemployment rate in Maldon district in 2023 was 3.3%, below the regional (3.6%) and national (3.7%) averages. Key employment sectors in the district include wholesale and retail trade; repair of motor vehicles and motorcycles (19.0% of jobs), manufacturing (11.9% of jobs), construction (11.9% of jobs), and accommodation and food service activities (11.9% of jobs), all of which make up a greater proportion of jobs at the district level than at the regional and national levels.

14.3.5 Maldon District Council's (2013) Economic Prosperity Strategy 2013-2029 states that Essex County Council has identified renewable energy / low carbon technologies as one of four sectors in which Essex has a competitive advantage. The strategy highlights that the district has three distinct economies: the core, comprising the towns of Maldon and Burnham-on-Crouch, the rural hinterland, encompassing areas south east of Maldon and north / east of Burnham-on-Crouch, and the commuter economy around London.

14.3.6 The strategy notes that the visitor economy is linked to over 10% of jobs in the district and visitor spending in 2010 contributed approximately 5% of the district's total output. It also highlights leisure, food services and short-stay accommodation services as one of the sectors with the greatest potential for growth in the district. The Dengie Gateway Programme is identified as a key action for increasing economic growth, including supporting the visitor economy while protecting the unique

landscape character of the Dengie Peninsula. Important local attractions include the Wallasea Island Wetland Project and the Coastal Trail.

14.3.7 The baseline will be expanded on in the standalone report through a review of publicly available data sources. This will include:

- the demographic profile of the Maldon district within the context of the regional and national demographic trends;
- employment and economic activity of the local and regional economy compared to the national level;
- the industrial structure of the Maldon district within the context of regional and national economies;
- wage levels within the study areas and relevant comparisons; and
- fuel poverty characteristics of the local, regional and national study areas with relevant comparison; and
- the role of the tourism sector in the Maldon districts economy, with consideration of attractions and recreation assets such as trails, in the immediate vicinity of the Proposed Development.

Important Receptors Identified

14.3.8 The assessment will primarily focus on the effects on people in the local authority areas of Bassetlaw, Newark and Sherwood, and West Lindsey, as well as the local area within which the Proposed Development is located. Where relevant, however, baseline data and potential effects at regional and national levels will also be provided. Whilst people are ultimately the receptors to any effects, how they are impacted will be assessed as well as the scale of any impacts and the spatial scale at which the impacts are most relevant.

14.4 Embedded Environmental Measures.

14.4.1 The Proposed Development has the potential to significantly affect the local area in a beneficial way, initially through the consideration of good design principles to ensure that any benefits are maximised. These beneficial effects may be either temporary, for example during the construction and decommissioning phases of the Proposed Development, or permanent during operation.

14.4.2 Opportunities to enhance beneficial socio-economic effects may include:

- A temporary increase in employment opportunities for relevant construction and decommissioning trades and associated supply chains;
- The diversification of revenue for landowners;
- The optimisation of land use, with potential dual use of land for both the Proposed Development and agriculture; and
- An increase in renewable energy production and resultant contributions towards both achieving net zero targets and energy security.

14.4.3 Further Proposed measures will depend on the findings of the assessment. Proposed measures that will be adopted to enhance the socio-economic impacts include:

- engaging early with the local community and local businesses;

- providing clear information on technical requirements that can allow businesses to prepare; and
- incentivising Tier 1 suppliers to engage with local businesses.
- Other measures will be identified as part of the socio-economic and tourism assessment.

14.5 Scope of Assessment

Potential Effects

Construction

14.5.1 During construction, it is considered unlikely that the Proposed Development would result in a significant change in population as workers are unlikely to relocate to the area on a permanent basis. There will however be local procurement frameworks for local businesses. The construction will have a temporary effect on employment provision through the creation of construction jobs. Given the scale and type of development (i.e. enabling works and the technical), the creation of jobs would be a minor benefit to the local economy but are unlikely to be significant.

14.5.2 There is the potential for the Proposed Development to affect the health and wellbeing of local residents, both adversely through the generation of noise and emissions to air during construction and beneficially through the creation of employment. However, during construction increased dust and noise, and other emissions to air are not likely to be significant as has been discussed in other Chapters of this Report. No potentially significant health effects are therefore envisaged at the construction stage.

14.5.3 Construction of the project infrastructure is contributing to the development of low-carbon industries at the local and regional level as well as nationally, this should be reflected positively

14.5.4 There is the potential for construction works directly affecting or adjacent to the PROW within and close to the site to pose a risk to public safety. However, as discussed earlier, the turbines will be located away from the PROW where possible and temporary diversions will be put in place during construction (if necessary) to ensure users of local PROW are not exposed to any risk during the delivery of project components or materials. With these measures in place, no significant effects are envisaged during construction.

14.5.5 There is the potential for construction works to lead to a reduction in local recreational amenity. However, this will be addressed through standard good practice construction mitigation measures and no significant adverse effects are predicted.

14.5.6 Disturbance and changes to views during construction have the potential to affect tourism in the area. However, the potential for construction works to affect local amenity will be controlled through the use of standard good practice construction measures, so this is not considered likely to lead to a significant effect on tourism.

Operational

14.5.7 Once operational, the Proposed Development is likely to provide minimal permanent jobs and accordingly will not have a significant impact on the local economy.

14.5.8 The potential for long term changes to recreational amenities through changes to views and increased operational noise will be examined in the landscape and visual effects and noise assessments respectively and it is not considered appropriate to duplicate coverage here.

14.5.9 Similar to above disturbance and changes to views during operation have the potential to affect tourism in the area. Whilst the importance of the Dengie Peninsula's landscape as a general attractor to visitors is acknowledged, the limited specific visitor locations and tourist accommodation in the local area means that any changes to views and the area's landscape character are unlikely to significantly affect tourism.

14.5.10 Once operational, the development is contributing to the development of low-carbon industries at the local and regional level as well as nationally, this should be reflected positively.

14.5.11 There is the potential for the Proposed Development to affect the health and wellbeing of local residents, both adversely through the generation of noise and emissions to air during operation. However, emissions to air are not likely to be significant and have been covered in Air Quality Chapter, while operational noise will be covered in the noise assessment detailed in the ES. No other potentially significant health effects are envisaged.

14.5.12 There are several possible health and safety risks from operational wind farms. These will be covered in site HSE plans and emergency response plans. All operations will be risk assessed to ensure compliance with national regulations and operational safety procedures. As such they will no be considered further within the ES.

14.5.13 Rotating wind turbine blades can cause shadow flicker during sunny conditions when the blades periodically cast shadows through constrained openings, such as windows, which can affect residential amenity. This can occur during sunny conditions when a property is within 130 degrees either side of north of a turbine, and is only likely to occur within 10 rotor diameters of a turbine. While the exact location of the turbines is not available at this stage, the size of the turbines means that there is the potential for shadow flicker effects at residential properties, so this potential effect is scoped in on a precautionary basis.

14.5.14 Wind turbines can affect television and radio transmissions, microwave transmissions, mobile phone networks and radar. The potential for interference at this site is not known at this stage, however, such will be considered as part of the planning application. Knowing that the windfarm will not be allowed to operate unless an appropriate plan is put in place so that interference is avoided (or managed), it is considered that there is no need to consider this within the ES.

Major Accidents and Disasters

14.5.15 It is a requirement of the EIA Regulations that the potential risk of increased Major Accidents and Disasters are considered. 'Accidents' are considered to be an occurrence resulting from uncontrolled events in the course of construction and operation of a development (e.g. major emission, fire or explosion). 'Disasters' are considered to be naturally occurring extreme weather events or ground related hazard events (e.g. subsidence, landslide, earthquake).

14.5.16 Given the nature and type of development, it is considered that the Proposed Development is unlikely to result in any type of major accident/ disaster. There is a strict legislative framework that governs construction activities so as to ensure risks are clearly managed to an acceptable level. A variety of guidance, including to ensure pollution prevention, also exists. Bearing all these in mind, a Construction Environmental Management Plan will be produced, to be submitted to MDC for approval prior to construction commencing, that will detail the measures that will be implemented to ensure that major accidents are avoided.

14.5.17 The Proposed Development will be designed and operated in accordance with all legislative requirements that relate to this type of facility. During operation, safety processes will be reviewed, and if required, updated to ensure that the operations do not increase the risk or result in a major accident.

14.5.18 The indicative site is within the airport safeguarding zone for London Southend Airport and is anticipated to be within radar line of sight of one or more air traffic control radars operated by NATS En Route plc (NERL). Aviation aspects will therefore be considered as part of the planning application). However, it can already be assumed that the windfarm will not be able to operate until such time as with appropriate approvals from the Civil Aviation Authority are gained (if relevant) and any safety risk is managed, and as such it is not to be considered further within the ES.

14.5.19 The location of the Site is outside of an area where natural disasters have historically occurred. It is not an area at high risk from major earthquakes or subsidence, or because of the Site's flat nature, likely to suffer from landslides. Parts of the Site do flood albeit the Proposed Development, including the way it is constructed and operated, is being designed so as to withstand any flooding should it occur.

14.5.20 Furthermore, the infrastructure associated with wind is considered of low susceptibility to the impact of natural disasters. There is limited potential for a disaster occurring at a wind farm to create a hazardous pollution risk, with limited need for hazardous substances in wind farm operation.

14.5.21 As a result, it is considered that there can be no significant effect as a result of a major accident or a natural disaster and as such it is not considered further in this Scoping Report and is scoped out of detailed assessment.

Potential effects Scoped in and out of assessment

14.5.22 Table 14-1 sets out each of the aspects that it is proposed are scoped in to and out from detailed assessment.

Table 14-1: Potential effects scoped in to and out of detailed assessment for Socioeconomics

Potential effect	Receptor importance / sensitivity(1)	Magnitude or scale of effect(2)	Likely significant ?	To be included in the EIA?
Generation of employment during construction and operation	Low to medium (Area's unemployment level)	Small to medium Short and long term	N	Y
Contribution to the local and regional economies	Low to medium (Local and regional economies)	Small to medium Short and long term	N	Y
Effects on health and wellbeing	High (Local population)	Small to medium Long term	Y	Yes (to be covered elsewhere in the EIA)
Effects on public health and safety during construction and operation	High (Local population)	Negligible Short and long term	X	No
Effects on local amenity during construction	High (Local population)	Negligible Short term	X	No

Potential effect	Receptor importance / sensitivity(1)	Magnitude or scale of effect(2)	Likely significant ?	To be included in the EIA?
Effects on local amenity during operation as a result of changes to views and increased noise	High (Local population)	Small to large Long term	Y	Yes (to be covered elsewhere in the EIA)
Effects on local amenity during operation from shadow flicker	High (Local population)	Uncertain Long term	Y	Yes
Effects on tourism during construction	High (Tourism in the local area)	Negligible Short term	X	No
Effects on tourism during operation	High (Tourism in the local area)	Small Long term	X	No
Major Accidents and Disasters	High	Managed to an extent that cannot occur	X	No
Notes: (1) Categories = high, medium, low, negligible (takes into account geographical level of importance) (2) Categories = large, medium, small, negligible (takes into account whether effect is short or long term)				

14.6 Proposed Assessment Methodology

14.6.1 The method to assess the socio-economic impacts will be based on industry best practice and will consider the share of contracts that can be secured in each study area, and the level of employment that can be supported as a result.

14.6.2 In order to assess the magnitude of socio-economic impacts, the level of activity/employment supported during the construction and operation phases will be estimated.

14.6.3 The economic baseline conditions will be further established in detail for the assessment through a desk-based study, which will obtain data from a range of sources, including Maldon District Council, Essex County Council and the Office for National Statistics. Gross impacts in terms of job creation and contribution to the local and regional economies will be established and then converted to net impacts by taking account of deadweight (impacts that would have occurred anyway), leakage (the proportion of jobs that benefit individuals beyond the immediate area of impact), displacement (economic activity on site that will be diverted from other businesses in the area) and multipliers (indirect and induced effects that arise from direct expenditure in the local economy).

14.6.4 Government and industry reports will be used to determine the expected capital and operational expenditure associated with the Proposed Development, as well as the breakdown of expenditure by different contracts (e.g. turbine, balance of plant). An assumption will then be made based on the share of each type of contract that can be secured locally, regionally and nationally. This

increase in turnover will then be used to estimate the economic impact associated with the Proposed Development.

14.6.5 In order to assess impacts on tourism and recreation, the features that make the local area distinctive and attractive, such as how they display local heritage, will be identified. The potential impact of the Proposed Development on those key features will then be assessed.

14.6.6 If an effects assessment is required, this will be based on assessing the sensitivity of an economy/tourism and recreation asset to change and then assessing the potential magnitude of change associated with the Proposed Development. When sensitivity and magnitude are combined, the significance of effect will be assessed. Major and moderate effects will be considered significant in the context of the EIA Regulations.

15 Climate Change and GHG

15.1 Introduction

15.1.1 This chapter presents the scope of detailed environmental assessment for Climate Change, incorporating a Greenhouse Gas (GHG) assessment and Climate Change Resilience and Adaptation (CCRA) assessment for the Proposed Development. Specifically, this chapter presents the policy and legislative context alongside relevant technical guidance, the approach to collecting baseline data and an overview of the relevant baseline conditions within the site and surrounding area. It concludes by setting out the scope of assessment including, with justification, those effects that are proposed to be scoped in for assessment and outlines the assessment methodology that will be used to undertake the assessment.

15.1.2 Within this chapter, the term 'carbon' is used to describe all GHG emissions, i.e. all emissions which might contribute to climate change, the predominant contributor of which is carbon dioxide (CO_2). The term CO_2e is also used, which refers to Carbon Dioxide equivalent, which is the main metric for GHGs.

15.2 Review of Legislation, Policy and Relevant Guidance

15.2.1 Legislation, planning policy and guidance relating to GHG and climate change, and pertinent to the Proposed Development, comprises:

Legislation

- Climate Change Act 2008[68] and 2050 Target Amendment Order 2019[69];
- Carbon Budget Order 2021[70]; and
- Energy Act 2023[71].

Planning Policy

National Planning Policy

- National Planning Policy Framework (2024)[72];

Local Planning Policy

- Maldon District Approved Local Development Plan 2014-2029**Error! Bookmark not defined.**; s pecifically, Policy S1 'Sustainable Development', Policy D2 'Climate Change & Environmental Impact of New Development' and Policy D4 'Renewable and Low Carbon Energy Generation'; and

[68] HMSO (2008) Climate Change Act 2008.

[69] HMSO (2019) The Climate Change Act 2008 (2050 Target Amendment) Order 2019.

[70] HMSO (2021) The Carbon Budget Order 2021.

[71] HMSO (2023) Energy Act 2023.

[72] Ministry of Housing, Communities, and Local Government (2024). National Planning Policy Framework. Available: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

- Maldon District Local Development Plan Supplementary Planning Document: Renewable and Low Carbon Technologies[73].

Guidance

- Planning Practice Guidance for Climate Change[74];
- Institute of Environmental Management and Assessment (IEMA) Guide: Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022)[75];
- The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol)[76];
- PAS 2080:2023 Carbon Management in Buildings and Infrastructure[77]
- Climate Change Committee (CCC) Net Zero Technical Report[78];
- Seventh Carbon Budget: Advice for the UK Government[79];
- IEMA EIA Guide to: Climate Change Resilience and Adaptation[80];
- Royal Institute of Chartered Surveyors (RICS) Whole Life Carbon Assessment for the Built Environment[81];
- UK Climate Projections 2018 ('UKCP18')[82];
- UK Climate Projections: Headline Findings[83]; and
- UK Climate Change Risk Assessment 2022[84].

15.3 Baseline Conditions

GHG Assessment

15.3.1 The site is predominantly agricultural land used for arable crops. Whilst there will be no baseline GHG footprint from buildings and infrastructure, GHG emissions will occur as a result of the agricultural uses

[73] Maldon District Council (2018) Maldon District Local Development Plan Supplementary Planning Document: Renewable and Low Carbon Technologies.
[74] HM Government (2019) Planning Practice Guidance Climate Change. Available: https://www.gov.uk/guidance/climate-change
[75] IEMA (2022) Institute of Environmental Management and Assessment (IEMA) Guide: Assessing Greenhouse Gas Emissions and Evaluating their Significance.
[76] World Resources Institute, World Business Council for Sustainable Development (2001) The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard. World Resource Institute, Revised Edition.
[77] British Standards Institution (2023) PAS 2080:2023 Carbon management in buildings and infrastructure. Available: https://knowledge.bsigroup.com/products/carbon-management-in-buildings-and-infrastructure?version=standard
[78] CCC (2019) Net Zero, Technical Report.
[79] Climate Change Committee (2025) The Seventh Carbon Budget: Advice for the UK Government. Available: https://www.theccc.org.uk/wp-content/uploads/2025/02/The-Seventh-Carbon-Budget.pdf
[80] IEMA (2020) EIA Guide to: Climate Change Resilience and Adaptation.
[81] RICS (2023) Whole life carbon assessment for the built environment.
[82] Met Office UK (2018) UK Climate Projections.
[83] Met Office UK (2019) UK Climate Projections: Headline Findings.
[84] HMSO (2022) UK Climate Change Risk Assessment 2022.

of land on the site (e.g. from use of farm machinery, fertiliser application and soil disturbance). Parts of the site occupied by natural and semi-natural habitats (including peatland) may also contribute to a small amount of carbon sequestration (removal and storage of atmospheric CO_2). Where data are available, baseline GHG emissions will be quantified.

15.3.2 Notwithstanding this, the baseline GHG emissions will be small in the context of the lifecycle emissions for the Proposed Development.

CCRA Assessment

15.3.3 Existing baseline conditions for the CCRA assessment relate to current and recent historic climate and meteorological conditions at the site. The ES will include data gathered from Met Office to describe the existing frequency and severity of climate hazards such as flooding, heatwaves and drought.

15.4 Scope of Assessment

Likely Significant Effects Scoped Out from the ES

GHG Assessment

15.4.1 The carbon assessment will include a detailed footprint of key emissions during the construction, operational and decommissioning phases of the Proposed Development. It is proposed to scope out some minor carbon emissions sources from the assessment. These sources will only make up a very small component of the total Proposed Development's carbon footprint and their exclusion will therefore not materially affect the assessment. IEMA Guidance[75] acknowledges that emissions sources that combine to contribute less than 5% of a project's carbon emissions can typically be excluded from the assessment. The proposed exclusions for the carbon assessment are:

- Carbon emissions from the treatment and disposal of waste materials during both construction and operation. These will form a very small component of the carbon footprint of the Proposed Development and will be minimised through standard best practice; and
- Carbon emissions associated with water use (including water treatment and supply (pumping)). The Proposed Development (during construction or operation) will not have a substantial potable water consumption and therefore these emissions are expected to result in very small contributions to the total carbon footprint.

15.4.2 Exclusion of these sources from the carbon footprint will not prevent these emissions sources being considered in the environmental measures included for the Proposed Development, in line with IEMA Guidance[75].

15.4.3 As all carbon emissions have the potential to affect climate change it is not typical to attempt to distinguish effects for carbon emissions from construction, operation and decommissioning phases separately. The carbon assessment will therefore examine all carbon emissions associated with the lifetime of the Proposed Development and the resultant effects on climate change.

CCRA Assessment

15.4.4 The CCRA assessment will exclude any assessment of impacts from snow and ice as future climate projections predict warmer winters and less low lying snow and ice in the region and therefore it is not likely to affect the Proposed Development.

Likely Significant Effects Scoped Into the ES

GHG Assessment

15.4.5 The Proposed Development will lead to the release of GHG emissions from its construction, operation and decommissioning. As previously discussed, the key GHG emitted will be CO_2, however the assessment will include quantification of GHG emissions as carbon dioxide equivalent (CO_2e), which includes the contribution of all other GHGs (i.e. gases with a Global Warming Potential (GWP)) that will be released.

15.4.6 The key GHG emissions sources included in the GHG assessment are as follows:

Construction

- The embodied carbon in components and materials used to construct the Proposed Development;
- Emissions associated with traffic generated by the construction of the Proposed Development. This includes transportation of materials and components to the site, including shipping from overseas; and
- Emissions associated with energy consumption for site accommodation and plant use during construction works.

Operation

- Emissions associated with the operational maintenance, repair, and replacement of the Proposed Development; and
- Emissions associated with traffic generated by the operation of the Proposed Development.

Decommissioning

- Emissions associated with decommissioning, deconstruction and demolition activities of the Proposed Development at the end of its' operational lifetime.

The GHG assessment will also consider impacts of land use change and in particular any effects related to the disturbance of peatland habitats during construction.

CCRA Assessment

15.4.7 The CCR assessment will examine potential future climate risks which may affect the Proposed Development including:

- Flooding (pluvial and fluvial);
- Sea level rise;
- Extreme weather;
- Heat waves (inc. temperature increases);
- Drought (inc. reduced summer rainfall);
- Chronic increase in average temperatures;
- Increased precipitation; and

- Subsidence or ground movement.

15.5 Assessment Methodology

GHG Assessment

Existing and Future Baseline

15.5.1 The baseline for the GHG assessment will be related to the current activities at the site. The existing site's baseline GHG emissions will be established by taking account the total emissions from agricultural activities and the carbon sequestered by natural and semi-natural habitats (including peatland). Where possible, carbon from these existing activities will be calculated.

15.5.2 Where information cannot be obtained to provide a worst-case carbon assessment, the baseline for carbon emissions will be assumed to be zero. This is a valid approach as detailed in the IEMA Guidance[75] as it will result in a worst-case quantification of the net change in GHG emissions. It should be noted that the existing baseline agricultural uses will be a net carbon emitter and therefore assuming a baseline of zero is a worst-case assumption.

15.5.3 In addition, two alternative baseline scenarios will be considered in the ES, in line with IEMA Guidance[75] recommendations. For GHG assessments in the renewable energy sector, it is common practice to consider the baseline emissions associated with the generation of electricity using alternative means of energy, including fossil fuels and natural gas but also nuclear and other renewable energy sources (solar, wind, hydropower etc). Outside renewables, natural gas remains the major contributor to UK electricity in 2024, contributing 25% of total national electricity.

15.5.4 With this in mind two alternative baseline scenarios will be considered in the ES:

- Alternative Baseline 1 - energy from the Proposed Development will allow the phase out of existing fossil fuel power stations in the UK and the energy generated by the Proposed Development will therefore displace energy generated by natural gas Combined Cycle Gas Turbine (CCGT) power stations; and

- Alternative Baseline 2 - alternative technology to the Proposed Development will be built and operated. The focus will be on a new natural gas fired power station operating with Carbon Capture and Storage (CCS) technology, although comparison to the carbon intensity of other renewable energy schemes will also be provided including solar and offshore wind.

15.5.5 In relation to Alternative Baseline 1 it will be assumed that the electricity would be generated using an unabated natural gas-fired CCGT power station to 2035, and from then onwards, the CCGT power station would have a CCS system installed which would reduce direct GHG emissions. This is because it is part of the UK's industrial decarbonisation strategy to use CCS technology, which may apply to fossil-fuel power stations.

Construction

15.5.6 The embodied carbon from construction will be calculated to account for carbon emissions arising from the manufacture and production of construction materials. The assessment of embodied carbon covers "cradle to gate" emissions (i.e. carbon emissions from the extraction of raw materials through to finished construction products). Embodied carbon emissions will be calculated using a range of sources included University of Bath Inventory of Carbon and Energy (ICE), product Environmental Performance Declarations (EPD's), and published lifecycle assessment reports and research where relevant.

15.5.7 Carbon emissions from electricity and fuel use during construction will be estimated based on predicted construction phase electricity consumption and fuel usage, using the latest available carbon emissions factors published by the Department for Energy Security and Net Zero (DESNZ)[85].

15.5.8 Carbon emissions from road transport during construction will be calculated using carbon factors for transport modes derived from the Department for Transport's (DfT's) WebTAG data book[86].

Operation and Maintenance

15.5.9 Carbon emissions from road transport during operation will be calculated using carbon factors for transport modes derived from DfT's WebTAG data book[86].

15.5.10 Carbon emissions associated with the repair, maintenance and replacement of components of the Proposed Development during its operational lifetime will be calculated using the same data and resources used to calculate embodied carbon, taking account of the anticipated lifetime and replacement frequency of key components of the Proposed Development.

15.5.11 Carbon emissions savings from the electricity generated by the Proposed Development will be calculated through comparison to the current carbon intensity of fossil fuel power generation (CCGT). This comparison is relevant as the electricity generated by the Proposed Development will replace energy from fossil fuel combustion as part of the transition to Net Zero. Carbon emissions factors for CCGT will be obtained from the latest Government UK energy fuel mix disclosure tables. The assessment will assume that CCGT generation is upgraded with CCS technology in the future (from 2035 onwards).

Decommissioning

15.5.12 Carbon emissions from the decommissioning of the Proposed Development will be calculated.

15.5.13 Direct and indirect GHG emissions resulting from the decommissioning the Proposed Development at the end of its anticipated 35-year operational lifetime will be considered. A conservative worst-case approach will be adopted that assumes current day emission factors, even though the economy is expected to be decarbonised before the Proposed Development is decommissioned. On-site decommissioning activities; transportation and disposal of waste materials; and staff transport will be considered.

Assessment of Significance

15.5.14 The approach to defining likely significant effects will be carried out in three steps, in accordance with IEMA Guidance[75]:

- The first step is to compare the Proposed Development's carbon emissions in the opening year to the baseline carbon emissions to determine whether there is a net increase or decrease in carbon emissions as a result of the Proposed Development;
- The second step is to compare the calculated change in emissions to local and regional carbon emissions for context; and

[85] Department for Energy Security & Net Zero (2025) Greenhouse gas emissions factors for company reporting 2024. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1166236/ghg-conversion-factors-2023-condensed-set-update.xlsx

[86] Department for Transport (2025) TAG data book. Available: https://assets.publishing.service.gov.uk/media/646f8c844a892b000c746ba4/tag-data-book-v1.21-may-2023-v1.0.xlsm

- The third step applies expert judgment on the significance of those emissions taking into account the changes in emissions, their contribution to relevant carbon budgets, their consistency with relevant policy, and an evaluation of the environmental measures proposed to avoid, reduce and compensate carbon emissions.

15.5.15 The level of significance will be taken using the criteria as defined in IEMA Guidance[75] in combination with professional judgement.

CCRA Assessment

15.5.16 The assessment of the resilience and adaptation of the Proposed Development to future changes in climate will be undertaken in accordance with the methodology described in IEMA Guidance[80].

15.5.17 The CCR assessment will establish potential climate risks and consider the significance of that risk through an assessment of likelihood and consequence, taking into account embedded design measures adopted by the Proposed Development.

15.5.18 Future meteorological conditions will be obtained from the Met Office climate projections for the UK (UKCP18) to identify likely future changes in local climate. The assessment will set out the measures incorporated into the design of the Proposed Development that will ensure the Proposed Development is resilient to future climate risks such as increased extreme weather events and warmer summer temperatures.

15.5.19 A systematic risk assessment of conditions listed in Paragraph 15.4.7 will be undertaken during project design to identify the impact of expected extreme weather conditions arising from climate change on the Proposed Development over its lifetime.

15.5.20 As a further step, the CCRA assessment will identify additional mitigation (as required) to address any significant effects and concludes on the residual risks.

Assessment of Significance

15.5.21 The assessment of significance takes embedded mitigation adopted by the Proposed Development into account.

In-Combination Climate Change Impact Assessment

15.5.22 As part of the CCRA assessment piece, an In-Combination Climate Change Impact (ICCI) assessment will also be undertaken and presented within the ES. This will assess the extent to which potential future climate change alters the environmental effects assessed by other EIA disciplines such as (but not limited to) flood risk, air quality, and noise and vibration.

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