Dengie Peninsula
ENERGY PARK

Planning Inspectorate Reference: EN0110046

Dengie Peninsula Energy Park
Environmental Impact Assessment Scoping Report
Appendices
October 2026



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Appendix 6-A Environmental Mitigation and Commitments Register

1.1 Introduction and Register

1.1.1 Table 1 lists the environmental mitigation measures and commitments to be adopted during the construction, operation (including maintenance), and decommissioning phases of the Proposed Development.

1.1.2 These measures are draft and will be developed and confirmed as the Proposed Development progresses in response to design development, consultation, technical engagement and emerging good practice. Ultimately, these measures are anticipated to be secured in the Draft Development Consent Order (DCO), although the exact securing mechanism is to be confirmed.

1.1.3 Table 1 is aligned with the Planning Inspectorate's guidance on Commitment Registers and Scoping Solar Development (Ref A-1). Whilst the naming of columns differs slightly from the Planning Inspectorate's guidance, the information contained is largely the same. Columns are not provided on 'monitoring', 'delivery', 'associated supporting documentation' and 'compliance date and details' as these are not deemed appropriate at this early stage.

1.1.4 Measures relating to noise and vibration, air quality and dust, visual amenity, glint and glare and water all contribute to the mitigation of human health. As such, no specific human health measures are identified.

1.1.5 The phases of the Proposed Development include:

a. Detailed Design: follows consent of the Proposed Development and includes procurement;
b. Construction: the minimum estimated construction duration is 36 months. An estimated construction duration of up to 48 months will be assumed as a worst-case (where applicable);;
c. Operation: the Proposed Development is expected to operate for 40 years, following the date of final commissioning of the Proposed Development; and
d. Decommissioning: anticipated to be 24 months in duration.

1.1.6 Where an outline management plan is to be produced for the DCO Application, a detailed version of this document would be prepared ahead of construction, operation (and maintenance), and/or decommissioning (as relevant). This will

likely be secured by a requirement in Schedule 2 to the DCO, which would require the detailed management plan to be substantially in accordance with the outline management plan. All mitigation relating to the detailed design of the Proposed Development will be captured in the Design Principles document to be submitted with the DCO Application.

Table 1: Summary of Environmental Mitigation and Commitments

Commitment Reference	Primary Topic (Primary Driver for Mitigation)	Secondary Topic (Secondary Driver for Mitigation)	Commitment (Including Any Monitoring Required)	Phase (Detailed Design, Construction, Operation or Decommissioning)	Likely Commitment Securing Mechanism
AQ-1	Air Quality	Human Health, Ecology and Biodiversity, Socio-economics and Land Use, and Traffic and Transport	Implementation of mitigation including a Construction Environmental Management Plan (CEMP) and Construction Traffic Management Plan (CTMP) will ensure that construction vehicle management and good construction practice are carried out to minimise potential impacts to the environment in terms of changes to air quality and the generation of dust. The Institute of Air Quality Management (IAQM) (Ref A-2) 'Guidance on the Assessment of Dust from Demolition and Construction' sets out several mitigation measures for reducing dust impacts and these will be incorporated into the Outline CEMP. The Outline CEMP, Outline Decommissioning Environmental Management Plan (DEMP) and Outline CTMP will include such measures as: a. If required, and where practicable, all roads, temporary tracks and other routes will be dampened to prevent dust leaving the site. Roads surrounding the site will be cleaned as necessary; b. Stockpiled material, where practicable, will be enclosed, screened or dampened to eliminate dust generation; c. Hard surfaced roads will be constructed at the earliest time that the build programme allows; d. Avoidance of activities that generate large amounts of dust during windy conditions; e. Ensure all vehicles switch off engines when stationary (i.e. no idling vehicles); and f. Limitation of vehicle speeds, as the slower the vehicle speeds, the lower the dust generation.	Construction Decommissioning	**Outline CEMP** **Outline DEMP** **Outline CTMP**
AS-1	Agriculture and Soils		Mitigation measures to avoid or reduce soil damage and loss will be incorporated into the design such that it informs its layout and construction approach.	Construction Operation (and maintenance) Decommissioning	**Design Principles**
AS-2	Agriculture and Soils		Industry standard guidance/current best working practice set out in Construction Code (Ref A-3) and the Good Practice Guide for Handling Soils (Ref A-4) will be followed in relation to soil workings throughout the construction, operation (and maintenance) and decommissioning phases of the Proposed Development. An Outline Soil Management Plan (SMP) will be developed. The OSMP will include good practice soil resource management measures.	Construction Operation (and maintenance) Decommissioning	**Outline SMP** **Outline CEMP** **Outline Operational Environmental Management Plan (OEMP)** **Outline DEMP**
AS-3	Agriculture and Soils	Socio-economics and land use	To minimise risk of soil erosion within the Site, existing grass cover would be maintained, and new permanent grassland mix cover created (grassland mix dependent upon any habitat creation requirements). This cover would be maintained for the lifetime of the Proposed Development and would protect the soil surface from the effects of surface run-off. Any areas where vegetation cover was damaged and/or bare soil surface was visible, would be re-seeded. Additionally individual angled solar panels would be installed with rain gaps to allow water to disperse more evenly.	Operation (and maintenance)	**Outline SMP** **Outline OEMP**

Commitment Reference	Primary Topic (Primary Driver for Mitigation)	Secondary Topic (Secondary Driver for Mitigation)	Commitment (Including Any Monitoring Required)	Phase (Detailed Design, Construction, Operation or Decommissioning)	Likely Commitment Securing Mechanism
AS-4	Agriculture and Soils	Socio-economics and land use	The potential for continued agricultural use within the Proposed Development during operation (and maintenance) by using the land as permanent pasture for sheep grazing will be explored by the Applicant.	Operation (and maintenance)	**Outline OEMP**
CC-1	Climate Change		Measures to reduce Greenhouse Gas emissions will be set out in the Outline CEMP, Outline OEMP and Outline DEMP, and this will include best practice measures.	Construction Operation (and maintenance) Decommissioning	**Outline CEMP** **Outline OEMP** **Outline DEMP**
CH-1	Cultural Heritage	Landscape and Visual	Potential operational effects on heritage asset settings will be reduced through careful design, including consideration of infrastructure location, setbacks from heritage assets, retention of existing landscape features and, where appropriate, the use of screening vegetation.	Operation	**Design Principles, Outline Landscape and Ecological Management Plan (LEMP)**
CH-2	Cultural Heritage		Where impacts cannot be avoided, additional mitigation measures may be proposed, including provision for a programme of archaeological investigation, detailed in a Written Scheme of Investigation. These measures will also be set out in the Outline CEMP and Outline DEMP.	Construction Operation (and maintenance) Decommissioning	**Outline CEMP** **Outline OEMP** **Outline DEMP**
EC-1	Ecology and Biodiversity		Standard best practice construction measures will be set out within an Outline CEMP, to reduce the effect of potentially harmful impacts on IEFs, in compliance with relevant legislation. The Outline CEMP will detail and formalise measures that will be implemented prior to and during construction of the Proposed Development to mitigate construction-related effects on Important Ecological Features (IEFs). The Proposed Development will seek to avoid direct impacts to statutorily and non-statutorily designated sites and, through best practice construction methods, will seek to minimise or remove any potential indirect impacts. The Proposed Development will be located primarily on arable farmland, which substantially reduces the potential for the Proposed Development to result in significant adverse effects on ecological features. The Proposed Development will be designed so that impacts upon Habitats of Principal Importance (HaPI) (e.g. woodland, hedgerows, arable margins and watercourses) are avoided or reduced, where reasonably practicable. Replacement habitat will be included within the Energy Park, where this is not practicable and impacts upon HaPI are identified and will be set out in the Outline LEMP.	Construction Operation (and maintenance) Decommissioning	**Design Principles** **Outline CEMP** **Outline OEMP** **Outline DEMP** **Outline LEMP**
EC-2	Ecology and Biodiversity	Electromagnetic Fields Water Environment Arboriculture	The Proposed Development will aim to avoid, protect and retain notable habitats and species where practicable, all of which will be included in the design. This will include retention, avoidance and offsets of: a. A minimum of 10m from the top of the watercourse and water bodies, where practicable, other than where crossings are required, drainage or other essential infrastructure that has to be located nearer to the watercourse. Greater buffers are likely to be required where water bodies or watercourses support species, such as Great Crested Newt; b. The Proposed Development will aim to avoid laying cabling directly on the channel bed of watercourses;	Construction	**Design Principles** **Outline CEMP** **Outline LEMP**

Commitment Reference	Primary Topic (Primary Driver for Mitigation)	Secondary Topic (Secondary Driver for Mitigation)	Commitment (Including Any Monitoring Required)	Phase (Detailed Design, Construction, Operation or Decommissioning)	Likely Commitment Securing Mechanism
			c. At least 15m from any type of woodland features, with a 25m minimum undeveloped zone, where practicable, from any ancient woodland; and d. At least 5m from hedgerows without trees, where practicable, noting that there may be small incursions into hedgerows to facilitate access, fence-lines and any cabling. Woodland and retained trees will be protected, in line with British Standard Recommendations (Ref A-5) with undeveloped buffers concordant with the requirements for each individual tree, (based on their root protection areas) both within and outside the DCO Site. Where protected species (e.g. bat roosts) are recorded within trees, then this buffer will be extended as appropriate. Fencing, as appropriate, will be included around working areas to protect above-ground vegetation and below-ground root systems.		
EC-3	Ecology and Biodiversity	Water Environment Arboriculture	The Proposed Development will also aim to avoid, protect and retain protected or notable species, where practicable, including: a. Retaining ponds and watercourses within the DCO Site, particularly those supporting Great Crested Newt; b. Retaining boundary features where practicable, supporting breeding and non-breeding birds, commuting and foraging bats and other fauna, with undeveloped zones as presented in paragraph 10.6.12 of Chapter 10: Ecology and Biodiversity; c. Retaining Badger setts, as far as is practicable, with an undeveloped zone of at least 30 m from the sett (dependent on the activity); and d. Retaining trees with the potential to support roosting bats, with a minimum undeveloped zone concordant with the Root Protection Area (RPA) of the tree and dependent on the bat roost categorisation	Construction	**Design Principles** **Outline CEMP** **Outline LEMP**
EMF-1	Electromagnetic Fields	Human Health	Electrical equipment within the Proposed Development will be marked UKCA or CE as applicable (European Conformity marking)	Detailed Design	**Design Principles**
EMF-2	Electromagnetic Fields	Human Health	The potential effects of EMFs on workers will be controlled and mitigated to acceptable levels through the Control of Electromagnetic Fields at Work Regulations (Ref A-6).	Operation	**Draft DCO** **Outline OEMP**
EMF-3	Electromagnetic Fields	Human Health	Where overhead line infrastructure is proposed, appropriate separation distances from sensitive receptors will be incorporated into the design, where required, and compliance with the applicable public exposure limits for electric and magnetic fields will be demonstrated through the EMF assessment.	Operation	**Design Principles**
GG-1	Glint and Glare	Human Health Major Accidents and Disasters Landscape and Visual	As the design develops, consideration will be given to the potential for solar reflections to impact on sensitive receptors. If Glint and Glare is calculated to likely be a nuisance or hazard, mitigation will be proposed. An Outline CEMP and Outline DEMP will be prepared as part of the ES and will include information on how reflective surfaces are to be treated during the construction and decommissioning phases with a view toward their final placement across the Energy Park. Mitigation measures applicable to the Proposed Development's operation will be included in an Outline OEMP prepared as part of the DCO Application.	Construction Operation (and maintenance) Decommissioning	**Design Principles,** **Outline CEMP** **Outline OEMP** **Outline DEMP**
GC-1	Ground Conditions	Landscape and Visual Agriculture and Soils	Work will be carried out in accordance with relevant Construction (Design and Management) (CDM) Regulations, 2015 (Ref A-7). An Outline CEMP, OEMP, and DEMP will set out the general principles to be followed during the construction, operation (and maintenance) and decommissioning of the Proposed Development.	Construction Operation (and maintenance) Decommissioning	**Outline CEMP** **Outline OEMP** **Outline DEMP.**

Commitment Reference	Primary Topic (Primary Driver for Mitigation)	Secondary Topic (Secondary Driver for Mitigation)	Commitment (Including Any Monitoring Required)	Phase (Detailed Design, Construction, Operation or Decommissioning)	Likely Commitment Securing Mechanism
GC-2	Ground Conditions	Landscape and Visual Agriculture and Soils Major Accidents and Disasters	The following activities could be undertaken, as appropriate, post-consent prior to construction: a. A Pollution Response Plan, which will be drafted prior to commencement of works on-site; b. Where piling or other penetrative ground improvement methods are proposed, Piling will be carried out in accordance with CL:AIRE Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention (Ref A-8) and ground investigations will inform the Foundation/Piling Risk Assessment which will define the appropriate piling methods and foundation design to mitigate risk. c. Waste materials will be disposed of by the contractor(s) to appropriate recycling facilities or appropriately licensed landfills in line with the Site Waste Management Plan (SWMP) which with form part of the Outline CEMP; d. Waste effluent will be tested for appropriate physical and chemical parameters and, where necessary, disposed of at the correctly licensed facility by a licensed specialist contractor(s); e. Oils and hydrocarbons will be stored in designated locations with specific measures to prevent leakage and release of their contents; f. Vehicles will be well maintained to prevent accidental pollution from leaks; g. A spillage Emergency Response Plan (ERP) will be produced as part of the SWMP; h. The contractor(s) will employ dust suppression measures when necessary; i. Access roads will be regularly cleaned and damped down with water; j. All vehicles entering and leaving the DCO Site during the construction period will pass through a wheel washing facility; k. Appropriate use of personal protective equipment (PPE) and implementation and adherence to Health & Safety Protocols; l. Potentially contaminated Made Ground will be quantified prior to removal from excavations; and m. Advice will be sought by an environmental specialist should materials suspected of being contaminated be uncovered.	Detailed Design Construction	**Outline CEMP**
GC-3	Ground Conditions	Landscape and Visual Agriculture and Soils	A Preliminary Risk Assessment (PRA) report will be prepared, covering land within the Proposed Development.	Construction Operation (and maintenance) Decommissioning	**Outline CEMP Outline OEMP Outline DEMP.**
LAN-1	Landscape and Visual	Arboriculture Agriculture and Soils	An Outline CEMP and Outline DEMP will be prepared as part of the DCO Application which will include (but not be limited to) the following: a. Adherence to best practice measures, including suitable storage of materials, low height porta-cabins and construction compounds, suitably rendered hoardings or protective fencing and ensuring a clean and well-kept construction site; b. Protecting retained vegetation by construction exclusion zones and adherence to measures set out in the Arboricultural Method Statement; c. Suitable measures to protect soils along temporary access tracks and haul routes via ground protection measures or temporary surfacing;	Construction Decommissioning	**Design Principles Outline CEMP Outline DEMP**

Commitment Reference	Primary Topic (Primary Driver for Mitigation)	Secondary Topic (Secondary Driver for Mitigation)	Commitment (Including Any Monitoring Required)	Phase (Detailed Design, Construction, Operation or Decommissioning)	Likely Commitment Securing Mechanism
			d. Suitable design measures for the existing Marine Transfer Facility to reduce seascape impacts and visibility from the River Crouch; e. Suitable measures for the handling and storage of topsoil to retain its soil integrity and avoid compaction, so as to enable it to be effectively reused; and f. Limiting the use of temporary lighting and ensuring lighting spillage is minimised.		
LAN-2	Landscape and Visual	Ecology and Biodiversity Cultural Heritage	Design principles related to mitigating effects on the landscape resource and visual amenity will include, but are not restricted to, the following: a. Offsetting the Proposed Development from the King Charles III England Coast Path and introducing new structural landscaping adjacent to the route to reduce the visibility and perception of the Proposed Development; b. Offsetting the Proposed Development from the St Peter's Way and implementing new planting to reduce the visibility of the Proposed Development; c. Offsetting the Proposed Development from watercourses and drains across the DCO Site, so as to enable new planting and enhancement measures as part of new green and blue infrastructure design approach to the DCO Site; d. Offsetting the Proposed Development from PRoW within the DCO Site, so as to retain their recreational value, implementing new planting to reduce the perception of the Proposed Development; e. Offsetting the Proposed Development from the local road networks, so as to reduce the visibility of the Proposed Development when travelling between settlements; f. Retaining and reinforcing the existing field boundary vegetation via new native planting to reduce the visibility of the Proposed Development and provide opportunities for improved functional value and ecological connectivity in accordance with the published landscape guidance; g. When possible, rendering equipment in sympathetic tonal colours to aid its integration within the landscape; h. Engaging in discussions with NGET, to pursue utilising the existing OHL towers along Grid Connection Corridor A, so as to avoid new or extended OHL towers, and i. Avoiding sensitive landscape features along the alignment of the potential 400kV OHL towers across the Inter-Array Connection Corridors; j. Reducing the potential for 'wirescape' issues and accordance with the Holford and Horlock Rules as best as practicable in the siting of OHLs; k. Avoiding permanent lighting during the operation phase (except where required for substation and BESS access); l. Contemporary design to the OHL towers to ensure their mass and scale is minimised, where this is within the Applicant's control; m. Re-use (re-stringing) of the existing Bradwell-Rayleigh OHL, where practicable and agreed with the Operator/NGET, to avoid taller or additional towers being implemented and to reflect the existing landscape character and visual amenity; and n. Maximising opportunities for new recreational, educational and ecological enhancements across the DCO Site to aid people's engagement and understanding of renewable energy.	Operation	**Design Principles Outline LEMP**

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LAN-3	Landscape and Visual	Ecology and Biodiversity	Lighting during the construction and decommissioning phase would be temporary in duration and designed to minimise potential for light spillage beyond the DCO Site Boundary. During operation, whilst there would be security lighting and lighting at the BESS and On Site Substations, this would be controlled by lighting sensors, such that no part of the Proposed Development would be continually lit.	Construction Operation (and maintenance) Decommissioning	**Outline CEMP** **Outline OEMP** **Outline DEMP.**
MAD-1	Major Accidents and Disasters	Water Environment	The Proposed Development design will take into account the results of the flood risk assessment and mitigation, where applicable, will be detailed to alleviate any potential impacts to flood risk.	Construction Operation (and maintenance)	**Design Principles**
MAD-2	Major Accidents and Disasters	Traffic and Transport	The Proposed Development design will take into account the results of transport assessment. Road safety will be assessed and mitigation where applicable will be detailed to minimise any potential Proposed Development impacts to the likelihood or magnitude of road accidents.	Construction Operation (and maintenance) Decommissioning	**Design Principles** **Outline CTMP**
MAD-3	Major Accidents and Disasters	Ecology	Standard control measures would be implemented by the appointed contractor during construction to handle and dispose of any diseased, invasive plants to prevent their spread on and off-site. Such control measures would be captured within a Landscape and Ecological Management Plan (LEMP) and/or Construction Environmental Management Plan (CEMP). An Outline LEMP and Outline CEMP will be submitted as part of the application and would then be further developed by the appointed Principal Contractor post-consent before construction commences.	Construction	**Outline CEMP** **Outline LEMP**
MAD-4	Major Accidents and Disasters		If tall structures, such as lifting cranes, are considered aerodrome obstacles, consultation with the Civil Aviation Authority will be undertaken to ensure appropriate mitigation is incorporated into the construction of the Proposed Development, which would be captured in the Outline CEMP.	Construction	**Outline CEMP**
MAD-5	Major Accidents and Disasters	Water Environment Ground Conditions	During the construction phase there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction activities. This risk would be controlled through standard control measures which would form commitments within the Outline CEMP.	Construction	**Outline CEMP**
MAD-6	Major Accidents and Disasters		An Outline Battery Safety Management Plan (BSMP) will be produced. The Outline BSMP will be in place to manage potential risks related to the Battery Energy Storage System.	Operation	**Outline BSMP**
MW-1	Materials and Waste		The Proposed Development will aim to prioritise waste prevention, followed by preparing for reuse, recycling and recovery and lastly disposal to landfill as per the waste hierarchy	Construction Operation (and maintenance) Decommissioning	**Outline SWMP**
MW-2	Materials and Waste		All management of waste will be in accordance with the relevant regulations and waste will be transported by licensed waste hauliers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them.	Construction Operation (and maintenance) Decommissioning	**Outline SWMP**
MW-3	Materials and Waste		The construction of the Proposed Development will be subject to measures and procedures defined within an Outline CEMP and Outline SWMP.	Construction	**Outline SWMP** **Outline CEMP**
MW-4	Materials and Waste		The operation of the Proposed Development will be subject to measures and procedures defined within an Outline OEMP which will include the approach for material and waste management on-site.	Operation	**Outline OEMP**

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MW-5	Materials and Waste		The decommissioning of the Proposed Development will be subject to measures and procedures defined within an Outline DEMP which will include the approach for material and waste management on-site.	Decommissioning	**Outline DEMP**
NV-1	Noise and Vibration		Measures to control noise as defined in Annex B of BS 5228-1 (and measures to control vibration as defined in Section 8 of BS 5228-2 will be adopted, where reasonably practicable). These embedded measures represent Best Practicable Means (BPM) and will be secured within the Outline CEMP and the Outline DEMP. Examples of BPM that may be implemented during construction and decommissioning works are presented below: a. Unnecessary revving of engines will be avoided, and equipment will be switched off when not in use; b. Appropriate routing of construction traffic on public roads and along access tracks; c. Drop heights of materials will be minimised; d. Plant and vehicles will be sequentially started up rather than all together; e. Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading will also be carried out away from such areas; and f. Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturer's specifications.	Construction Decommissioning	**Outline CEMP** **Outline DEMP**
NV-2	Noise and Vibration	Socio-economics	Embedded mitigation measures that will be applied for the operational phase of the Proposed Development are summarised as follows: a. Selection of plant with consideration to noise emission level. Embedded measures relevant to the operational phase will be described within an Outline OEMP.	Operation	**Outline OEMP**
SE-1	Socio-economics	Agriculture and Soils Traffic and Transport	Effects on land use, access, PRoW, recreational and community assets would be managed through the implementation of an Outline CEMP, CTMP, OEMP, DEMP and Public Right of Way Management Plan (PRoWMP), alongside stakeholder engagement, maintenance of access arrangements where practicable, retention of agricultural activities where feasible, and reinstatement of land following decommissioning.	Construction Operation (and maintenance) Decommissioning	**Outline CEMP** **Outline CTMP** **Outline PRoWMP** **Outline OEMP** **Outline DEMP**
SE-2	Socio-economics		As an enhancement measure, the Applicant will also prepare an Outline Skills, Supply Chain and Employment Plan (OSSCEP) to promote local access to opportunities relating to employment, skills development, apprenticeships and supply chain activity for the Proposed Development.	Construction Operation (and maintenance) Decommissioning	**Outline OSSCEP**
TT-1	Traffic and Transport	Socio-economics Noise and Vibration Landscape and Visual Cultural Heritage	An Outline CTMP will be in place to manage the impacts of construction traffic on the highway network and sensitive receptors like heritage assets or schools. It will set out management measures for traffic routing, timing and access to the Proposed Development. Measures for the management of construction and decommissioning traffic includes, but are not limited to: a. Restriction of HGV movements to designated routes and where appropriate, specified days of the week and times of the day; b. Managing construction working hours to minimise / avoid construction staff travel coinciding with the network peak hours;	Construction Decommissioning	**Outline CTMP** **Outline CEMP** **Outline DEMP**

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			c. Temporary or permanent improvements to sections of the highway network to safely accommodate additional and / or larger vehicles; d. Positioning of suitably qualified banksman and/ or other temporary traffic management at the DCO Site access points; e. Provision of temporary or permanent signage and/ or road markings to increase/ improve driver awareness of the access points and increased construction vehicle movements; f. Undertaking vegetation clearance at access points and junctions, where necessary, to improve and maintain appropriate visibility splays; g. Encouraging the promotion of sustainable travel for local construction workforce, through measures such as car-sharing initiatives and limited parking at compounds, through the management of parking provision; h. Provision of workforce shuttlebus services between construction compounds, local accommodation, key public transport hubs and potentially park and ride sites in the vicinity of the DCO Site, where appropriate; i. Implementing a Delivery Management System (DMS) to coordinate and manage the bookings of HGV arrivals and departures; j. Management of Abnormal Indivisible Loads (AILs), including the identification of suitable transport routes and the implementation of any required mitigation measures, such as temporary carriageway widening, vegetation clearance, relocation of street furniture and temporary road closures; k. Potential usage of the existing marine transfer facility on the River Crouch, where practicable, to facilitate the delivery of construction materials and AILs, reducing HGV movements on the local highway network; and l. Maintaining access to PRoW wherever reasonably practicable during the construction phase or providing suitable temporary diversions where closures are required. Measures for the management of decommissioning traffic, similar to those set out above for construction, will be set out within the Outline DEMP during the decommissioning phase.		
TT-2	Traffic and Transport	Socio-economics Landscape and Visual Cultural Heritage	An Outline OEMP will be prepared as part of the ES and will include measures to reduce traffic and transport impacts across the Proposed Development lifecycle. Potential mitigation measures which could be implemented during the operation (and maintenance) phase include: a. In the unlikely event that major electrical equipment, such as a transformer or shunt reactor, requires replacement, occasional AIL movements may be necessary. Therefore, potential mitigation includes the management of AILs, where required, through the use of appropriate transport routes and temporary road closures to facilitate safe passage. It is expected that AIL deliveries would use the same routes as those used during construction. Nonetheless, the implementation of any additional mitigation measures such as temporary carriageway widening, vegetation clearance or relocation of street furniture would also need to be considered if necessary, based on the arrangements which were previously adopted to accommodate AILs during the construction phase.	Operation	**Outline OEMP**

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TT-3	Traffic and Transport	Socio-economics	An outline PRoW Management Plan (PRoWMP) will be produced, setting out measures for minimising impacts on the PRoW network. Examples of measures that may be included in the Outline PRoWMP include but are not limited to: a. Maintaining access to PRoW wherever reasonably practicable during the operational phase, or providing appropriate permanent diversions where required and secured through the relevant statutory processes; and b. Implementing appropriate traffic management measures during periodic maintenance activities to minimise disruption to highway users, active travel users and PRoW users.	Construction Operation (and maintenance) Decommissioning	**Outline PRoWMP**
WE-1	Water Environment	Ground Conditions Climate Change Socio-economics	The Outline CEMP will set out good practice methods for reducing the risk of pollution to surface waters and the groundwater environment by setting out measures for the management of construction runoff and spillage risk. The following mitigation measures may apply: a. Good practice pollution prevention measures will be implemented during construction to protect nearby watercourse, with monitoring undertaken where necessary and proportionate to the identified pollution risks; b. At this stage it is assumed that water required for construction would be either connected to mains water supply or otherwise potable water would be supplied from another commercial source. Water for construction could also be augmented by rainwater harvesting (e.g. for haul road dust suppression), although there may be limitations as to how much can be captured and stored for when it might be needed. No abstractions from groundwater or watercourses are proposed. c. At this stage it is also assumed that foul drainage from temporary compounds would be connected to the public sewer or otherwise captured by a sealed cesspit or tank for offsite disposal. No discharges of foul wastewater to surface or groundwater are proposed; d. At this stage, the use of non-intrusive techniques such as Horizontal Directional Drilling (HDD) will be considered where appropriate. for any cable crossings of the principal watercourse crossed by the Proposed Development If HDD is used, the CEMP will set out appropriate pollution prevention and control measures, including the management of drilling fluids. Crossings of other drainage features would be risk assessed on a case-by-case basis as the assessment progresses but may include open-cut methods. Consultation with the Environment Agency and Lead Local Flood Authorities is required to agree the design of any required watercourse crossing structures; e. Any access crossings of the principal watercourses the design of the structure would comply with design requirements to mitigate flood risk, with an agreed amount of freeboard available. This may require the construction of a clear span structure. Crossings of other drainage features would be risk assessed on a case-by case basis as the assessment progresses. Temporary access structures would apply the following hierarchy: (1) use existing; (2) use existing modified as necessary; (3) temporary clear span crossing; (4) suitably designed culvert. Consultation with the	Construction	**Outline CEMP**

Commitment Reference	Primary Topic (Primary Driver for Mitigation)	Secondary Topic (Secondary Driver for Mitigation)	Commitment (Including Any Monitoring Required)	Phase (Detailed Design, Construction, Operation or Decommissioning)	Likely Commitment Securing Mechanism
			Environment Agency and LLFA is required to agree the design of any required watercourse crossing structures; f. It would be a requirement that all watercourses affected by open-cut cable crossings or temporary access works are reinstated following construction based on a Pre-Works Riparian and Hydromorphological Survey,or similar, but also taking into account any subsequent improvements that might occur in the interim period. g. The nature of the Proposed Development means there would be limited physical disturbance of aquifers and groundwater. The need for piling or non-intrusive techniques for permanent above ground infrastructure has yet to be determined but will be confirmed in the ES. As earlier, if HDD is used the works would be controlled by measures detailed in the CEMP; h. Should dewatering be required during construction works, necessary permits and approvals will be obtained prior to works commencing; i. If the FRA identifies a risk of flooding across the Proposed Development area, construction compounds and material / plant storage will be located in areas of lowest flood risk where reasonably practicable, and have in place emergency flood response procedures; and j. Where not disapplied by the DCO in tandem with the provision of Protective Provisions, there are a number of secondary consents that may be required such as: Flood Risk Activity Permits, Water Discharge Activity Permits, Water Resource Licences, and Land Drainage Consent.		
WE-2	Water Environment	Ground Conditions Climate Change Socio-economics	The following mitigation measures may apply during operation and maintenance: a. An appropriately designed surface water collection and treatment system will be set out in the outline Surface Water Drainage Strategy. Sustainable drainage systems (SuDS) will be incorporated to attenuate runoff from the Proposed Development to a rate agreed with the Environment Agency and / or the Local Lead Flood Authority (LLFA) to avoid increasing flood risk, and to minimise the risk of pollutants entering the water environment via surface water runoff. Their design and use would depend on factors, such as site-specific constraints. Appropriate measures for managing the risk of pollution should there be a fire at the BESS or substation sites will also be proposed; b. The Proposed Development Boundary will include design measures to ensure that the Proposed Development does not generate any adverse flood risks to adjacent areas (e.g. appropriate design of watercourse crossings); c. Watercourses will be buffered from permanent new infrastructure by 10m from the top of the watercourse and water bodies as measured from the water's edge, as shown on digital maps, other than where crossings are required, drainage or other essential infrastructure that has to be located nearer to the watercourse; d. At this phase it is assumed that water required for operation and maintenance would be connected to mains water supply (with agreement from the statutory undertaker, Essex and Suffolk Water (owned by Northumbrian Water)) or another commercial source. There is anticipated to be up to 20-25 employees on site during operation. Consultation with Anglian Water Services (regarding foul water) and Essex and Suffolk Water is proposed as the design develops.	Operation (and maintenance)	**Design Principles** **Outline OEMP**

Commitment Reference	Primary Topic (Primary Driver for Mitigation)	Secondary Topic (Secondary Driver for Mitigation)	Commitment (Including Any Monitoring Required)	Phase (Detailed Design, Construction, Operation or Decommissioning)	Likely Commitment Securing Mechanism
			e. It is also assumed that foul drainage from temporary compounds would be connected to the Public Sewer or captured by a sealed cesspit or tank for offsite disposal. No discharges of foul wastewater to surface or groundwater are proposed; and f. The more vulnerable elements of the Proposed Development such as the BESS, On-Site Substations, Power Conversion Units (PCUs) and Solar PV Arrays will be sequentially located to areas of lowest risk of flooding. Where this is not possible, these elements will be designed accordingly with some elements potentially raised above the design flood level.		
WE-3	Water Environment	Ground Conditions Climate Change	The decommissioning phase would apply similar design and mitigation measures as the construction phase although it is anticipated that the power cables may be left *in situ* beneath watercourses as there would be less excavation works required close to watercourses. Standard pollution prevention and construction good practices would be adopted to mitigate potential impacts upon the water environment where required and reasonably practicable. Such measures would be included in an Outline DEMP.	Decommissioning	**Outline DEMP**

1.2 References

Ref A-1 Planning Inspectorate, Nationally Significant Infrastructure Projects: Commitments Register (2024). Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-commitments-register

Ref A-2 Institute of Air Quality Management (2024). Guidance on the assessment of dust from demolition and construction. Available at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf

Ref A-3 DEFRA (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Available at: https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites

Ref A-4 Institute of Quarrying (2021). Good Practice Guide for Handling Soils in Mineral Workings. Available at: https://www.quarrying.org/soils-guidance

Ref A-5 British Standards Institute (BSI) (2012). BS 5837:2012 Trees in relation to design, demolition and construction – recommendations

Ref A-6 The Control of Electromagnetic Fields at Work Regulations 2016. Available at: https://www.legislation.gov.uk/uksi/2016/588/contents

Ref A-7 HM Government (2015), Construction (Design and Management) Regulations 2015. Available at: https://www.legislation.gov.uk/uksi/2015/51/contents

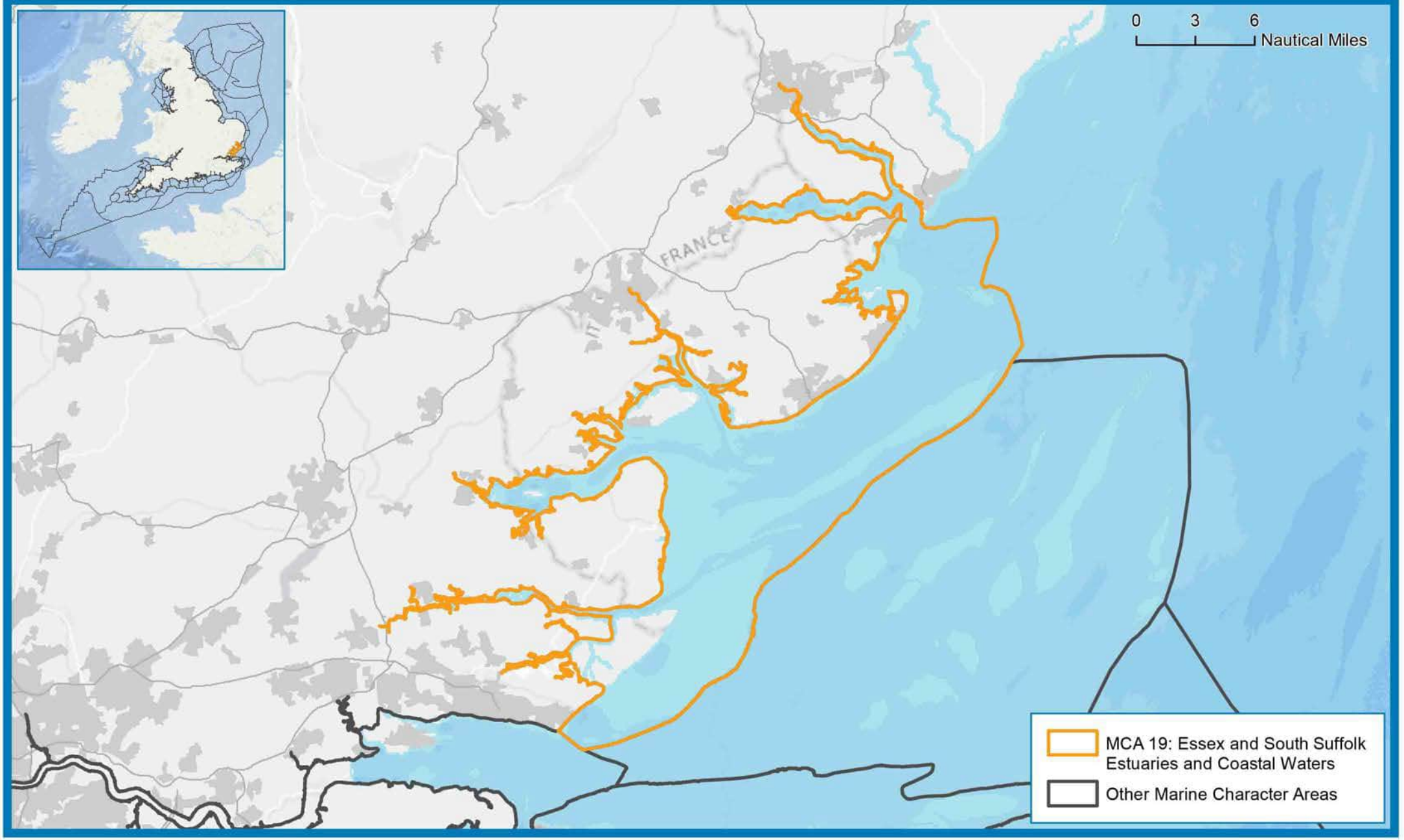
Ref A-8 CL:AIRE (2025), 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention'.

Appendix 11-A: Extracts of Natural England National Character Assessments

Marine Management Organisation

Figure 12 - MCA 19, Essex and South Suffolk Estuaries and Coastal Waters

Open Government Licence v3.0. Reproduced with the permission of the Marine Management Organisation, Ordnance Survey and UK Hydrographic Office. Digital Terrain Model data courtesy of the EMODnet Bathymetry portal. © OpenStreetMap (and) contributors, CC-BY-SA. ETRS89 UTM Zone 30N. Not to be used for navigation.



3.8.1 Profile for MCA 19: Essex/South Suffolk Estuaries and Coastal Waters

Location and boundaries
This MCA covers the shallow coastal waters of the Essex Coast from Southend-on-Sea (MCA 18 Thames and Medway Estuaries) in the south to Felixstowe on the Suffolk coast, including the estuaries of the Rivers Orwell and Stour and extending into the east inshore area (joining SCA10). It includes the embayment of Hamford Water and the Essex estuaries of the Rivers Colne, Blackwater and Crouch. Its seaward boundary with MCA 20 Thames Approaches is marked by the edge of the shallow waters over the Maplin Sands following the 5m bathymetry contour line (although it deviates slightly to include the whole of the Gunfleet Sands Wind Farm).
Overall character
The MCA is characterised by an intricate pattern of estuaries, rivers, branching tributaries, shallow creeks, extensive mudflats, low-lying islands and tidal salt marshes. Coastal habitats support large numbers of wetland birds, rare plant and invertebrate species and diverse marine wildlife, evidenced by the majority of the area being internationally and nationally designated coastline. The shallow coastal waters are popular for recreation including boating and sailing. The area includes the busy port of Harwich, and coastal towns and villages, although much of the area is characterised by strong feelings of remoteness and wilderness on the extensive salt marshes, mudflats and reclaimed farmed marshland. Despite being on the Greater Thames estuary, it contains some of the least settled parts of the English coast, with small villages and hamlets on higher ground and marsh edges.
Adjacent National Character Areas (NCAs)
The adjacent coastline includes the following NCAs as defined by Natural England: • 82: Suffolk Coast and Heaths • 81: Greater Thames Estuary
Adjacent and inter-visible nationally designated and defined landscapes
The River Orwell and north bank of the Stour falls within the Suffolk Coasts and Heaths AONB, with the area to the west of the Stour within the Dedham Vale AONB.

3.8.2 Key characteristics of MCA 19: Essex/South Suffolk Estuaries and Coastal Waters

- East facing, deeply indented soft coastline of estuaries, rivers, shallow creeks, with extensive mud and sandflats, low-lying islands and tidal salt marshes.
- Sea bed characterised by sedimentary deposits of sands, gravels and mud, which meets London Clay along the coast.
- Mudflats and sandbanks of Maplin Sands, Foulness Sands, Dengie Flats – with vast areas revealed at low tide. Gently shelving sea bed, which remains relatively shallow (0.15m deep) with thick seabed sediments
- Wide and complex tidal range and sheltered seas as a result of the funnelling effect of the surrounding landform.
- The tides fill and empty the meandering creeks across the marshes and mudflats, providing interesting temporal variation. Shingle and shell banks occur in the intertidal zone.
- Maplin Sands are of marine biological interest for extensive eel-grass beds and unusual fern-like hydroids (whiteweed) – commercially exploited and dried for decorative use.
- Harwich, once important for shipbuilding, now a trade and ferry port.
- Gunfleet Sands Offshore Wind Farm is a prominent feature in views within the seascape and from land, with the Maunsell Forts a feature on the horizon. Onshore, Bradwell nuclear power station is a feature in views.
- Area supports large numbers of wetland birds and diverse marine wildlife. Intertidal area covered by extensive designations including Ramsar, the Essex Estuaries SAC, and Blackwater, Crouch, Roach and Colne estuaries MCZ.
- Exceptional maritime history, including evidence of Neolithic settlement in areas of submerged land in the Blackwater Estuary. Abundant Iron Age remains on the Essex Marshes are related to a local salt making industry.
- Historic shipwrecks concentrated around the shoal waters between Swin Spitway and Whitaker Beacon.
- Distinctive landmarks of coastal military heritage including Napoleonic military defences, forts and 20th century pillboxes.
- Numerous small villages and hamlets developed in the post-medieval period in relation to fishing (at Mersea) and boatbuilding, as well as the coastal cargo transport network of the ‘Thames Barges’.
- Access restricted by military activity with firing practice areas at Shoeburyness and firing ranges extending over the flats.
- Fishing activity includes commercial trawling for cod, Dover sole, sprat, eels and brown shrimp as well as oyster cultivation, cockle beds, and traditional smaller-scale enterprises.
- Tourist development/settlement including Clacton and Walton on the Naze, and Frinton which developed due to proximity to London.

- Light engineering works and boat-building/ repair yard at Brightlingsea. Dredged channels along rivers such as the Orwell allow access by heavy commercial traffic. Sea walls and borrow dykes run along the majority of the Essex coast.
- Literary associations with Arthur Ransome, who based his novel *Secret Water*, part of the *Swallows and Amazons* series, on the area around the Walton Backwaters.
- Popular waters for recreation with sailing, power boating, angling, canoeing and water skiing. Numerous marinas and mooring facilities support recreational yachting.
- Strong feelings of remoteness and wilderness persist on extensive salt marshes, mudflats and reclaimed farmed marshland.
- The character becomes quieter and more rural further from London. Away from the ports at Harwich and Felixstowe, the rivers Orwell (part of the Suffolk Coast and Heath AONB), Stour and Colne have remained largely unchanged by development.

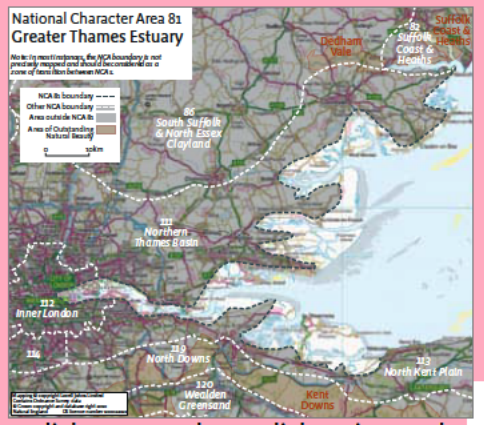
Summary

The Greater Thames Estuary National Character Area (NCA) is 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.

Despite its close proximity to London, the NCA contains some of the least settled areas of the English coast, with few major settlements and medieval patterns of small villages and hamlets on higher ground and the marsh edges. This provides a stark contrast to the busy urban and industrial areas towards London where population density is high and development pressures are increasing. Sea defences protect large areas of reclaimed grazing marsh and its associated ancient fleet and ditch systems, and productive arable farmland. Historic military landmarks are characteristic features of the coastal landscape.

The coastal habitats of the NCA are internationally important for their biodiversity interest and support large numbers of overwintering and breeding wetland birds, rare plant and invertebrate species, and diverse marine wildlife. The vast majority of the coastline and estuaries are designated as Ramsar sites and Special Protection Areas, while the Essex Estuaries are a Special Area of Conservation. Brownfield sites support priority open mosaic habitat and its associated nationally rare invertebrate species. The coastline is also of major geomorphological interest for the study of estuarine and coastal processes, and for its nationally and internationally important deposits of London Clay fossils and Pleistocene sediments.

There is a marked contrast between the wild and remote coastal marshes, and the industrial and urban developments which are highly visible in the low-lying landscape. A key challenge is to accommodate increasing development pressure in the area with the protection and enhancement of the natural landscape and its internationally important coastal habitats and species, and nationally important open mosaic habitat. Rising sea levels due to climate change present a major threat to coastal areas in the NCA through coastal squeeze, the alteration of coastal processes and increased flood risk – and the integrated management of these issues provides a major challenge.



Click map to enlarge; click again to reduce

Click map to enlarge; click again to reduce

Statements of Environmental Opportunities:

- **SEO 1:** Maintain and enhance the expansive, remote coastal landscape – with its drowned estuaries, low islands, mudflats, and broad tracts of tidal salt marsh and reclaimed grazing marsh – maintaining internationally important habitats and their wildlife, and underlying geodiversity, while addressing the impacts of coastal squeeze and climate change and considering dynamic coastal processes.

- **SEO 2:** Work with landowners and managers to incorporate measures to improve biodiversity, geodiversity, pollination, water quality, soil quality and climate adaptation and to prevent soil erosion in this important food-providing landscape, while maintaining its historic character.

- **SEO 3:** Ensure that the tranquil and remote character of the estuary is maintained by conserving and enhancing important coastal habitats and distinctive historic and geological features, while providing increased opportunities for recreation and enjoyment of the landscape.

- **SEO 4:** Encourage a strategic approach to development that is informed by and makes a positive contribution to local character, incorporates green infrastructure which provides ecosystem services where they are needed most, and promotes recreation and addresses climate change, while maintaining important open mosaic and coastal habitats, and historic and geological features.



Coastal saltmarsh habitat at Hamford Water in Essex.

Description

Physical and functional links to other National Character Areas

The Greater Thames Estuary National Character Area (NCA) forms the eastern edge of the London Basin, and its extensive underlying geology of London Clay provides links with the Northern Thames Basin NCA and, further west, the Inner London NCA.

The NCA lies between the North Sea and the rising ground of the adjacent North Kent Plain and Northern Thames Basin NCAs which provide a backdrop to the extensive flat open spaces of the estuary. Uninterrupted, far-reaching views out across the Thames to the opposite banks are possible from this higher ground, and industrial and historic military landmarks are highly visible in this predominantly low-lying marshy coastal landscape.

The Thames is one of the major estuaries of the eastern English coast and drains over 16,000 km2 of land, from the source of the River Thames in Gloucestershire to the west, and the southern reaches of the River Medway in the High Weald of Sussex. To the north the NCA includes the estuaries of the rivers Crouch, Roach, Blackwater, Colne and Stour and the embayment[4] of Hamford Water, which together reach far into the Northern Thames Basin NCA and beyond into the South Suffolk and North Essex Claylands NCA. There is hydrological continuity between Tertiary deposits of Thanet Sands in the far west of the NCA and the underlying principal London Basin Chalk aquifer, which stretches through the Northern Thames Basin NCA and into the Chilterns NCA to the north and the North Downs NCA to the south.

Coastal processes of erosion, transportation and deposition provide a functional link between the Greater Thames Estuary NCA and the contrasting coastlines of the adjacent North Kent Plain NCA and Suffolk Coast and Heaths NCA, with littoral drift occurring southwards along the coast. The marshes were created from the material carried by the sea from the north, and a continued supply of sediment is needed to sustain them. Functional connectivity is also provided by the continuation of coastal habitats into adjacent NCAs, with the Stour, Orwell, Debden and Alde–Ore estuaries occurring on the Suffolk coastline, and large areas of grazing marsh habitat behind coastal defences in the North Kent Plain NCA.

The River Thames itself provides a major transport link to the Inner London NCA with jetties, wharfs and docks occurring throughout. An extensive network of road and rail bridges spans the NCA's western reaches, including the M25 Dartford crossing, as it follows the Thames path winding through the eastern part of Inner London. The Saxon Shore Way stretches 257 km along the Kent coastline from Gravesend to Hastings in East Sussex, linking the North Kent Plain, North Downs, Wealden Greensand and Romney Marshes NCAs. The Thames Path National Trail follows the path of the Thames from its source in the Cotswolds, to Greenwich in the East London part of the NCA.

[4] A recess in a coastline forming a bay

Key characteristics

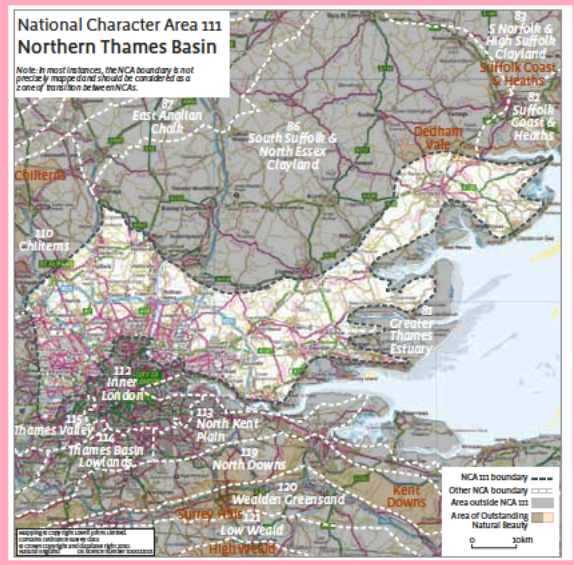
- Predominantly flat, low-lying coastal landscape where extensive open spaces are dominated by the sky, and the pervasive presence of water and numerous coastal estuaries extend the maritime influence far inland.
- Eastern edge of the London Basin with its underlying geology of the extensive London Clay, containing important sites for geodiversity including fossiliferous deposits, and overlain by productive loamy soils derived from intertidal alluvial muds.
- Geological contrast and variety along the coastline provided by Sheppey, a long, low island rising from a stretch of very flat marsh along the Swale Estuary in Kent with low, steep clay cliffs facing towards Essex, and Mersea Island in the Blackwater Estuary in Essex.
- Coastline of major geomorphological interest for its coastal processes. Accretion of material carried by the sea from the north recharges intertidal coastal habitats, which are subject to coastal squeeze from rising sea levels.
- Open grazing pastures patterned by a network of ancient and modern reed-fringed drainage ditches and dykes, numerous creeks and few hedges or fences, with tree cover a rarity.
- Traditional unimproved wet pasture grazed with sheep and cattle combined with extensive drained and ploughed arable land protected from floods by sea walls, with some areas of more mixed agriculture on higher ground.
- Strong feelings of remoteness and wilderness persist on extensive salt marshes, mudflats and reclaimed farmed marshland, which support internationally important plants, invertebrates and populations of breeding and overwintering birds, notably overwintering Brent geese.
- Open mosaic habitats on brownfield sites support nationally important invertebrate assemblages and key populations of rare invertebrate species.
- Distinctive landmarks of coastal military heritage including Napoleonic military defences, forts and 20th-century pillboxes.
- Some of the least settled parts of the English coast with numerous small villages and hamlets on higher ground and marsh edges reflecting medieval patterns and the coastal economy.
- Highly urbanised areas within London and on marsh edges subject to chaotic activity of various major developments including ports, waste disposal, marine dredging, housing regeneration, mineral extraction and prominent power stations plus numerous other industry-related activities.
- Increasing development pressures around major settlements and especially towards London, with urban, industrial and recreational sites often highly visible within the low-lying marshes.
- Major historical and current transport link to Inner London provided by the River Thames, with an extensive network of road and rail bridges spanning its reaches within the city.

Summary

The Northern Thames Basin is a diverse area which extends from Hertfordshire in the west to the Essex coast in the east. It is separated from the North Sea and Thames Estuary by a narrow band of land that makes up the Greater Thames Estuary National Character Area (NCA). Included within this NCA are the suburbs of North London and also historic towns and cities including St. Albans and Colchester, as well as new and planned towns such as Welwyn Garden City, Hatfield and Basildon. Although arable agriculture is a large industry in the area the soil quality ranges from good to poor quality. The London Clay provides a poor quality soil that becomes waterlogged in winter and cracks and shrinks in summer. Better quality soil is found in areas that contain alluvial deposits from the Thames and other rivers in the area as they formed and changed position over time.

The Northern Thames Basin is an area rich in geodiversity, archaeology and history and diverse landscapes ranging from the wooded Hertfordshire plateaux and river valleys, to the open landscape and predominantly arable area of the Essex heathlands, with areas of urbanisation mixed in throughout. Urban expansion has been a feature of this area since the 16th century when wealthy merchants who were conducting business in London built homes on its outskirts, mainly in the Hertfordshire area. This trend increased dramatically from the mid-19th century as infrastructure improved and people could travel to work in London from the surrounding areas in an hour or less. This has put increased pressure on the area in terms of extra housing developments, schools and other necessities for expanding populations, with a consequential reduction in tranquillity. Tranquil areas can still be found in parts of Hertfordshire and Essex in areas that have a more dispersed settlement pattern broken up by arable land and semi-natural habitats.

There are a wide variety of semi-natural habitats in the area and these support many important species. However, the habitats have become fragmented over time and a landscape-scale approach is needed to connect them so that they can be sustained and provide beneficial functions including; increasing pollinating insects, acting as flood defences and water storage areas, preventing soil erosion and helping to improve soil and water quality as well as maintaining the area's sense of place and history. This NCA includes many internationally and nationally designated sites including 72 Sites of Special Scientific Interest (20 of which are designated wholly or in part for their national geological importance), 6 Ramsar sites, 6 Special Protection Areas, 3 Special Areas of Conservation and 2 National Nature Reserves. The majority of these sites are estuaries and woodlands. The estuaries support migrating and overwintering birds as well as rare or locally important plants and invertebrates. The selected woodlands are ancient and have a long history of management through coppicing and pollarding, which has allowed rich ground flora to develop and also supports rare mosses and deadwood invertebrates.



Click map to enlarge; click again to reduce.

The main changes to the area have resulted from increased construction and commercial-scale farming. Both of these have increased pressures on water availability, water flow, soil quality, biodiversity and sense of place. Although housing, other construction and agriculture are significant for the area it is important that these are developed in a sustainable way so that predicted changes in climate and the effects on the area's character are considered and sense of place and history are preserved.

The main opportunities available to this area are the continuation of the agricultural tradition, but within this land management should consider methods that are more sustainable in terms of water use and soil quality in order for it to continue to be a viable industry in the future. The areas of various semi-natural habitats also present opportunities to improve water storage and soil quality for surrounding agricultural land as well as to increase advantageous species that will aid pollination and reduce pest species. In addition to this the woodlands in the area could be an important resource to supply timber and fuel to the local area if they were managed effectively.



Farmland next to the River Colne in Essex.

Statements of Environmental Opportunity

SEO 1: Manage rivers and river valleys to protect and improve water quality and help to alleviate flooding in the downstream urban areas, while also helping to improve aquifer recharge and provide a sufficient store of water to meet future need, especially with predicted climatic changes. Conserve the riparian landscapes and habitats, for their recreational and educational amenity for their internationally significant ecological value.

SEO 2: Manage the agricultural landscape and diverse range of soils which allow the Northern Thames Basin to be a major food provider, using methods and crops that retain and improve soil quality, water availability and biodiversity.

SEO 3: Protect and appropriately manage the historic environment for its contribution to local character and sense of identity and as a framework for habitat restoration and sustainable development, ensuring high design standards (particularly in the London Green Belt) which respect the open and built character of the Thames Basin. Enhance and increase access between rural and urban areas through good green infrastructure links to allow local communities recreational, health and wellbeing benefits.

SEO 4: Manage and expand the significant areas of broadleaf woodland and wood pasture, and increase tree cover within urban areas, for the green infrastructure links and important habitats that they provide, for the sense of tranquillity they bring, their ability to screen urban influences and their role in reducing heat island effect and sequestering and storing carbon.



Ancient woodland at Pound Wood in Benfleet, Essex.

Key characteristics

- The landform is varied with a wide plateau divided by river valleys. The prominent hills and ridges of the 'Bagshot Hills' are notable to the north-west and extensive tracts of flat land are found in the south.
- Characteristic of the area is a layer of thick clay producing heavy, acidic soils, resulting in retention of considerable areas of ancient woodland.
- Areas capped by glacial sands and gravels have resulted in nutrient-poor, free-draining soils which support remnant lowland heathlands, although these are now small. Areas that have alluvial deposits present are well drained and fertile.
- The water bearing underlying Chalk beds are a main source of recharge for the principal London Basin Chalk aquifer.
- A diverse landscape with a series of broad valleys containing the major rivers Ver, Colne and Lea, and slightly steeper valleys of the rivers Stour, Colne and Roman. Numerous springs rise at the base of the Bagshot Beds and several reservoirs are dotted throughout the area
- The pattern of woodlands is varied across the area and includes considerable ancient semi-natural woodland. Hertfordshire is heavily wooded in some areas as are parts of Essex, while other areas within Essex are more open in character. Significant areas of wood pasture and pollarded veteran trees are also present.
- The field pattern is very varied across the basin reflecting historical activity. Informal patterns of 18th-century or earlier enclosure reflect medieval colonisation of the heaths. Regular planned enclosures dating from the Romano-British period are a subtle but nationally important feature on the flat land to the south-east of the area. In the Essex heathlands 18th- and 19th-century enclosure of heathlands and commons followed by extensive 20th-century field enlargement is dominant.
- Mixed farming, with arable land predominating in the Hertfordshire plateaux, parts of the London Clay lowlands and Essex heathlands. Grasslands are characteristic of the river valleys throughout. Horticulture and market gardening are found on the light, sandy soils of former heaths in Essex, particularly around Colchester, along with orchards, meadow pasture and leys following numerous narrow rivers and streams.
- The diverse range of semi-natural habitats include ancient woodland, lowland heath and floodplain grazing marsh and provide important habitats for a wide range of species including great crested newt, water vole, dormouse and otter.
- Rich archaeology including sites related to Roman occupation, with the Roman capital at Colchester and City of St Albans (Verulamium) and links to London. Landscape parklands surrounding 16th- and 17th-century rural estates and country houses built for London merchants are a particular feature in Hertfordshire.
- The medieval pattern of small villages and dispersed farming settlement remains central to the character of parts of Hertfordshire and Essex. Market towns have expanded over time as have the London suburbs and commuter settlements, with the creation of new settlements such as the pioneering garden city at Welwyn and the planned town at Basildon.
- Brick-built dwellings are characteristic from the late 17th century onwards. Prior to this dwellings and farm buildings tended to be timber built with weatherboarding, now mainly painted white but traditionally black or tarred, and whitewashed plaster walls.

Appendix 11-B: Extracts of County Landscape Character Assessments

4.6 London Clay Landscapes (E)

4.6.1 The London Clay landscapes are found in south Essex and around Colchester and the Tendring Plain.



4.6.2 The key characteristics of this division can be summarised as:

- Mainly gently undulating or flat landform.
- Heavy clay soils and lighter sandy/loamy soils where sand and gravel deposits overly clay.
- Regular and straight hedged field boundaries the result of both ancient planned landscapes, and late enclosure of former heathlands.
- Pasture and arable farmland.
- Mostly enclosed nature of the landscape.

4.6.3 The main hedgerow species are Hawthorn, Oak, Elm with occasional Ash, Blackthorn, Field Maple.

4.6.4 The London Clay Plateau landscapes comprise four Landscape Character Areas within the study area:

- South Essex Farmlands (E1)
- South Colchester Farmlands (E2)
- Tendring Plain (E3)
- North Colchester Farmlands (E4)

4.6.5 *South Essex Farmlands (E1)*

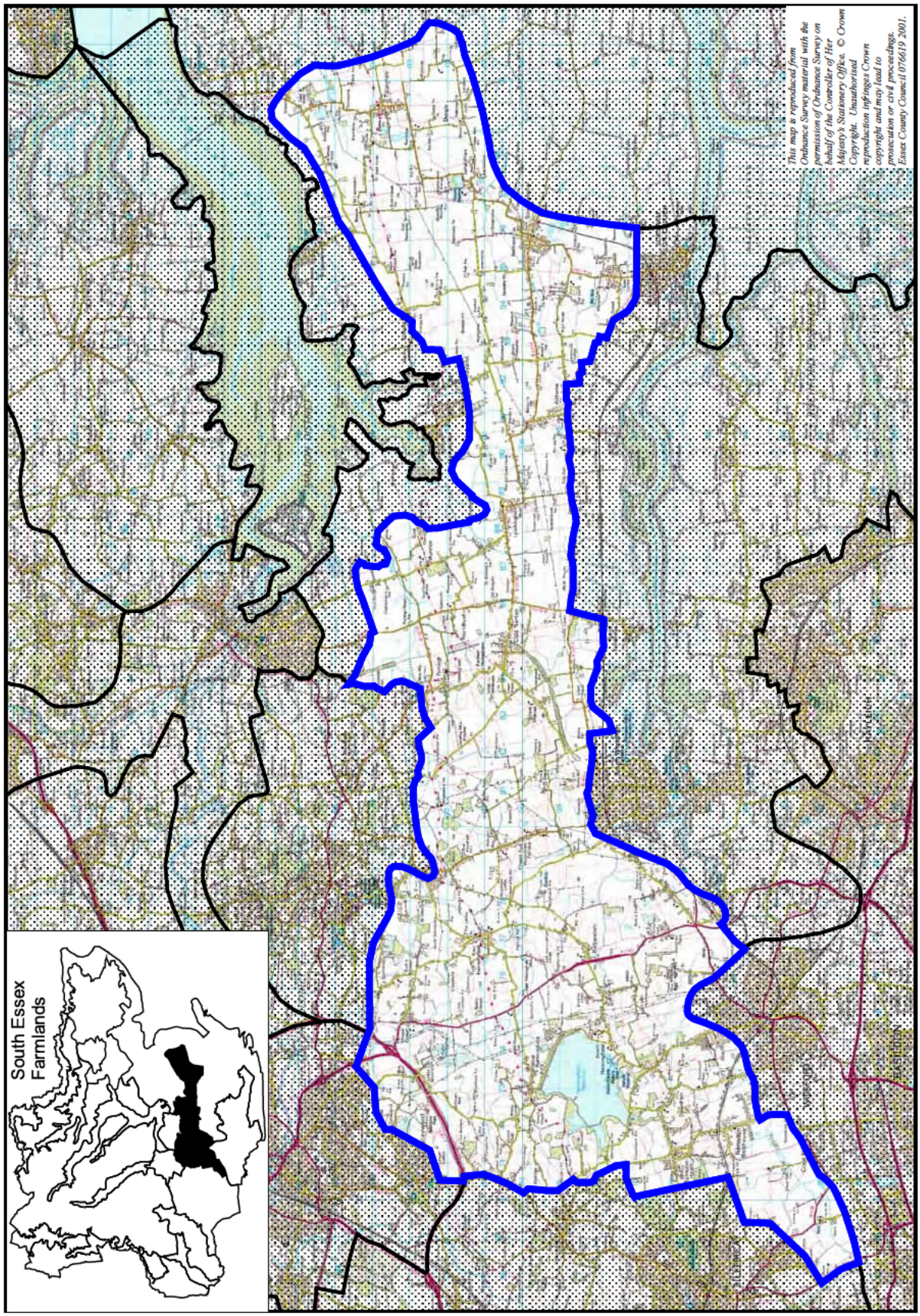


Key Characteristics

- Gently undulating landform, locally strongly rolling.
- Rectilinear field pattern with tall thick hedgerow boundaries.
- Occasional small woods and copses.
- Sense of enclosure
- Striking large open water expanse of Hanningfield Reservoir surrounded by dense tree belts is a distinctive feature in the west.
- Pylons are a frequent presence.

Overall Character

The South Essex Farmlands have a simple pattern of small to medium size rectangular arable and pasture fields. Distinctive long hedgerow boundaries running on parallel axes are a common feature, thought to be the result of ancient planned enclosure and extend over gently to strongly undulating landform. Despite the large scale loss of elm in the area, the tall thick hedges contribute an enclosed character to the landscape. In the west the large Hanningfield Reservoir and its surrounding mixed treebelts are a dramatic contrast to the surrounding farmland. Overhead pylons and some major roads visually interrupt the landscape.


South Essex Farmlands
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Character Profile

Geology

- Mainly London Clay, some Claygate and Bagshot Beds and Sands and Gravels

Soils

- Slowly permeable clayey soils, small areas of fine or coarse loamy and silty soils.

Landform

- Varied landform.
- Large parts are gently undulating.
- More strongly rolling topography associated with rounded, moderate to steep sided hills/small escarpments between Ramsheath and Woodham Ferrers, extending north to Cold Norton and Purleigh.
- Low broad ridge extends on the Dengie Peninsula.

Semi-natural vegetation

- Oak-hornbeam woodland.
- Neutral meadows.

Pattern of field enclosure

- Predominantly small and medium rectilinear fields, often with long co-axial field boundaries (ancient planned field system).
- A few areas with large fields where field pattern has been lost, e.g. east of Rettendon.
- Predominantly thick hedgerow boundaries.

Farming pattern

- Mix of arable and pasture farmland, arable more dominant in the east.
- Occasional orchards, e.g. near Chelmsford.

Woodland/tree cover

- Scattered small woods and copses in the west, more widely dispersed in the east towards the Dengie Peninsula.
- Mixed tree belts around Hanningfield Reservoir.
- Scattered hedgerow oak trees. Elm was previously the dominant hedgerow tree.

Settlement pattern and built form

- Dispersed settlement pattern.
- Small villages and hamlets generally of strong linear form.
- Farmsteads, cottages and more recent suburban houses along lanes.
- Isolated farmsteads and barns within the farmland.
- Local vernacular of weatherboarding (painted black or white) and brick.

Communications

- Minor roads are quite straight and follow strong north to south, east to west patterns, sometimes with distinctive right angled bends. Narrow grass verges.
- Main A130 runs through the centre of the area and the A12(T) bisects the north west corner.

Other landscape features

- Hanningfield Reservoir - very large expanse of open water.
- Pylon routes running north to south and east to west, interrupt the landscape.
- Masts at Bushy Hill.
- A few sand and gravel pits on the Dengie Peninsula.

Landscape Condition

- In parts, especially in the east of the area, there has been loss of hedgerows due to field rationalisation, or fragmentation due to lack of management.

- The condition of some settlements is poor due to out of character 1960's and 1970's development.

Past, Present and Future Trends for Change

- Traditionally the landscape was dominated by pasture but extensive areas have been converted to arable.

- Future trends for change may include pressure for urban development, masts on high ground and recreational uses given the proximity to urban areas in the east.

SOUTH ESSEX FARMLAND (E1)
SENSITIVITY EVALUATION

TYPE/SCALE OF DEVELOPMENT/CHANGE	KEY LANDSCAPE SENSITIVITY AND ACCOMMODATION OF CHANGE ISSUES	LANDSCAPE SENSITIVITY LEVEL
1. Major urban extensions (>5 ha) and new settlements	• Integrity of hedgerow field pattern • Low to moderate intervisibility. • Visual exposure of some ridge/hillsides.	M
2. Small urban extensions (<5 ha)	• Low to moderate intervisibility. *Possible opportunities to improve existing urban edges.*	L
3. Major transportation developments/improvements	• Integrity of hedgerow field pattern. • Low to moderate intervisibility.	M
4. Commercial/warehouse estate/port development	• Low to moderate intervisibility. • Visual exposure of some ridge/hillsides. • Landform character. *Siting, massing, form and colour are critical.*	M
5. Developments with individual large/bulky buildings	• Low to moderate intervisibility. • Visual exposure of some ridge/hillsides. • Landform character. *Siting, massing, form and colour are critical.*	M
6. Large scale 'open uses'	• Integrity of hedgerow field pattern. • Visual exposure of some ridge/hillsides. *Possible opportunities for landscape enhancement ion some parts.*	M
7. Mineral extraction/waste disposal	• Integrity of hedgerow field pattern.	M
8. Incremental small scale developments	• Condition of hedgerows. • Character of settlements.	M
9. Utilities development, i.e. masts, pylons	• Low to moderate intervisibility. • Limited capacity for further change.	M
10. Decline in traditional countryside management	• Condition of hedgerow field pattern.	M

Table to be read in conjunction with paragraphs 1.4.15 – 1.4.17

4.7 Coastal Landscapes (F)

4.7.1 The Coastal landscapes in Essex are extensive areas of open, and largely undeveloped low-lying land adjacent to the coast, much of which is of significant nature conservation value. The very long coastline is deeply indented by major river estuaries including the Stour, Colne, Blackwater, Crouch, and the Thames, and includes distinctive island and peninsula features. Much of the coastal land behind the sea wall has been reclaimed to form wet grazing marshes and, where drained and improved, arable fields. Inland, the land rises and is dominated by arable farmland.



4.7.2 The key characteristics of this division can be summarised as:

- Expansive, sky-dominated, flat, low lying landscapes with water often a feature in views. The estuaries bring the maritime character inland.
- Deeply indent coastline.
- Traditional grazing marshes and drained arable land protected from flooding by sea walls.
- Few hedgerows or fences; numerous creeks, drainage ditches and dykes.
- Tree cover limited to farmsteads and villages on higher ground.
- Extensive evidence of 20th century military activity.
- Many settlements related to fishing or boating industry.

4.7.3 Typical hedgerow species are Hawthorn, Oak, Elm, with occasional Elderberry, Blackthorn, Dog rose.

4.7.4 The Coastal landscapes comprise ten Landscape Character Areas within the study area:

- Thames Estuary (F1)
- Crouch & Roach Farmland (F2)
- Dengie & Foulness Coast (F3)
- Blackwater Estuary (F4)
- North Blackwater Coastal Farmlands (F5)
- Mersea Island (F6)
- Brightlingsea-Clacton-Frinton Coast (F7)
- Hamford Water (F8)
- Stour Estuary Slopes (F9)
- Stour Estuary (F10)

4.7.6 *Crouch & Roach Farmland (F2)*

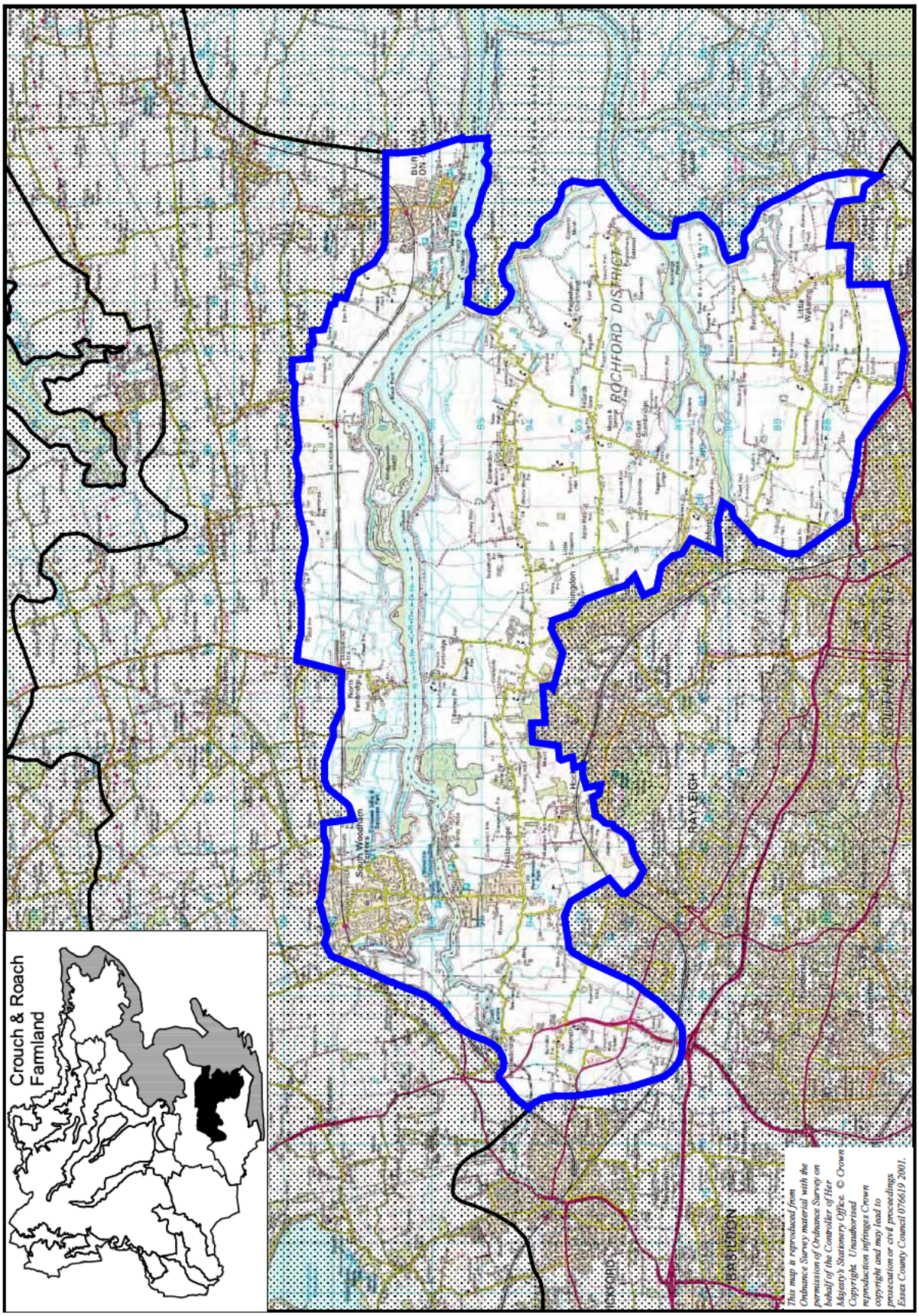


Key Characteristics

- Long narrow Crouch and Roach river estuaries with bands of flat low lying marshlands.
- Rolling or gently undulating arable farmland between the estuaries. Regular fields of variable size and thick or intermittent hedgerow boundaries.
- Frequent long views across the farmland to the estuaries from higher ground.
- Strongly right angled pattern of lanes.
- Small villages, a scattering of hamlets, farmsteads, and newer suburban properties are concentrated along the lanes on higher ground.

Overall Character

The coastal character of the area is defined by the narrow estuaries which penetrate far inland, with associated mudflats, saltmarsh and reclaimed marshlands, sometimes including grazing marsh. The land between the estuaries and their immediate margins is gently or strongly undulating arable farmland. Moderate to steep sided estuary valleysides are a distinctive backdrop either side of the Crouch. Typically, thick hedgerows dominated by scrub elm follow the rectilinear field boundaries. However, there has been significant loss of hedgerows especially in the south of the area, as well as the general loss of elm the formerly characteristic hedgerow tree, resulting in a fairly open character. The settlement pattern is sparse along the edge of the estuaries, and mostly small settlement tend to hug the slightly higher drier land. Large parts of the area have a tranquil character.


Crouch & Roach Farmland
BOCHFORD DISTRICT
RAYLEIGH
BASILDON
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Character Profile

Geology

- London Clay, Sands and Gravels, Brickearths and Loams, Claygate and Bagshot Beds, Sands and Gravels

Soils

- Slowly permeable clayey soils, deep stoneless alluvial and well drained silty/loamy soils.

Landform/coastal form

- Mostly very gently undulating landform.
- Low moderate to steep to estuary/valleysides around Canewdon/near Hockley and to the north of the Crouch estuary between South Woodham Ferrers and Burnham on Crouch.
- Incised narrow estuaries of the Rivers Crouch and Roach.
- Narrow margins of flat low lying marshland and saltmarshes next to the Roach, broader areas adjacent to the Crouch.

Semi-natural vegetation

- Saltmarsh, grazing marsh, ancient woodland.

Pattern of field enclosure

- Regular, mainly small to medium size fields, some large. Distinctive ancient planned coaxial hedgerow boundaries in many parts.
- Regular and irregular fields on the marshlands with straight and sinuous ditch boundaries.

Farming pattern

- Largely arable, but with some significant areas of coastal grazing marsh, e.g. around North Fambridge.

Woodland/tree cover

- Very widely dispersed small copses. Some small woodlands on the ridge near Hockley.
- Scattered hedgerow oak and ash trees. Occasional elms, but these have largely been lost.

Settlement pattern and built form

- Absence of settlement within the marshlands apart from a very small number of isolated farmsteads.
- Small hamlets, farmsteads and early 20th century houses along roads on the higher ground.
- A few small villages, some with a suburban character at the edges.

- Local vernacular of black and white weatherboarding, colour washing and red brick. Occasional examples of dutch gables as an architectural detail on brick houses
- Small town of Burnham on Crouch, historically a fishing settlement now an important yachting centre.
- Larger town of Woodham Ferrers with extensive modern estates.

Communications

- Narrow lanes with right angled bands following the field boundaries.
- Lack of roads within the marshlands other than farm tracks.
- Main A130 crosses the landscape in the west. Otherwise few major roads cross the area.

Other landscape features

- Church towers and spires are often visually prominent in the landscape.
- Some wet gravel pits.
- Scattered ponds and small reservoirs.
- Small caravan/mobile home parks.
- Quays and a marina at Burnham on Crouch.
- Occasional marinas, pontoons and river moorings elsewhere.

Landscape Condition

- Many hedgerows are fragmented.

- The condition of the small settlements is very mixed, often including out of character modern infill.

Past, Present and Future Trends for Change

- There has been significant loss of grazing marsh as a result of agricultural intensification since the Second World War.

- Loss of elm trees from the farmland in the 1960's and 1970's made the character of the area more open.

- Present and likely ongoing trends for change include pressure for urban development around South Woodham Ferrers, transportation developments near Southend, and demand for additional boat moorings, marina facilities along the estuaries. Flood protection measures may also be a likely future issues. There may be some opportunities for managed realignment together with restoration of saltmarshes and grazing marshes, rather than use of visually intrusive higher hard sea walls.

CROUCH AND ROACH FARMLAND (F2)
SENSITIVITY EVALUATION

TYPE/SCALE OF DEVELOPMENT/CHANGE	KEY LANDSCAPE SENSITIVITY AND ACCOMMODATION OF CHANGE ISSUES	LANDSCAPE SENSITIVITY LEVEL
1. Major urban extensions (>5 ha) and new settlements	• Moderate to high intervisibility. • Visual exposure of some estuary valleysides. • Tranquil character.	H
2. Small urban extensions (<5 ha)	• Moderate to high intervisibility.	M
3. Major transportation developments/improvements	• Moderate to high intervisibility. • Tranquil character.	M
4. Commercial/warehouse estate/port development	• Moderate to high intervisibility. • Integrity of hedgerow pattern.	H
5. Developments with individual large/bulky buildings	• Moderate to high intervisibility.	H
6. Large scale 'open uses'	• Integrity of hedgerow pattern. • Moderate to high intervisibility.	M
7. Mineral extraction/waste disposal	• Integrity of hedgerow pattern. • Moderate to high intervisibility.	M
8. Incremental small scale developments	• Moderate to high intervisibility. • Mixed existing character of settlements.	M
9. Utilities development, i.e. masts, pylons	• Moderate to high intervisibility. • Tranquil character.	H
10. Decline in traditional countryside management	• Condition of hedgerows. • Condition of saltmarshes.	M

Table to be read in conjunction with paragraphs 1.4.15 – 1.4.17

4.7.7 *Dengie and Foulness Coast (F3)*

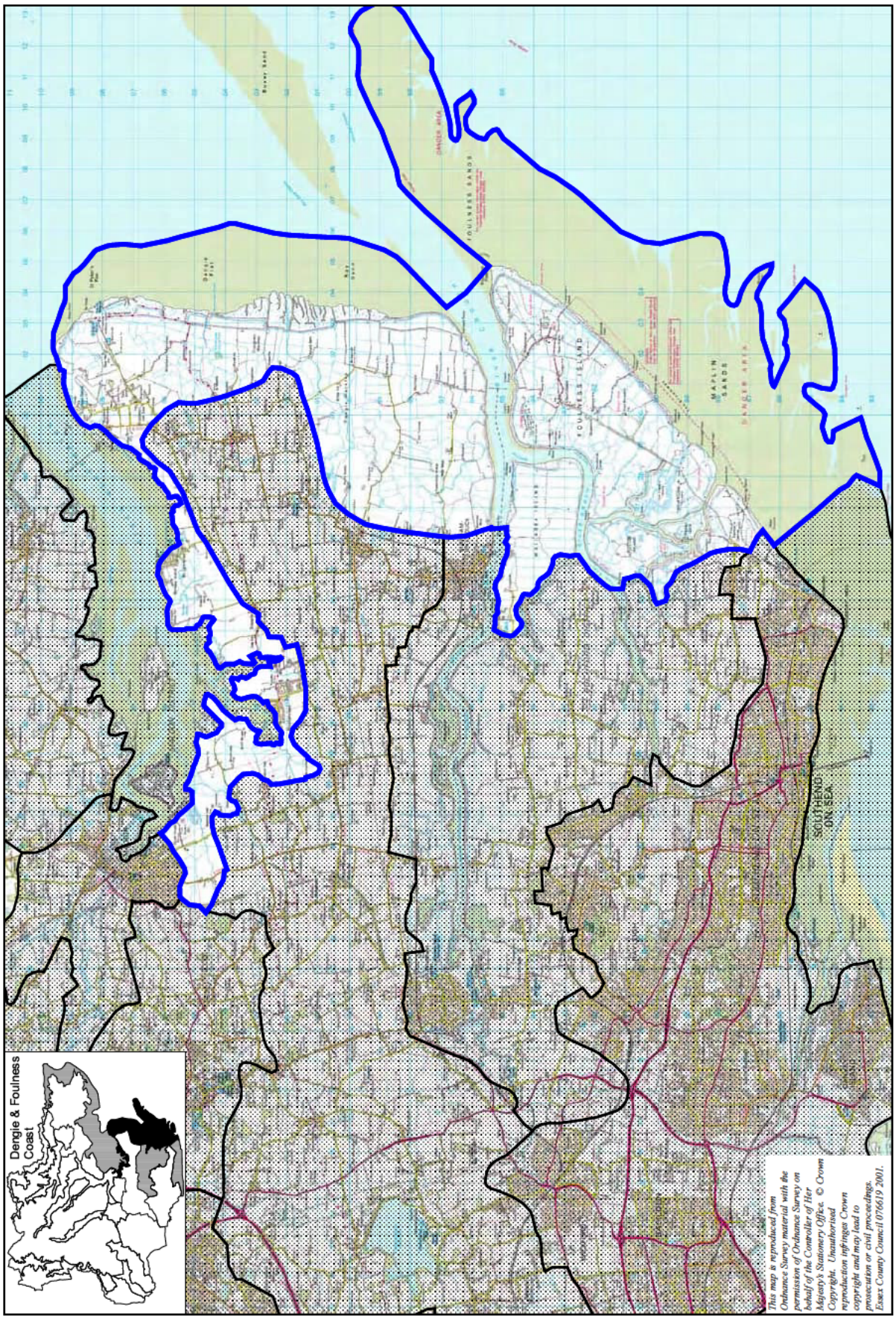


Key Characteristics

- 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.
- Remote tranquil character.

Overall Character

Dengie and Foulness coast is a distinctive extensive area of reclaimed marshlands, and of sweeping tidal mudflats and sands beyond the sea wall. It is a flat open and exposed landscape, dominated by the sky and/or the sea. A large scale pattern of arable fields on the marshlands is defined by straight or sinuous ditches, with very few trees. Settlement is very sparse. The older marshlands have occasional farmsteads and lanes, but on the more recent reclaimed areas, there are just a few isolated barns and farmsteads. No major roads cross the area so this increases its remote tranquil character.


Dengie & Foulness Coast
FOULNESS ISLAND
MAPLIN SANDS
SOUTHEND ON SEA
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Character Profile

Geology

- Mainly alluvium, some London Clay and Sands & Gravels

Soils

- Deep stoneless fine/coarse silty and clayey soils.

Landform/coastal form

- Large areas of flat low lying land below 5 m elevation. To the south this is broken into a series of small and large islands by the lower Crouch and Roach estuaries and connecting creeks, e.g. Foulness, Wallasea, Potton Islands.
- Beyond the sea wall in the east both narrow fringes and large pockets of flat saltmarsh and vast tidal sand/mudflats such as Maplin sands.

Semi-natural vegetation

- Saltmarsh, pockets of coastal grazing marsh, sea wall grassland, shoreline vegetation.

Pattern of field enclosure

- Predominantly regular, medium to large size fields bounded by straight ditches and dykes.
- Some significant pockets further inland of older, irregular shaped small and medium size fields bounded by sinuous ditches, including remnant fleets in the south.
- Wallasea Island has a geometric field pattern. Overall appearance of a large scale field pattern due to only a few hedgerows.

Farming pattern

- Intensive arable farmland, small areas of grazing marsh.

Woodland/tree cover

- Generally very sparse tree cover.
- A few isolated copses, and trees around farmsteads.
- Some isolated trees/scrub on the older reclaimed marshes.

Settlement pattern and built form

- Isolated farmsteads on the older reclaimed marshes, only occasional barns on the more recently reclaimed land from sea.
- Churchend on Foulness is the only traditional hamlet in the area.
- 1930s plotland developments at Maylandsea and St Lawrence Bay.

Communications

- Sparse road network of narrow straight or dog-legging lanes. Mainly farm tracks.

Other landscape features

- Bradwell Nuclear Power Station is an important landmark with an imposing presence.
- Isolated church at Bradwell on Sea.
- Military ranges, e.g. at Foulness with trackways and unfarmed strips and scattered buildings/debris.
- Traces of redhills.
- Decoy ponds.
- Shingle spit at Foulness Point.
- Caravan sites/leisure parks at St Lawrence Bay.

Landscape Condition

- Some intrusive farm buildings occur around historic farmsteads.

- Locally intrusive industrial/warehouse buildings occur at Creeksea.

Past, Present and Future Trends for Change

- Since the Second World War there has been significant loss of coastal grazing marsh and of features such as decoy ponds and old sea wall, as a result of agricultural intensification.

- The main future influences on changes are likely to be agricultural and flood protection. Changes in arable subsidy regimes may present opportunities for large scale managed realignment with creation of saltmarsh and restoration of coastal grazing marsh.

DENGIE & FOULNESS COAST (F3)
SENSITIVITY EVALUATION

TYPE/SCALE OF DEVELOPMENT/CHANGE	KEY LANDSCAPE SENSITIVITY AND ACCOMMODATION OF CHANGE ISSUES	LANDSCAPE SENSITIVITY LEVEL
1. Major urban extensions (>5 ha) and new settlements	• High intervisibility. • Tranquil character. • Sparse settlement pattern.	H
2. Small urban extensions (<5 ha)	• High intervisibility. • Tranquil character. • Sparse settlement pattern.	H
3. Major transportation developments/improvements	• High intervisibility. • Tranquil character.	H
4. Commercial/warehouse estate/port development	• High intervisibility. • Sparse settlement pattern. • Tranquil character.	H
5. Developments with individual large/bulky buildings	• High intervisibility. *Siting, massing, form and colour are critical.*	H
6. Large scale 'open uses'	• High intervisibility. • Absence of woodland/tree cover.	M
7. Mineral extraction/waste disposal	• High intervisibility. • Landform character.	H
8. Incremental small scale developments	• High intervisibility. • Character of historic farmsteads.	M
9. Utilities development, i.e. masts, pylons	• High intervisibility.	H
10. Decline in traditional countryside management	• Condition of saltmarsh.	H

Table to be read in conjunction with paragraphs 1.4.15 – 1.4.17

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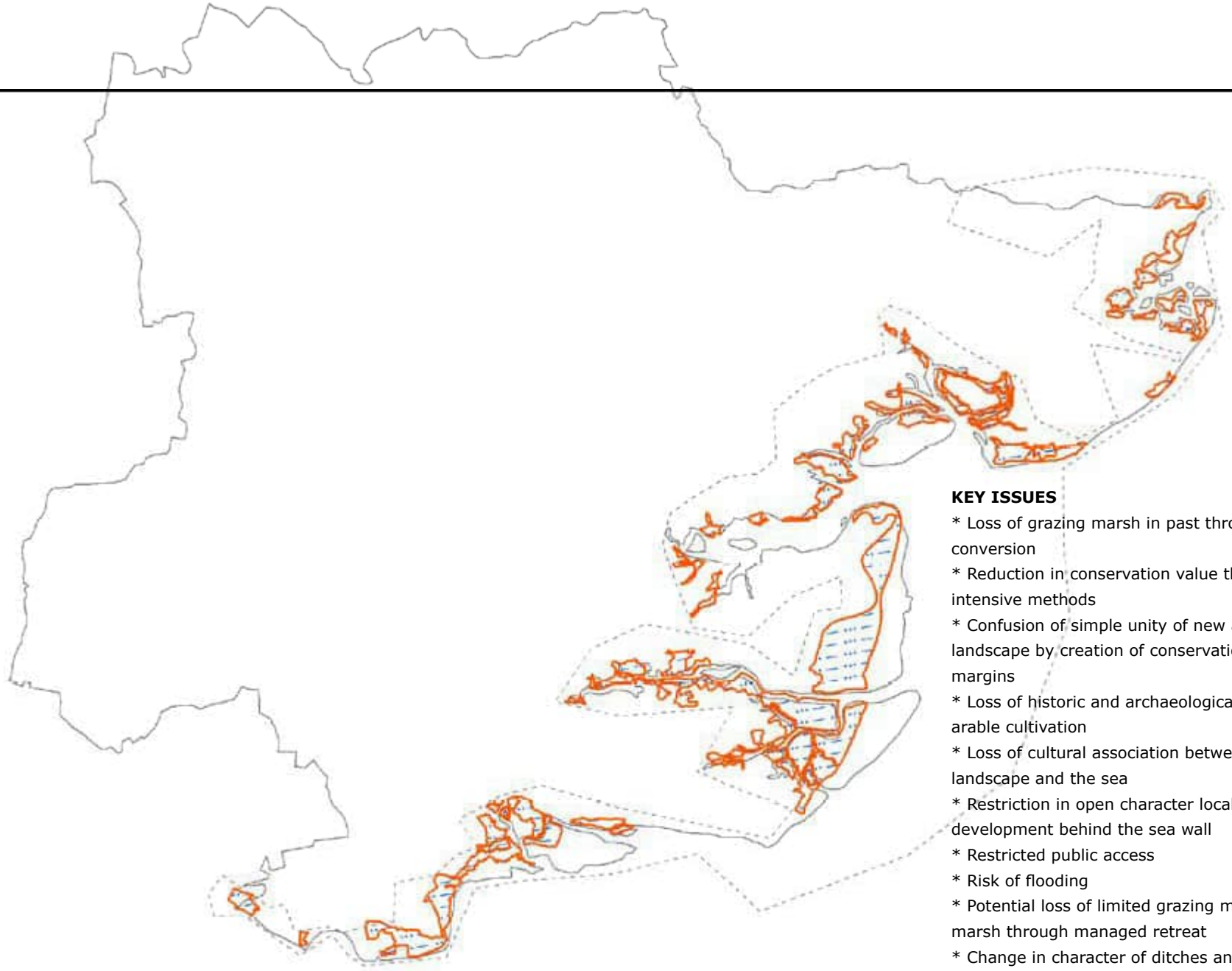
Diverse Coastal Marshland

South Essex	Alluvial Drained Marshland	Aveley Marshes
		Mucking & Tilbury Marshes
		W Canvey / Shellhaven
		Canvey Island / Benfleet
		Fobbing Marshes / Holehaven
Mid Essex	Diverse Coastal Marshland	Crouch Estuary and Foulness Archipelago
		Rochford Mixed Farmlands
		River Roach
		Canewdon Sloping Claylands
		River Crouch
		Dengie Coastlands
		Upper Blackwater Estuary
		Lower Blackwater Estuary
		Tollesbury Coastlands
North Essex	Drained Coastal Marsh	Mersea Island
		Colchester Claylands and Marshland
		Lower Colne Estuary
		Brightlingsea Drained Marshes
		Brightlingsea Flag Creek
		St Osyth Coastlands
		Holland Coastlands
		Hamford Water / Walton-on-the-Naze
		Stour Estuary

Alluvial Drained Marshland (South Essex)

Diverse Coastal Marshland (Mid Essex)

Drained Coastal Marsh (North Essex)



KEY ISSUES

* Loss of grazing marsh in past through arable conversion
* Reduction in conservation value through continued intensive methods
* Confusion of simple unity of new agricultural landscape by creation of conservation headlands and margins
* Loss of historic and archaeological features through arable cultivation
* Loss of cultural association between the farmed landscape and the sea
* Restriction in open character locally through development behind the sea wall
* Restricted public access
* Risk of flooding
* Potential loss of limited grazing marsh back to salt marsh through managed retreat
* Change in character of ditches and dykes through management for birds
* Localised fence clutter through management for recreation

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Diverse Coastal Marshland





CHARACTERISTIC FEATURES

* Enclosing sea wall and associated borrowdykes
* Relic system of fleets, creeks, ditches and counter-walls are significant archaeological features important for wildlife
* Large numbers of feeding and roosting wildfowl and waders
* Scrub associated with farm buildings, decoy ponds, and counter-walls
* Open intensively-farmed agricultural landscape dominated by cereals in Mid and North Essex
* Limited views to sea or estuary except from sea wall
* Long views within the marshland
* Views dominated by sky
* Restricted public access except along sea wall













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Diverse Coastal Marshland

The Drained Coastal Marsh landscape type includes all areas of former salt marsh, usually found next to areas of Open Coastal Marsh (Tendring)

The drained marshes originally formed the open coastal marshes developing, in sheltered areas, on estuarine alluvium. The artificially enclosed and drained landscape is now isolated from tidal influences and forms an area of grassland and cultivated fields divided by drains and punctuated by intermittent scattered scrub. These areas are defined by flat, low-lying alluvial fields criss-crossed with drainage ditches. The landscape is protected from the natural processes of erosion and deposition by sea wall defences, traditionally built from clay dug from an adjacent ditch. The walls and ditches often support a range of important insects and plants.

These large-scale, flat, agricultural landscapes behind the sea walls form one of the most distinctive landscape types in Essex, the result of 'inning' of the salt marshes. In most instances these marshes have been enclosed for centuries. Marshlands of post-medieval origin are found in places farther inland than later 'innings' and can be at a lower level if the land has shrunk as it dried out.

Generally lying at or below 5m AOD, the most distinctive features of this marshland's characteristic extensive drainage ditches and dykes are the broad borrowdykes at the back of the sea wall, occasionally retaining the natural pattern of creeks and fleets. Medieval farmers generally enclosed small parcels of saltings along these sinuous tidal ditches and creeks producing an irregular patchwork of fields. Where they are retained, many are fringed with vegetation - rushes, reeds and occasionally sea aster, but others are neglected, dry or overgrown.

The inland limits of the drained marshes are defined by rising ground.

Much of this coastal marshland was traditionally grazed, a landscape of particular value in terms of its ecology and history. A study by the RSPB in the 1980s showed that, in the late 1930s, from Clacton down to Burnham-on-Crouch, roughly within the Mid Essex LCA study area, around 16% would have been grazing marsh and 57% other pasture. By 1981, the total for all types of grassland had dropped to 13%.



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In 1994, MAFF introduced an Environmentally Sensitive Area (ESA) within the Essex marshlands that covers most of those in Mid Essex except the Dengie marshlands.

At that date the farmed landscape was 70% arable, and predominantly under cereals. The effect in high summer is of a vast uninterrupted golden sea, an effect heightened on a bright day by vivid blue skies and enhanced by a constant rustle of the crop in the ever-present breeze. Occasionally, agri-environment schemes have encouraged field margins to be left uncultivated or planted-up which, whilst beneficial to wildlife, can make the landscape pattern appear more piecemeal. Notable in these intensively-farmed arable landscapes in late summer are the large harvesters that move rhythmically across the open landscape stirring up great clouds of chaff and dust that can be seen for miles, appearing from a distance like great smoky bonfires.



The continual ploughing has resulted in the loss of features of historic and archaeological interest; predominantly the many red hills that dotted the landscape at the edge of the marsh, buried artefacts, earthworks, relic ditch systems and counter-walls. The sites of old red hills can often be tracked now by the differences in soil colour. The remains of these features should now be protected on land under agreement within the ESA, and initial observation shows that there were no further losses of these features in the first ESA monitoring period. However, MAFF studies show that 64% of such features are not protected by agreements.

There are still intermittent pastures, often reflecting poorer quality clay soils or lower-lying land. These are characterised by more extensive woody vegetation, either in the form of scrubby margins to ditches or with hedge-lined lanes with occasional mature trees. Within the ESA, there has been a small net gain in pasture between 1994 and 1997 through conversion of arable land.

Some of the irregular field patterns still remain in these landscapes, but most have been straightened since 1948. Where pasture does remain, it ranges from species rich unimproved grassland, the surface of which is often dotted with ant hills, to a mosaic of wet areas associated with old drainage channels where some of the best preserved earthworks relating to historic salt production can be found. Grazing usually results in the ditches being supplemented with post-and-wire fencing, which can lead to scrubby margins to the ditches because the grazing animals cannot keep them in check by feeding there.



The boundary between the farmed and settled landscape can be scruffy with litter or fly-tipping marring the margins of some settlements. Where counter-walls exist, these provide both vantage points out to sea and a more intimate landscape locally, adding texture and variety in scale with the landscape.

Generally settlement is not characteristic of this landscape type

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and before the 20th century it was exceptional to see more than a barn in these landscapes; even today buildings are rare except at the margins of the larger suburban fringes.

Ornamental planting usually softens early 20th century seaside settlements but this interrupts the open marshland character.

Telegraph poles frequently cross the farmlands but do not stand out excessively in the open landscape. However, pylons do intrude in many places.

Access for vehicles is limited, except on Foulness where MoD activity has resulted in extensive military roadways. Elsewhere, only a limited number of farm trackways give private access to the sea wall. Public access by foot is also restricted across the marshlands, although the sea wall itself is generally accessible.

The sails of modern yachts or older smacks and barges, gliding past the sea walls on their way around the coast or up and down the estuaries, are frequently seen from the marshlands. Apart from these, open skies are all that are usually visible beyond the sea walls, with the weather a constant concern in these coastal landscapes.

A constant feature of much of the marshlands in winter is the large number of wildfowl and waders that roost and feed there.

Foreground shows Diverse Coastal Marshland



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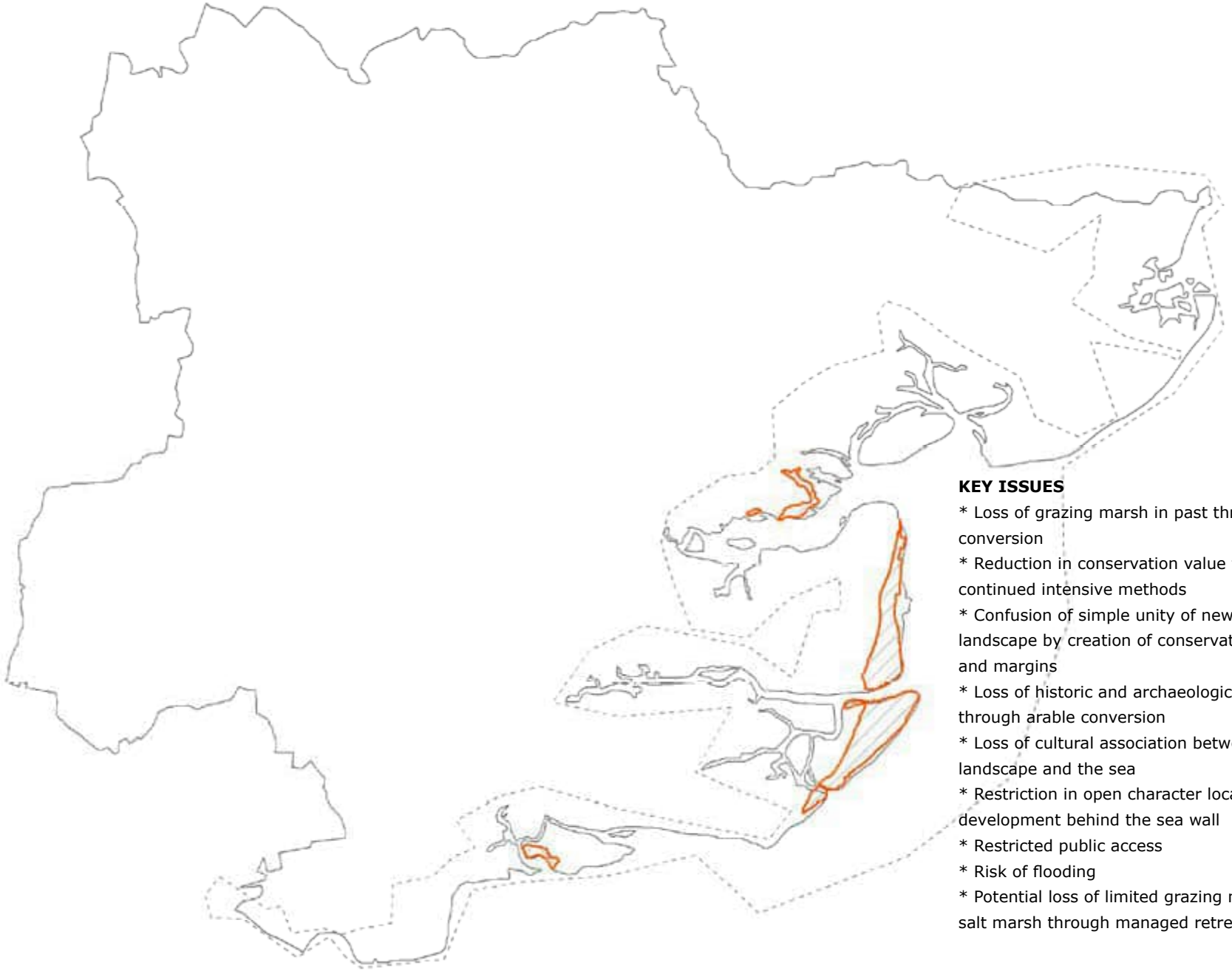
Bibliography

Consultees

Appendices

Uniform Coastal Marshland

South Essex	Uniform Coastal Marshland	W Canvey / Shellhaven
Mid Essex	Uniform Coastal Marshland	Crouch Estuary & Foulness Archipelago
		Dengie Coastlands
		Upper Blackwater Estuary
		Lower Blackwater Estuary
		Maldon Mixed Farmlands



KEY ISSUES

* Loss of grazing marsh in past through arable conversion
* Reduction in conservation value through continued intensive methods
* Confusion of simple unity of new agricultural landscape by creation of conservation headlands and margins
* Loss of historic and archaeological features through arable conversion
* Loss of cultural association between the farmed landscape and the sea
* Restriction in open character locally through development behind the sea wall
* Restricted public access
* Risk of flooding
* Potential loss of limited grazing marsh back to salt marsh through managed retreat

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Diverse Coastal Marshland

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River Terrace Farmlands

Mixed Marshland Edge

Rolling Clay Farmlands

Vale-Top Farmlands

Enclosed Valley-Sides

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Uniform Coastal Marshland



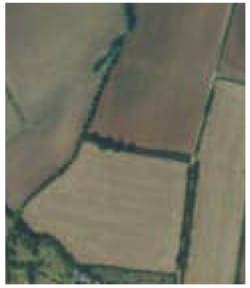


CHARACTERISTIC FEATURES

* Enclosing sea wall and associated borrowdykes
* Relic system of ditches and counter-walls important for wildlife
* Scrub associated with farm buildings, decoy ponds, and counter-walls
* Open intensively-farmed agricultural landscape dominated by cereals
* Long views within the marshland, but not over sea wall, dominated by sky
* Restricted public access except along sea wall















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Uniform Coastal Marshland

A sub-type of the Coastal Marshland, these large areas of marsh were inned and drained generally to a regular pattern. They are found on the seaward side of the older Coastal Marshlands on Dengie, Foulness and Wallasea Islands, each inning still separated by counter-walls in places and visibly higher than the older land. The boundary between the Uniform Marshland and the Diverse Marshland generally runs along the change in soil type from the good quality silts of the Uniform Marshland, to the harder to work clays of the older Diverse Marshland type, much of which remained as grassland until the Second World War.

This intensively farmed landscape was mainly converted to arable before the Second World War, reflecting the quality of the soils. There is little of ecological value now except in the remaining ditches and dykes, isolated patches of scrub or hedgerow and occasional tree. And yet the farmland within 1.5km of the sea wall forms part of the extensive feeding grounds for the important numbers of Brent Geese that frequent the Essex coast.



Appendix 11-C: Extracts of District Landscape Character Assessments

6.4 Estuarine Marsh/Mudflats Landscapes

6.4.1 The key characteristics of this Landscape Character Type are:

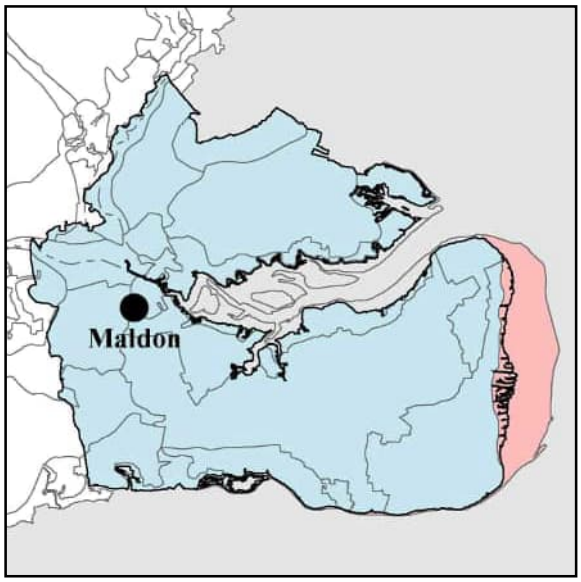
- Flat, low-lying and open landscape
- Areas of saltmarsh, mudflats, shingle spits and tidal creeks adjacent to the coast
- Generally tranquil and undisturbed character
- Sense of remoteness and tranquillity
- Visible sea walls separate drained former marshland and current saltmarsh/mudflats
- Lack of trees or hedgerows

6.4.2 This Landscape Character Type contains the following Landscape Character Areas:

C1 - Tollesbury Fleet Estuarine Marsh/Mudflats
C2 - Blackwater Estuarine Marsh/Mudflats
C3 - Dengie Flats Estuarine Marsh/Mudflats
C4 - Fleet Estuarine Marsh/Mudflats
C5 - Bridgemarsh Island Estuarine Marsh/Mudflats

6.4.3 The Estuarine Marsh/Mudflats landscape type is particularly affected by ongoing change due to dynamic coastal processes, and this is a key influence on the future management of these landscapes.

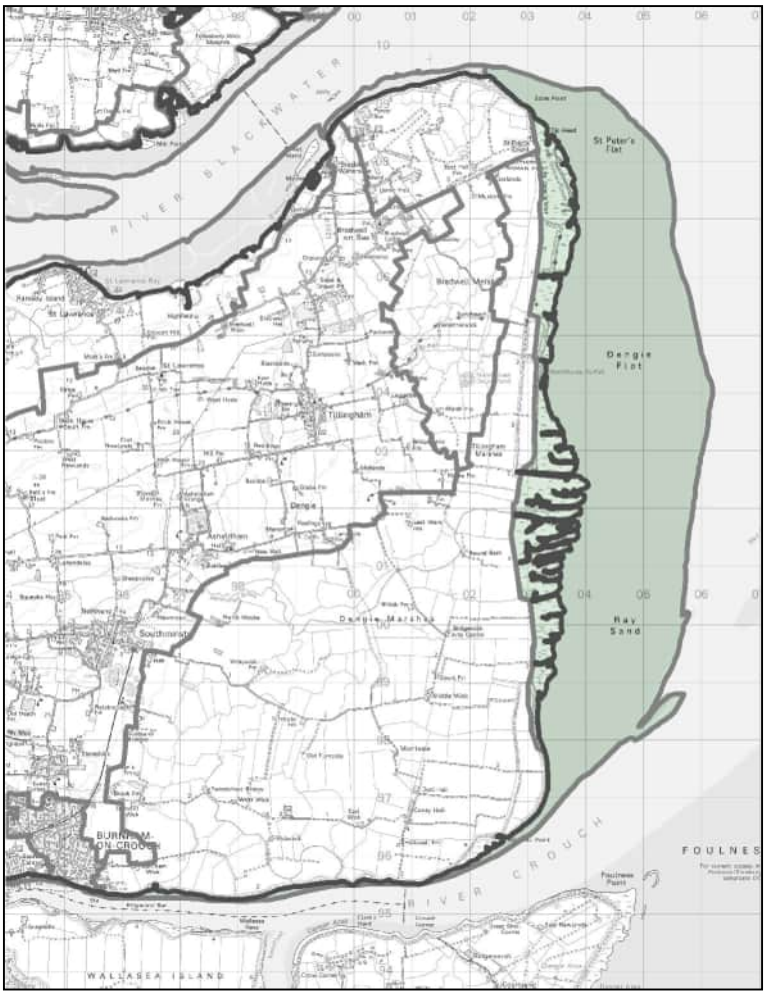
C3 DENGIE FLATS ESTUARINE MARSH/MUDFLATS





Key Characteristics

- Expansive area of saltmarsh, fringed by open mudflats (Dengie Flat and Ray Sand).
- Inter-tidal landscape which lines the eastern coastal edge.
- Panoramic, open views eastwards across the sea, towards a seemingly endless horizon.
- Sense of remoteness and tranquillity.
- Character greatly influenced by the changing colours of the sea and sky.
- Important habitats for wildlife and rare coastal flora.



Overall Character

This character area lines the eastern edge of the Maldon coastline and encompasses expansive areas of open saltmarsh. This diverse habitat is contained to the west by the sea wall (behind which, drained estuarine marsh dominates the character of the landscape). To the east, the e saltmarshes are lined with large areas of diverse inter-tidal mudflats (including St. Peter's Flat, Dengie Flat and Ray Sand), which provide important habitats for birds. Character within the area is greatly influenced by the changing colours of the sea and sky. Panoramic, open views eastwards across the sea, towards a seemingly endless horizon add to creating a sense of remoteness and tranquillity

within the area. The relative absence of tree cover and settlement creates an expansive landscape that is wild in places.

Visual Characteristics
- Open views across drained estuarine marsh to the west.
- Panoramic, open views eastwards across the sea, towards a seemingly endless horizon.
- Short-distance views to the landmark Bradwell power station within coastal farmland to the west.
- Dramatic views across ever-changing mudflats, influenced by the colour of the sea and sky.

Historic Land Use

Evidence of historic land use within the Character Area is dominated by present and former marshland. The main historic landscape features include the sea defence wall, which marks the inland boundary.

Ecological Features

This Character Area is dominated by coastal habitats, mudflats and seashore. The area contains the following sites of nature conservation value:
- Dengie Ramsar Site- supports internationally and nationally important numbers of wildfowl.
- Dengie SPA - supports internationally and nationally important numbers of wildfowl.
- Essex Estuaries cSAC – supports variety of internationally important habitats including estuarine, mudflats, sandflats, *Salicornia* colonising mud, *Spartina* swards and Atlantic salt meadows.
- Dengie SSSI – tidal mudflats and saltmarsh with rare coastal flora and internationally and nationally important wintering populations of wildfowl and waders.
- Holliwell Point NNR – foreshore habitats.

Key Planning and Land Management Issues
- Sea-level rise and erosion could lead to the loss of existing mudflats.
- Risk of erosion due to wash from motorised craft.
- Loss of saltmarsh through coastal squeeze.
- Potential for damage to diverse, important bird habitats and archaeological remains with a potential increase in tourism and accessibility to visitors.
- New development within adjacent coastal farmland to the west could erode the generally undisturbed character of the area and adversely affect mudflats.
- Restricted public access.
- Disturbance of habitats through inappropriate recreation.
- Risk of pollution of inter-tidal habitat.

Sensitivities to Change

The expansive area of saltmarsh, fringed by open mudflats, is sensitive to changes in land management or new development. The open and exposed nature of the area (with no visible vertical skyline elements present) is highly visually sensitive to new development, both within the area and within adjacent character areas (including areas of seascape). It is highly likely that potential new development would be visible within long-distance views from adjacent drained coastal estuarine marsh and from areas of seascape to the east. Potential new development either within the area, or within adjacent character areas, may also disturb the strong sense of tranquillity. The area also contains several internationally and nationally important sites for wildlife (in particular, wildfowl). Overall, this character area has high sensitivity to change.

Proposed Landscape Strategy Objectives

Conserve - seek to protect and enhance positive features that are essential in contributing to local distinctiveness and sense of place through effective planning and positive land management measures.

Suggested Landscape Planning Guidelines

- Conserve the open nature of the mosaic of mudflats.
- Conserve the mostly undisturbed, undeveloped character.
- Consider the impact on views from the area to potential areas of new development within adjacent areas of drained estuarine marsh and coastal farmland.
- Conserve open views across seascape to the east.

Suggested Land Management Guidelines

- Conserve and protect the natural habitats that support important wildfowl, including Brent geese.
- Conserve and manage mudflat habitats.
- Manage and control possible levels of sewage and pollution released from development within adjacent coastal farmland.

6.6 Coastal Farmland Landscapes

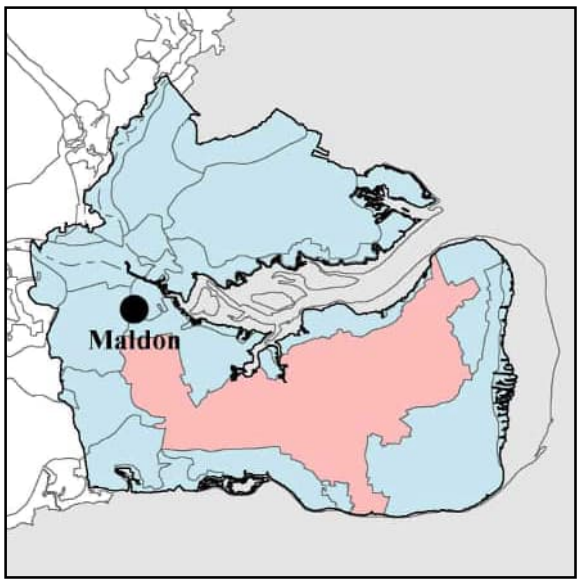
6.6.1 The key characteristics of this Landscape Character Type are:

- Predominantly flat, low-lying landscape, sloping gradually upwards to the north
- Views of river estuaries and coastline from several locations
- Arable farmland on underlying heavy clay soils
- Lack of large patches/areas of woodland
- Relatively sparse settlement pattern

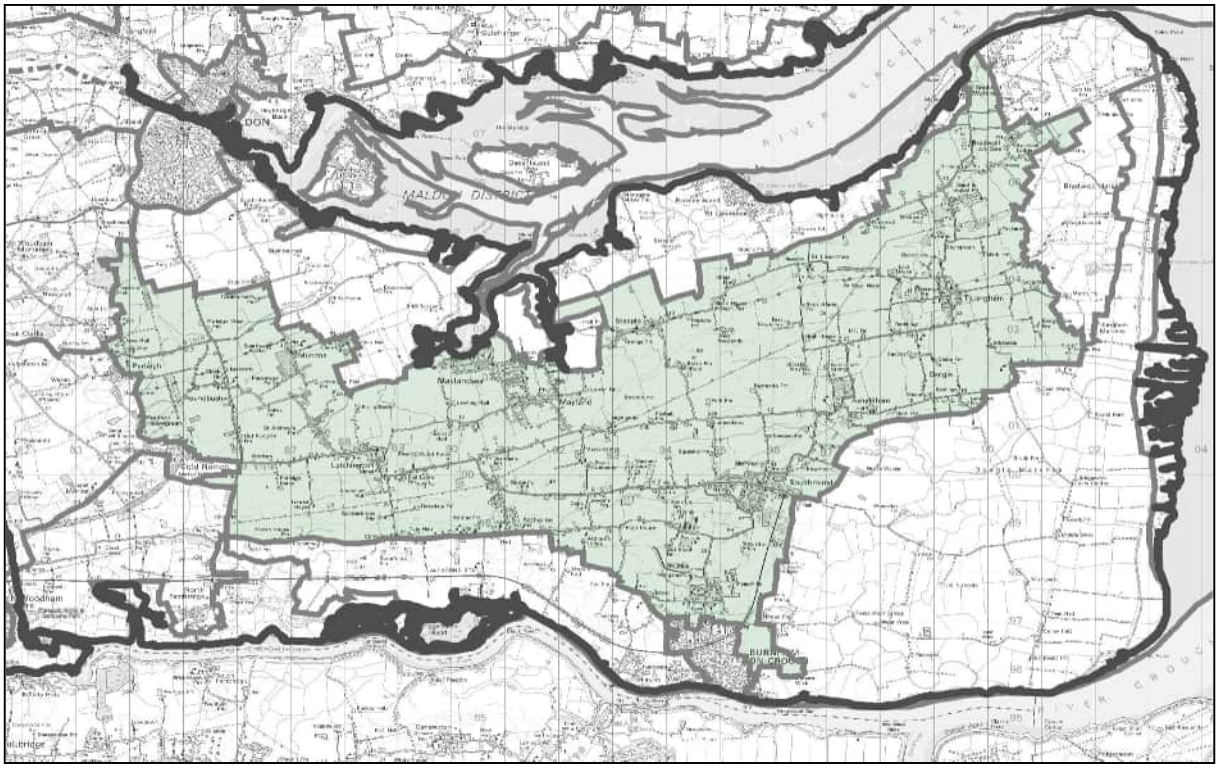
6.6.2 This Landscape Character Type contains the following Landscape Character Areas:

E1 - Tolleshunt Coastal Farmland
E2 - Tillingham and Latchingdon Coastal Farmland

E2 TILLINGHAM AND LATCHINGDON COASTAL FARMLAND







Key Characteristics

- Gently undulating arable farmland behind the coastal marshland, locally quite steep.
- Heavy clay soils and lighter sandy loamy soils where sand and gravel deposits overlie clay.
- Distinctive long hedgerow boundaries running on parallel axes are a common feature, thought to be the result of ancient planned enclosure.
- Dutch elm disease has made elm loss noticeable in hedgerows.
- Right-angled bends in lanes reflect ancient field pattern.
- Settlement pattern follows underlying soils - sand and gravel formations on a ridge between Bradwell and Burnham - elsewhere settlement on slopes in clay areas.

Overall Character

This character area lies on the broadly rolling higher ground forming the hinterlands behind both the Dengie drained marshland (D7/D8), the lower Blackwater estuary drained marshland (D5/D6), and the river Crouch drained farmland (D9). This land is steeply sloping in places, as above Steeple, Mayland, and St Lawrence, and south of Cold Norton. Criss-crossed by drains and ditches, many of the field patterns have noticeable right-angled bends that the adjacent lanes follow, which is thought to demonstrate evidence of ancient planned landscape. The mainly rectilinear field pattern is medium to large scale. Extensive hedgerow loss in many places gives the appearance of a large-scale field pattern. Farming is a mix of arable and some pasture enclosed by elm-dominated hedgerows and copses, many of them containing a large proportion of dead elms, victims of Dutch elm disease. Trees and shelterbelts are usually located near farmsteads. Scattered hedgerow oak trees are visible in some places along fields and lanes. Around Latchingdon many conifer windbreaks can also be seen. Visually intrusive pylons march across the fields through the centre of the area. The telegraph poles are less visually intrusive. Occasionally a water tower dominates the horizon locally. The B1010 is the main access road between Maldon and Burnham, but the B1018 and B1021 also service the area. Road traffic is omnipresent. The railway between Burnham and Southminster is well hidden in the landscape. Historic settlement patterns are visible in the line of villages along the top of the low north-south ridge between Bradwell and Burnham, due to underlying sands and gravels, whereas other villages are more dispersed in a linear pattern along roads across the underlying clay slopes. Farmsteads are scattered across the area. The vernacular architecture is weatherboard painted white with black trim. Red brick is also widely found as a local material. The fringes of most of the older villages have been suburbanised in an unsympathetic way that visually intrudes into the local landscape. Views of the church at Tillingham are completely obscured by modern housing in yellow brick. Current, as wall as late 20th century development at Mayland and Maylandsea is particularly noticeable, due to its density and suburban style, and does not blend well into the open landscape character. Disused sand and gravel pits have also often been insensitively or inappropriately restored causing loss of hedgerow pattern and uncharacteristic landform. This is a landscape characterised by its rolling topography, by its visual links to the drained marshland and by its texture of its deciduous tree and shrubs in field boundaries. Urban expansion is happening fast here, and as a consequence only certain pockets, well away from the B road network, have a moderate sense of tranquillity now.

Visual Characteristics

- Steeple church visible from higher ground to the south.
- Panoramic views from Althorne to both Blackwater and Crouch estuaries.
- Steep slopes descending to Steeple, Mayland and St Lawrence visible from across the Blackwater Estuary.
- Some ancient manors and moats visible.
- Urban fringes visually intrusive in terms of density and architectural style.

Historic Land Use

Evidence of historic land use within the Character Area is dominated by a distinctive co-axial rectilinear field pattern (known as Dengie-form after this area). These are of considerable antiquity, and may have their origins in the middle Saxon period, if not before. These were historically bordered by elm hedgerows, but most of these were lost in the 1970s as a consequence of Dutch Elm Disease. The original medieval pattern of settlements scattered along the roads along the top of the ridge and on smaller peninsulas protruding out to the coast is still evident, as at Burnham-on-Sea. Other historic landscape features include the former Bradwell-on-Sea airfield, which is now the site of the Bradwell Nuclear Power-station.

Ecological Features

This Character Area is dominated by a mix of arable and pastoral agriculture behind the coastal marshland. Ecological features include:

- Remnants of historic hedgerows.
- Unimproved grassland on narrow roadside verges.
- Irrigation reservoirs.

Key Planning and Land Management Issues

- Potential further loss and decline in hedgerows due to intensive agricultural practice and lack of management.
- Pressure of increased traffic on rural and minor lanes especially during peak tourist seasons.
- Pressure from increased water-related leisure activities and effects on tranquil areas.
- Potential visual intrusion of telephone masts.
- Effects of new uses on tranquillity such as firing ranges.
- Potential for more visually intrusive expansion to the settlement edges Potential for visually intrusive development of new farm buildings.
- Flood protection and managed retreat issues.

Sensitivities to Change

Sensitive key characteristics and landscape elements within this character area include distinctive long hedgerow boundaries (often containing deciduous trees and shrubs) running on parallel axes (which are sensitive to changes in land management). The open nature of the skyline of several areas of the coastal farmland is visually sensitive, with new development potentially visible within expansive views across the area and also within views to and from adjacent drained estuarine marsh and coastal farmland. There is a strong sense of historic integrity, resulting from a historic settlement pattern of villages lining the top of the low north-south ridge between Bradwell and Burnham and a distinctive historic co-axial field pattern. Overall, this character area has moderate sensitivity to change.

Proposed Landscape Strategy Objectives

Conserve - seek to protect and enhance positive features that are essential in contributing to local distinctiveness and sense of place through effective planning and positive land management measures.

Restore - seek to reinforce and/or reinstate historic landscape patterns and features that contribute to sense of place and time depth, by repairing distinctive elements that have been lost or degraded.

Suggested Landscape Planning Guidelines

- Ensure that any new development responds to historic settlement pattern and scale, and uses materials that are appropriate to the local landscape character Such development should be well integrated into the surrounding landscape.
- Conserve the mostly rural character of the area.
- Ensure that new farm buildings are sensitively designed and located within the landscape to accord with existing character.
- Conserve panoramic long distance views to adjacent character areas of drained and open estuarine marsh.

Suggested Land Management Guidelines

- Conserve and restore the existing hedgerow network with particular emphasis placed on the planting and management of elm.
- Conserve historic lanes and unimproved roadside verges.
- Conserve and enhance the landscape setting of Tollesbury and other villages.

6.7 Wooded Farmland Landscapes

6.7.1 The key characteristics of this Landscape Character Type are:

- Elevated undulating hills or ridges and slopes
- Mixture of arable and pasture farmland
- Pockets of common and pasture
- Views to wooded horizons
- Well wooded with blocks of mature mixed and deciduous woodland (including areas of ancient and semi-natural woodland); copses, hedges and mature single trees
- Mature field boundaries
- Framed views to adjacent character areas
- Enclosed character in places
- Network of quiet, often tree-lined narrow lanes

6.7.2 This Landscape Character Type contains the following Landscape Character Areas:

F3 - Totham Wooded Farmland
F4 - Tolleshunt Knights Wooded Farmland
F5 - Little Baddow and Danbury Wooded Farmland
F6 - Woodham Wooded Farmland
F12 - East Hanningfield Wooded Farmland

pre-1800 granges and farmhouses add to this sense of history. The slight sense of isolation on the higher ground comes from these inward-looking views framed by dense woods. The hilltops and lanes are relatively tranquil, with settlement edges and areas near the A12 more disturbed by vehicular noise. The sense of tranquillity thus varies from strong to moderate.

Visual Characteristics

- Long distance views to drained estuarine marshes from Mountain Road leading into Great Braxted
- Timber church steeples are a feature within the landscape, but few churches are on high ground and are often tucked into the wooded landscape.
- Some open views to the valley below, but more often the views are short distances, over fields and buildings framed by the wooded ridges.
- New residential development on Hall Road, Great Totham is visually out of character with surrounding landscape in terms of colour, style and density of the settlement.

Historic Land Use

Historically this Character Area comprised Tiptree Heath, a huge area of common rough pasture and wood-pasture shared between the neighbouring parishes. Encroachment on this area began in a piecemeal fashion in the medieval period, but extensive open tracts still remained until the early 19th century when it was finally enclosed by Enclosure Act. This piecemeal history of enclosure is evident. Some areas of the original heath and wood-pasture survive, these appear as ancient woodland and are largely located on the top of the ridge, the Wickham Bishops area is particularly well-wooded. Historically settlement was very dispersed and sparse, comprising isolated church/hall complexes, manors, farms, cottages and small hamlets. The main historic landscape features include:

- Enclosed meadow pasture along the Domsey Brook valley floor.
- Braxted Park and a smaller park at Hill House.
- The modern settlement of Wickham Bishops, which largely date to the 20th century.
- Moderate to high post-1950s boundary loss, in many cases involving the removal of boundaries introduced in the early 19th century.

Ecological Features

This Character Area is dominated by widespread arable agriculture with large blocks of woodland. The area contains no designated sites of nature conservation. Ecological features include:

- Boundaries of ditches and species-rich hedgerows.
- Approximately 21 areas of Ancient Woodland including: Kelvedon Hall Wood/Tiptree Wood/Westhall Wood/Rond Wood/Criers Wood/Strowling Wood/Chantry Wood/Eastland, and Captain's Wood.

Key Planning and Land Management Issues

- Pressure of increased traffic on rural and minor lanes.
- Potential for more visually intrusive development on the fringes of Witham.
- Potential for visually intrusive development of new farm buildings.
- Potential for visually intrusive development within adjacent character area (around Witham).

Sensitivities to Change

Sensitive key characteristics and landscape elements within this character area include several woodland patches and copses, mature trees within hedgerows and occasional ditches, which are sensitive to changes in land management. The overall sense of tranquillity within parts of the character area is also sensitive to change and potential new development, or increases in traffic flow associated with such development. There is a strong sense of historic integrity, resulting from a series of ancient woodlands situated on the top of the ridge (comprising areas of original heath and wood pasture), Braxted Park and Hill House and patches of enclosed meadow within the valley floors, which are also

6.5 Drained Estuarine Marsh Landscapes

6.5.1 The key characteristics of this Landscape Character Type are:

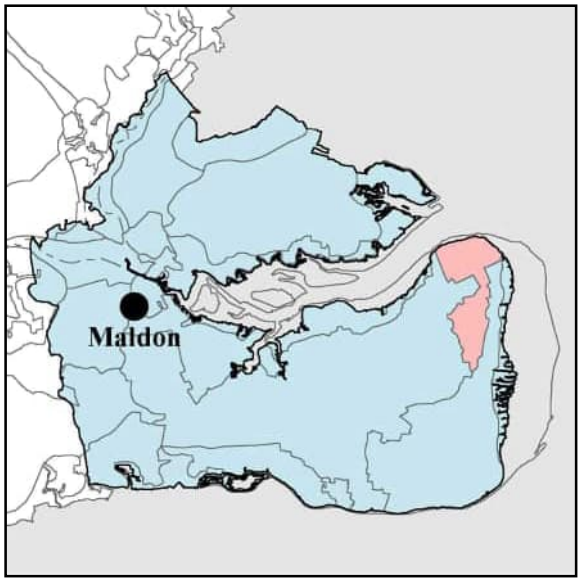
- Areas of flat, artificially drained former saltmarsh currently grassland and cultivated fields
- Visible sea walls separate drained former marshland and current saltmarsh/mudflats
- Lack of large areas of trees or woodland
- Network of visible drainage ditches

6.5.2 This Landscape Character Type contains the following Landscape Character Areas:

D1 - Old Hall Marshes and Tollesbury Wick Drained Estuarine Marsh
D2 - Maldon Drained Estuarine Marsh
D3 - Northey Island Drained Estuarine Marsh
D4 - Osea Island Drained Estuarine Marsh
D5 – Mundon Drained Estuarine Marsh
D6 - Ramsay Drained Estuarine Marsh
D7 - Bradwell Drained Estuarine Marsh
D8 - Dengie Drained Estuarine Marsh
D9 - Fambridge Drained Estuarine Marsh

6.5.3 The Drained Estuarine Marsh landscape type is particularly affected by ongoing change due to dynamic coastal processes, and this is a key influence on future management of these landscapes.

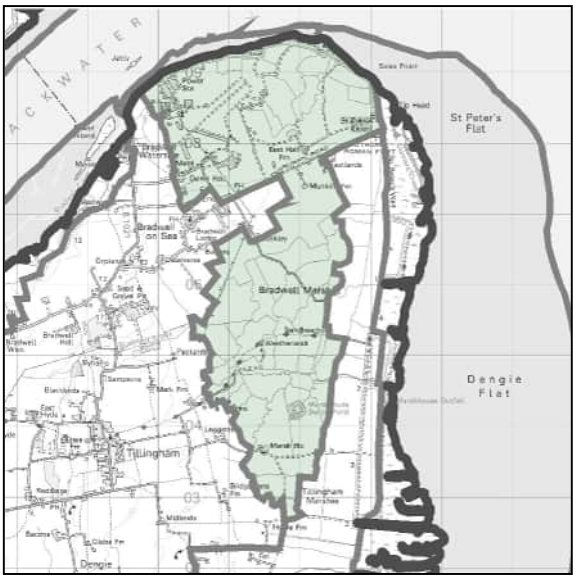
D7 BRADWELL DRAINED ESTUARINE MARSH





Key Characteristics

- Flat, low-lying 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.
- Isolated farms; restricted access provided by a very few lanes; absence of settlements.



Overall Character

This area of flat, low-lying drained marshland behind the sea wall is at the tip of the Dengie Peninsula, where it juts out into the Blackwater Estuary. It stretches between Sales Point and Bradwell Power Station then extends down into the Bradwell Marshes. This character area includes the ancient St Peter-on-the-Wall Saxon church and a disused military airfield from World War II. It is a remote landscape, with access for vehicles limited to one B road; and access to the sea wall is only on foot via either the old Roman Road to St Peter's, or various footpaths such as St Peter's Way. The Bradwell Marshes have a long history and here the sinuous ditches reflect the older natural drainage patterns and fleets that were originally used to enclose the marshland. Near Marsh House, an old decoy pond remains, and in places old counter walls can be seen. Remnant elm hedgerows are visible in places. This is in stark contrast to the mostly rectilinear open field pattern of the more recently drained marshland to the east (D6). This windswept landscape of big sky and shifting colours displays varying textures - from the rough textured salt marsh at low tide through to the smoother grazing marsh/grassland and the extensive expanses of arable fields. Disused or derelict buildings mixed with small isolated settlements amid large-scale open arable farmland give this remote promontory of big sky and sea and shifting colours an atmosphere and a character that seems forgotten and lost in time. The sense of tranquillity is very strong.

Visual Characteristics

- Bradwell Nuclear Power Station and its pylons dominate the skyline as a visual landmark in the northern reaches of the area, visible from great distances over the surrounding flatlands, especially when lit at night.
- St Peter-on-the-Wall church is visible from the surrounding flatlands.
- Strong sense of being windswept and desolate.
- Visual relief is offered by views on a clear day looking inland to the wooded slopes on the north shore of the Blackwater Estuary as well as northwards to Mersea Island and the open sea to the north and east.

Historic Land Use

Evidence of historic land use within the Character Area is dominated by drained curvilinear reclaimed land, which tends to be 18th century or earlier in origin. The main historic landscape features include:

- Field boundaries comprising water-filled ditches.
- Remnants of the original seawalls, which are still visible as relict landscape features.

Ecological Features

This Character Area is dominated by arable farmland on former reclaimed marsh intersected by linear ditches and dykes. The area contains Sandbeach Meadows SSSI - unimproved grassland supports dark-bellied Brent geese, plus other ecological features such as reed beds in ditches, and unimproved grasslands.

Key Planning and Land Management Issues

- Lighting and future use for Bradwell Power Station.
- Proposed wind farm on Bradwell Marshes and ancillary telecommunications.
- Issues of potential for pollution of water table due to large-scale intensive agriculture and use of fertilizer.
- Potential for more visually intrusive expansion to the settlement edges.
- Increase of tourist traffic during peak tourist periods.
- Potential further loss and decline in hedgerows due to intensive agricultural practice and lack of management.
- Potential further decline in condition of field boundaries through further agricultural intensification.
- Utilities development i.e. Masts, pylons.

Sensitivities to Change

Sensitive key characteristics and landscape elements within this character area include areas of drained marsh, sinuous ditches and remnant elm hedgerows (which are sensitive to changes in land management). The open nature of the area is visually sensitive to new development, which would be visible within views from adjacent character areas. There is a sense of historic integrity, resulting from historic field boundaries, comprising water-filled ditches and remnants of old sea walls. The area also contains several internationally and nationally important sites for wildlife (in particular, wildfowl). Overall, this character area has high sensitivity to change.

Proposed Landscape Strategy Objectives

Conserve - seek to protect and enhance positive features that are essential in contributing to local distinctiveness and sense of place through effective planning and positive land management measures.

Restore **-** seek to reinforce and/or reinstate historic landscape patterns and features that contribute to sense of place and time depth, by repairing distinctive elements that have been lost or degraded.

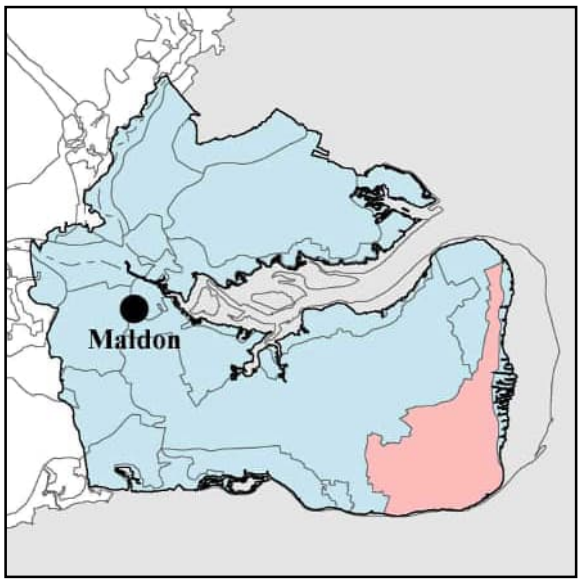
Suggested Landscape Planning Guidelines

- Conserve the open, undeveloped character of the area.
- Conserve the largely undisturbed and tranquil nature of the area.
- Consider the impacts of any development in adjacent character areas avoiding visual intrusion.
- Ensure that any new development is small-scale, responding to historic settlement pattern, landscape setting and locally distinctive building styles.
- Conserve and enhance the landscape of ditches, dykes, etc.
- Ensure that new farm buildings are sensitively designed and located within the landscape to accord with existing character.
- Conserve panoramic long distance views to adjacent character areas of drained and open estuarine marsh.

Suggested Land Management Guidelines

- Where appropriate, create opportunities for unimproved grassland.
- Conserve and enhance the ecological structure of ditches, drains within the character area.
- Conserve and promote the use of building materials in keeping with local vernacular landscape character.
- Encourage further partnerships such as the Environmental Stewardship Scheme with East Hall Farm to promote sustainable agricultural practices.
- Consider the potential for creation of new inter-tidal habitats (such as saltmarsh) through Managed Realignment (with regard to information set out within the Crouch and Blackwater Estuary Flood Management Strategy : Essex Estuarine Strategy).

D8 DENGIE DRAINED ESTUARINE MARSH





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.
- Isolated farms; restricted access provided by a very few lanes; absence of settlements.



Overall Character

This character area encompasses the 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. The boundary between these drained coastal marshlands and the adjacent coastal farmlands of Tillingham and Latchingdon (E2) is generally along the change in soil type from good quality silts of the coastal farmlands to the harder to work clays of the older diverse marshland. It is a vast, expansive area of huge skies and ditches, dykes and open arable farmland, mainly cereals, with little traditional grazing marsh seen today. Telegraph poles mark tracks and farmsteads across the view in places, with access for vehicles very limited. Narrow lanes, often private, lead to farmsteads or connect them, and public footpaths are often the only way to reach the coast. St Peter's Way is one of the very few footpaths giving public access to the sea wall. The marshland furthest inland is the oldest, and this is where settlements, ancient sinuous drainage patterns and evidence of more woody vegetation are evident. The more recent innings of land near the sea wall have no settlements, very large barns and a regular field pattern of rectilinear fields, drains and ditches. Woody vegetation is absent except along remaining old, neglected counter wall sea

defences that remain from an earlier time. This landscape is extremely remote, with only the sound of the wind, birds and the occasional farm vehicle, it has a very tranquil character.

Visual Characteristics

- Bradwell Nuclear Power Station and its pylons dominate the skyline as a visual landmark to the north, visible from great distances over the surrounding flatlands.
- St Peter-on-the-Wall church is visible from the surrounding flatlands.
- Occasional tall Lombardy poplar windbreaks loom over fields but do not jar visually; sporadic use of coniferous windbreaks looks out of character with marshland.
- Strong sense of being windswept, desolate and difficult to move about in other than on foot.
- The sense of space and sky is intense and often overwhelming.
- Tall reeds dominate the ditches, especially in the southern part of the area outside Burnham, and occasional mounded irrigation reservoirs break the line of the horizon.
- Some visual relief is offered by views on a clear day looking inland to the wooded slopes of Tillingham and Latchingdon and Fambridge Coastal Farmlands. Looking out over the seawall, there are long views to the North Kent coast, the Dengie Flats and Foulness.

Historic Land Use

Evidence of historic land use within the Character Area is dominated by drained reclaimed land, which are either curvilinear and 18th century or earlier in origin, or rectilinear (to the east) and largely of 19th or early 20th century date, with some former curvilinear reclamation that was subsequently straightened, of 18th century or early 19th century origin. Other historic features include the water-filled ditch field boundaries, and the remnants of the original seawalls that are still visible as relict landscape features.

Ecological Features

This Character Area is dominated by arable farmland on former reclaimed marsh intersected by linear ditches and dykes. The area contains the following main ecological features:

- Reed-filled ditches.
- Arable fields that provide feeding grounds for Brent geese.

Key Planning and Land Management Issues

- Issues of potential for pollution of water table due to large-scale intensive agriculture and use of fertilizer.
- Potential high density residential expansion of towns directly onto the marshland, as at Burnham , with no transition zone or vernacular architecture.
- Increase of tourist traffic during peak tourist periods e.g.: Burnham.
- Potential further decline in condition of field boundaries through further agricultural intensification.
- Potential for further utilities development i.e. Masts, pylons, wind farms.
- Developments with individual large/bulky buildings.
- Infrastructure implications, especially for roads, as expansion of industrial scale farming continues.

Sensitivities to Change

Sensitive key characteristics and landscape elements within this character area include areas of drained marsh, ditches, dykes and sea walls (which are sensitive to changes in land management). The open nature of the area is visually sensitive to new development, which would be visible within views from adjacent character areas. There is a sense of historic integrity, resulting from historic field boundaries, comprising water-filled ditches and remnants of old sea walls. Potential new development either within the area, or within adjacent character areas, may also disturb the strong sense of tranquillity. Overall, this character area has high sensitivity to change.

Proposed Landscape Strategy Objectives

Enhance - seek to improve the integrity of the landscape, and reinforce its character, by introducing new and/or enhanced elements where distinctive features or characteristics are absent.

Restore - seek to reinforce and/or reinstate historic landscape patterns and features that contribute to sense of place and time depth, by repairing distinctive elements that have been lost or degraded.

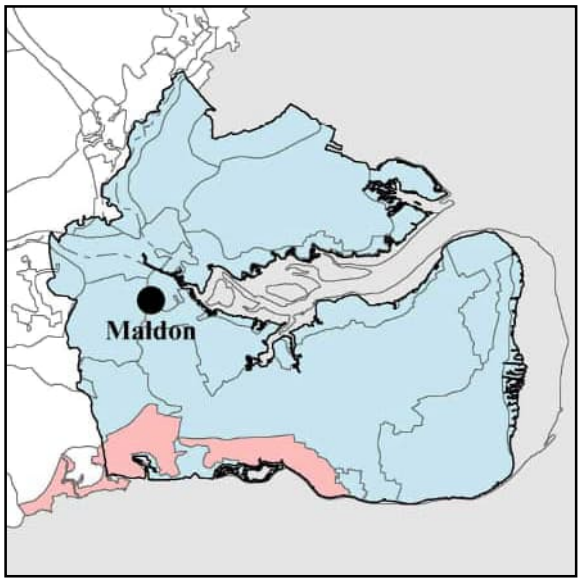
Suggested Landscape Planning Guidelines

- Consider the visual impact of new residential development and farm buildings on the open arable landscape.
- Ensure that any new development is small-scale, responding to historic settlement pattern, landscape setting and locally distinctive building styles.
- Where appropriate, conserve and enhance the landscape of ditches, dykes, etc.
- Develop strategies to reduce the impact of tourist traffic and localized industrial agricultural expansion.

Suggested Land Management Guidelines

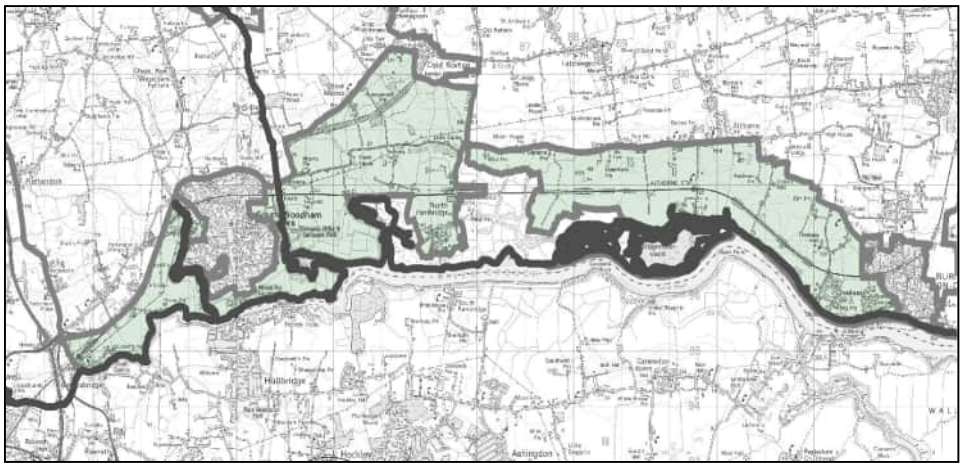
- Develop strategies to reduce potential for pollution in ditches and streams bounding the fields.
- Conserve the existing field boundary pattern, and restore where necessary through planting native species appropriate to local landscape character.
- Create opportunities for unimproved grassland.
- Conserve and enhance the ecological structure of ditches, drains within the character area.
- Conserve and promote the use of building materials in keeping with local vernacular landscape character.
- Consider the potential for creation of new inter-tidal habitats (such as saltmarsh) through Managed Realignment (with regard to information set out within the Crouch and Blackwater Estuary Flood Management Strategy : Essex Estuarine Strategy).

D9 FAMBRIDGE DRAINED ESTUARINE MARSH (shared with Chelmsford Borough)





Key Characteristics



- Low-lying flat drained marsh hinterland north of River Crouch that become gently rolling further inland.
- Predominantly open, arable fields with a regular, rectilinear field pattern.
- Steeply rising land above Creeksea and North Fambridge.
- Extensive grazing marsh.
- Sense of isolation and openness near the sea wall.

Overall Character

This character area is the hinterland of the marshes on the north shore of the narrow River Crouch. This drained marshland is now primarily arable, although extensive grazing is apparent near the sea wall. Gently rising from the marsh levels, the landform is gently rolling country indented by many creeks, with scattered blocks of trees, linear tree belts, scrub and formerly elm-dominated hedgerows around pastures. The narrow estuary penetrates far inland at Bridgemarsh Creek, Althorne Creek, Fenn Creek and Clementsgreen Creek. Drainage ditches and relic dykes accentuate the medium to large-scale field pattern, and sinuous ditches are visible near Bridgemarsh Creek. Small blocks of woodland are visible west and north of North Fambridge and west of Burnham-on-Crouch, but most other tree cover is usually near farmsteads. The land rises dramatically at Creeksea in a broad ridge that stretches northwest. Pylons dominate the horizon to the north, and the only road through the area, the B1012/1010, follows the right-angled pattern found elsewhere on the Dengie Peninsula which suggests ancient planned landscape here also. The railroad between South Woodham Ferrers and Burnham is

well screened in the landscape. Pedestrian access to the sea wall and marsh landscape is limited, with only a few tracks and lanes leading to the river from North Fambridge, Althorne and Creeksea. There is a public footpath along the sea wall between Burnham and North Fambridge, Little Hayes. The Marsh Farm Country Park also provides public access to the river. Settlement pattern is linear along the main road, with scattered farms on the slopes. Woodham Ferrers is a large new town with a well-screened wooded perimeter, but it appears out of character with such dense planting in an open marshland landscape. Historic buildings are less visible here than elsewhere on the Dengie Peninsula but some examples are seen at North Fambridge and occasionally elsewhere, including Creeksea Place. Local vernacular is primarily weatherboarding, painted white with black trim. The Ferryman Pub at North Fambridge highlights the former importance of the area for the ferry landing across the river here. Overall, this landscape character appears sandwiched between two urban centres, historic but expanding Burnham and modern South Woodham Ferrers, and yet due to its lack of access across the farmland, it retains a strong sense of place and offers many opportunities, especially along the sea wall, to find places with a great sense of isolation and tranquillity.

Visual Characteristics

- Historic pub at North Fambridge where ferry used to cross the river.
- Panoramic views across adjacent saltmarsh and mudflats down the river and across large farmland fields to the south shore of the river at North Fambridge.
- Short-distance views across Althorne Creek to Bridgemarsh Island.
- Long views down Clementsgreen Creek to Brandyhole Reach.

Historic Land Use

Evidence of historic land use within the Character Area is dominated by a distinctive co-axial rectilinear field pattern (known as Dengie-form after this area). Historically settlement is scattered along the roads along the top of the ridge and on smaller peninsulas protruding out to the coast. The main historic landscape features include:

- Areas of salt marsh and grazing marsh adjacent to the River Crouch within Marsh Farm Country Park.
- Field systems of considerable antiquity, that may have their origins in the middle Saxon period, if not before.

Ecological Features

This Character Area is dominated by arable farmland and extensive grazing marsh. The area contains numerous sites of nature conservation value and other ecological features. These include:

- Crouch & Roach Estuaries Ramsar and SPA - supports internationally and nationally important numbers of wildfowl.
- Essex Estuaries cSAC - supports variety of internationally important habitats including estuarine, mudflats, sandflats, *Salicornia* colonising mud, *Spartina* swards and Atlantic salt meadows.
- Croach and Roach Estuaries SSSI – tidal mud, saltmarsh and grazing marsh which support internationally important numbers of dark-bellied Brent geese, and nationally important numbers of black-tailed godwit, shelduck and shoveler plus other wildfowl and uncommon flora.
- Ancient woodland at North Fambridge Hall Wood.
- Fen, saltmarsh and mudflats.
- Riverside creek margins and banks of the River Crouch.

Key Planning and land Management Issues

- Encroaching urban edge at South Woodham Ferrers very abrupt.
- Potential growth in water sports, especially sailing and pleasure craft, with inherent demand for more marinas and river moorings.
- Sea-level rise and erosion could lead to the loss of existing saltmarsh within the Crouch Estuary channel.

- Risk of erosion due to wash from motorised craft.
- Potential for damage to diverse, important saltmarsh and bird habitats with a potential increase in tourism and accessibility to visitors.
- Further development, including caravan parks as at Creeksea could erode the generally undisturbed character of the area and adversely affect saltmarsh.
- Pressure for change of use from arable for development, which may have a visually intrusive impact on landscape character.
- Pressure from development within this, and adjacent character areas.
- Continuing loss of hedges and field boundary vegetation with subsequent loss of historic pattern, sense of enclosure and ecological habitat.

Sensitivities to Change

Sensitive key characteristics and landscape elements within this character area include areas of drained grazing marsh close to the sea wall, ditches, dykes and sea walls, scattered blocks of trees and linear tree belts (which are sensitive to changes in land management). The open nature of the area is visually sensitive to new development (especially in close proximity to the sea wall), which would be visible within views from adjacent character areas. There is a sense of historic integrity, resulting from a distinctive co-axial rectilinear field pattern and a dispersed historic settlement pattern. Potential new development either within the area, or within adjacent character areas, may also disturb the strong sense of tranquillity. The area also contains several internationally and nationally important sites for wildlife (in particular, wildfowl). Overall, this character area has high sensitivity to change.

Proposed Landscape Strategy Objectives

Conserve - seek to protect and enhance positive features that are essential in contributing to local distinctiveness and sense of place through effective planning and positive land management measures.

Enhance - seek to improve the integrity of the landscape, and reinforce its character, by introducing new and/or enhanced elements where distinctive features or characteristics are absent.

Restore - seek to reinforce and/or reinstate historic landscape patterns and features that contribute to sense of place and time depth, by repairing distinctive elements that have been lost or degraded.

Suggested Landscape Planning Guidelines

- Ensure that any new development is well integrated into the surrounding landscape, responds to historic settlement pattern and scale, and uses materials which are appropriate to the local landscape character.
- Conserve the rural character of the area.
- Ensure that new farm buildings are sensitively designed and located within the landscape to accord with existing character.
- Conserve panoramic long distance views to adjacent character areas of drained and open estuarine marsh to the south.

Suggested Land Management Guidelines

- Conserve historic lanes and unimproved roadside verges.
- Conserve and enhance the landscape setting of North Fambridge, Creeksea and other villages.
- Consider the potential for creation of new inter-tidal habitats (such as saltmarsh) through Managed Realignment (with regard to information set out within the Crouch Estuary Flood Management Strategy : Essex Estuarine Strategy).

6.6 Coastal Farmland Landscapes

6.6.1 The key characteristics of this Landscape Character Type are:

- Predominantly flat, low-lying landscape, sloping gradually upwards to the north
- Views of river estuaries and coastline from several locations
- Arable farmland on underlying heavy clay soils
- Lack of large patches/areas of woodland
- Relatively sparse settlement pattern

6.6.2 This Landscape Character Type contains the following Landscape Character Areas:

E1 - Tolleshunt Coastal Farmland
E2 - Tillingham and Latchingdon Coastal Farmland

Appendix 17-A Long List of Major Accidents and Disasters

Table A-1: Long List of Major Accidents and Disasters

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
Geophysical				
Earthquakes	No	The Proposed Development is not located in a geologically active area and, as such, earthquakes are not considered to be a real risk or serious possibility.	N/A	N/A
Landslides	No	The risk of landslides would be considered as part of the geotechnical design, ensuring the risk is designed out in terms of the vulnerability of the Proposed Development to these types of events. However, given the flat nature of the land this risk is considered low. The Proposed Development is not anticipated to increase the risk of landslip at the Proposed Development or elsewhere as it is relatively flat. The Proposed Development would not significantly change the erosion potential of the soil or stability of the land. British Geological Survey (BGS) (Ref A-1) determines that the susceptibility to landslides in the vicinity of the Proposed Development ranges from moderately low to low.	N/A	N/A

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
Sinkholes	No	The Proposed Development is not anticipated to increase the risk of landslip at the Proposed Development or elsewhere as it is not substantially heavy, and the site of the Proposed Development is relatively flat. The Proposed Development would not significantly change the erosion potential of the soil or stability of the land.	N/A	N/A
Hydrology				
Flooding	Yes	Parts of the Proposed Development are located within Flood Zones 2 and 3 with the majority of the Energy Park being in Flood Zone 3 (Ref A-2). Both the vulnerability of the Proposed Development to flooding, and its potential to exacerbate flooding, will be covered in the Flood Risk Assessment (FRA) and reported in the ES. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.	Property and people in areas of increased flood risk	**Chapter 16: Water Environment**
Tsunamis / Storm Surges	No	The Proposed Development is not located in a tsunamis risk zone.	N/A	N/A
Meteorological				
Blizzards / Extreme snowfall	No	The Proposed Development is not considered to be more vulnerable to blizzards than any other development. The design of The Proposed Development would be informed by the Climate Change Risk Assessment (CCRA) to be submitted as part of this ES such that it is designed to cope with the local climate	N/A	**Chapter 8: Climate Change**

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
		and extreme weather events, including future climatic conditions within its design life. Blizzards should not affect the integrity of the Proposed Development.		
Cyclonic Storms / Extreme Wind speeds	No	Although storms occur in the UK, their destructive force tends to be much less than in other parts of the world and the Proposed Development is not particularly vulnerable to any potential effects. The design of The Proposed Development would be informed by the CCRA such that it is designed to cope with the local climate and extreme weather events, including future climatic conditions within its design life.	N/A	**Chapter 8: Climate Change**
Thunderstorms	No	As the Proposed Development includes metal components, there is a risk of lightning strikes and subsequent fires. However, these risks would be removed or reduced through inbuilt control systems.	N/A	**Chapter 8: Climate Change**
Droughts	No	Droughts are only considered as a disaster due to water shortages for essential services and where there are indirect impacts on food production, loss of soils etc. The Proposed Development is not considered to be vulnerable to drought.	N/A	N/A
Extreme temperatures	No	There is potential for impacts such as exposure of site infrastructure to greater heat intensity as well as work/delivery disruption. The Proposed Development would be designed to account for temperature fluctuations from climate change.	N/A	N/A

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
Air Quality Events	No	The Proposed Development is not considered to be more vulnerable to air pollution than any other development. It would be designed to cope with the local air quality, which is anticipated to be good. The closest Air Quality Management Areas (AQMAs) is in Rayleigh approximately 2.5km south of the EIA Scoping Boundary. High air pollution should not affect the integrity of the Proposed Development.	N/A	N/A
Wildfires	No	The Proposed Development is not located close to any densely wooded areas or peatlands. Should weather conditions during construction become hot and dry for a long period of time, further consideration would be given to hot work activity locations.	N/A	N/A
Biological				
Human disease	No	The construction and operation of the Proposed Development would not give rise to any disease epidemics.	N/A	N/A
Animal disease	No	The Proposed Development would not be a source of any disease epidemics and spread would be controlled through containment of infected animals including prohibition of transportation.	N/A	N/A
Plant disease	Yes	Standard control measures, as set out in the Outline Landscape and Ecological Management Plan (LEMP), would be implemented by the appointed contractor during construction and decommissioning to handle	Habitats and species	**Chapter 10: Ecology and Biodiversity** and **Chapter: 11 Landscape and Visual**

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
		and dispose of any diseased, invasive plants to prevent their spread on and off-site. The spread of these species could outcompete the local flora and damage local infrastructure.		
Societal				
Terrorism / Crime / Civil Unrest	No	It is considered the Proposed Development is unlikely to be a target for these types of incidents due to its rural location.	N/A	N/A
War	No	The Proposed Development is not considered to be more vulnerable to war than any other development.	N/A	N/A
Transport				
Road Accidents	Yes	During construction there will be an increase in heavy construction plant and equipment on the local road network which may increase the risk of road traffic accidents. The potential for transport effects will be considered within **Chapter 15: Traffic and Transport**. The potential for glint and glare, which may cause an impact on vision, that may affect road users will be considered in the Other Environmental Topics ES chapter. Mitigation will be considered and, where necessary, incorporated into the and Proposed Development design.	Road users	**Chapter 15: Traffic and Transport** and **Chapter 17: Other Environmental Topics** (Section 17.3: Glint and Glare)
Rail Accidents	Yes	There is a railway line that runs through the EIA Scoping Site Boundary for the Grid Connection Corridor A (GCC)	Rail users	**Chapter 17: Other Environmental Topics**

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
		as well as adjacent to the Energy Park. The potential for glint and glare, which may be cause an impact on vision, that may affect train drivers during the operational phase will be considered in the Other Environmental Topics ES chapter.		(Section 17.3: Glint and Glare)
Aviation Disasters	Yes	The closest airfield is the Tillingham Airfield located within the EIA Scoping Site Boundary of GCC B. The Barling Airstrip is also located nearby approximately 7km south of the Proposed Development Energy Park and London Southend Airport is located in the Study Area approximately 9km south of GCC A and 11km southwest of the Energy Park. The potential for glint and glare, which may cause an impact on vision, that may affect plane pilots will be considered in the Other Environmental Topics ES chapter.	Aircraft users	**Outline CEMP** and **Chapter 17: Other Environmental Topics** (Section 17.3: Glint and Glare)
Engineering Accidents / Failures				
Cyber accident / failure	No	The Applicant is accountable for ensuring the resilience of their assets to national security risks, including from cyber-attacks. The Proposed Development will implement good industry standard controls against cyber accident and failure to minimise this risk so that it is negligible.	Employees and people using grid network	N/A
Infrastructure	No	The Proposed Development will be developed following the most up to date regulations and standards in place	N/A	N/A

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
		at the time of its development. These requirements have been developed to reduce the risk of accidents of failures and draw upon experiences from around the world.		
Bridge failure	No	No bridges are to be used or constructed as part of Proposed Development.	N/A	N/A
Tunnel failure or fire	No	There are no tunnels located in proximity to Proposed Development.	N/A	N/A
Reservoir (dam) failure	No	Parts of the Proposed Development may be at risk of flooding from reservoir failure, however these risks are considered Low (Residual). If applicable, this will be covered in the FRA and reported in ES, both in terms of the risk to the Proposed Development and increased risk caused by the Proposed Development. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.	Property and people in areas of increased flood risk	**Chapter 16: Water Environment**
Flood defence failure	Yes	Parts of the Proposed Development are protected by coastal flood defences may be at risk of flooding from defence failure. If applicable, this will be covered in the FRA and reported in ES, both in terms of the risk to the Proposed Development and increased risk caused by the Proposed Development. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.	Property and people in areas of increased flood risk	**Chapter 16: Water Environment**

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
Mast and tower collapse	No	There are electric overhead line power lines within the EIA Scoping Site Boundary of the Proposed Development. During construction and operation, any work required near electric overhead power lines would be adequately controlled and consulted on with the operator, and appropriate site-specific risk assessments completed which would consider such aspects as the voltage and height as well as size and reach of any machinery or equipment.	N/A	N/A
Utilities failure (electricity, gas, water supply, other pipelines and sewage)	Yes	The Proposed Development has the potential to affect existing utility infrastructure. To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken. Consultation with relevant utilities providers is a routine part of solar development and consultees may include water, gas and electricity utilities providers and telecommunications providers as appropriate. This will be covered under **Chapter 17.8: Telecommunications and Utilities**.	Employees and local residents	**Chapter 17: Other Environmental Topics** (Section 17.7: Telecommunications and Utilities)
Fires	Yes	There may be potential for fire due to potential electrical equipment failure which may have originated from other MADs risk events within this table, i.e. lightning strikes, The mitigation for which has already been discussed within the associated MADs risk event.	Employees, local residents, local aquatic	**Outline Battery Safety Management Plan** (Standalone document to be submitted with DCO)

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
		The battery storage element of the Proposed Development also contributes to the potential for fire. The BESS would include cooling systems designed to regulate temperatures to within safe conditions which minimises the risk of fire. In addition, the Proposed Development design would include adequate separation between battery banks to ensure an isolated fire would not become widespread and lead to a major incident. Fire detection and suppression features would be installed to detect (e.g. multispectral infrared flame detectors) and suppress (e.g. water base suppression systems) fires to minimise this risk. The BESS will be located at least 30m from residential receptors and other occupied buildings offsite, in line with NFCC safety guidelines. An Outline Battery Safety Management Plan will be prepared for the Proposed Development and submitted alongside the DCO application. The development of the Battery Safety Management Plan will be considered in the iterative design of the Proposed Development ensuring that design requirements to ensure fire safety (such as ensuring adequate provision of land for water storage) and management of any firewater runoff are captured.	habitats and species	

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
Electrical hazards (electric shock, arc flash, arc blast).	No	The Proposed Development concerns high voltage electrical equipment which carries risks associated with its accidental discharge. This risk would be controlled through an appropriate maintenance schedule and adherence with the Health and Safety at Work in terms of appropriate control measures. There are negligible risks to the environment or other people.	Employees	N/A
Industrial Accidents				
Major Accident Hazard Sites	No	There are no COMAH establishments within 5km of the Proposed Development (Ref A-3).	N/A	N/A
Major Accident Hazard Pipelines	Yes	There are some Major Accident Hazard Pipelines operated by Cadent Gas within the EIA Scoping Site Boundary of the GCC A. Consultation with pipeline operators will be undertaken as part of the EIA process which will ensure that appropriate risk assessments and method statements are captured within management plans such as the Outline Environmental Management Plans for each phase, to be developed further before the relevant phase commences.	Employees and local residents	**Outline CEMP, Outline OEMP, Outline DEMP and Chapter 17: Other Environmental Topics** (Section 17.7: Telecommunications and Utilities)
Nuclear	No	There are no operational nuclear sites within the study area.	N/A	N/A
Fuel Storage	No	There are no Fuel Storage sites within the study area.	N/A	N/A
Mines and Storage Caverns	No	The Proposed Development is not located close to any Coal Mining Reporting Areas.	N/A	N/A

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
UXO	Yes	Zetica UXO determines that the majority of the EIA Scoping Site Boundary is on agricultural land in areas of low risk, with some areas being moderate risk closer to Wickford and Rayleigh, as well as high risk in the area around Burnham-on-Crouch (Ref A-4). Strategic Targets have also been identified within the surrounding area of the EIA Scoping Site Boundary including A Luftwaffe target identified at Asheldham, 500m east of the GCR. An Unexploded Ordnance (UXO) risk assessment will be undertaken as part of a Preliminary Risk Assessment, to establish whether a credible UXO risk exists.	Employees, local residents	**Chapter 17: Other Environmental Topics** (Section 17.4: Ground Conditions)
Pollution Accidents				
Air	Yes	Construction activities may cause an increase in the exposure to dust and emissions from vehicles and construction plant. This would be temporary in nature and emissions associated with construction plant and vehicles are managed under specific air quality legislation. Effects of the Proposed Development on Air Quality has been considered as part of the air quality section of this scoping report and won't considered further here. Gaseous hazardous substances are not expected to form part of the operation of the Proposed Development, however there is potential for release of toxic substances to air originating from a fire at the	Employees, local residents, local habitats and species	**Outline OEMP** and **Outline Battery Safety Management Plan**

Major Accident or Disaster	Further consideration in MADs short-list?	Justification	Potential Receptors	Covered in other Chapters?
		BESS. Mitigation measures would be presented in the Outline OEMP.		
Ground Receptors	Yes	During the construction phase there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction activities. This risk would be controlled through standard control measures which would form commitments within the Outline CEMP. During operation there aren't expected to be any hazardous substances that could be released to groundwater / other land based receptors.	Employees, local residents, local habitats and species	**Chapter 10: Ecology and Biodiversity** and **Section 17.4: Ground Conditions of Chapter 17: Other Environmental Topics**
Aquatic Receptors	Yes	During the construction phase there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction activities. This risk would be controlled through standard control measures which would form commitments within the Outline CEMP. Liquid hazardous substances are not expected to form part of the operation of the Proposed Development, however there is potential for release of toxic substances entrained within firewater originating from a fire at the BESS. Mitigation for this event includes the measures as outlined above for fire risk.	Employees, local residents, local aquatic habitats and species	**Chapter 16: Water Environment** and **Outline Battery Safety Management Plan**

A.1 References

Ref A-1 BGS (2020) GeoIndex Onshore. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.119862408.1258548596.1767101609-2039685742.1767101609

Ref A-2 Ordnance Survey (2026) Flood Risk Map. Available at: https://check-long-term-flood-risk.service.gov.uk/map

Ref A-3 HSE (2026) COMAH 2015 Public Information Search. Available at: https://notifications.hse.gov.uk/COMAH2015/Search.aspx

Ref A-4 Zetica (UXO) (2026), Risk Maps. Available at: https://zeticauxo.com/guidance/risk-maps/