Replacement Essex Minerals Local Plan 2025-2040 (Regulation 18 – Issues and Options)

Sustainability Appraisal (SA): Annexes A and B

February 2024

Essex County Council

About us

Place Services is a leading public sector provider of integrated environmental assessment, planning, design and management services. Our combination of specialist skills and experience means that we are uniquely qualified to help public organisations meet the requirements of the planning process, create practical design solutions and deliver environmental stewardship.

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Glossary

Term (abbreviation)	Definition
Aftercare	The steps to be taken following restoration to bring land to the required standard for its intended use once mineral working or landfill has taken place, and its subsequent maintenance.
Aggregates	Sand, gravel, crushed rock and other bulk materials used by the construction industry.
Aggregate Working Party	Established in the 1970's to identify and consider problems in the supply of aggregates. They provide technical advice in relation to the supply of, and demand for, aggregates (including sand, gravel and crushed rock) to the Secretary of State, local government and mineral planning authorities.
Annual Monitoring Report	A yearly report submitted to the government by the Local Planning Authority/ Minerals Planning Authority assessing progress with, and the effectiveness of, the Local Development Framework.
Apportionment	This is the 'amount of minerals needed'. The splitting of national supply guidelines for minerals demand between Minerals Planning Authorities or sub regions.
Appropriate Assessment (AA)	The process and documentation associated with the statutory requirement under the EU Appropriate Assessment Habitats and Species Directive.
Best and Most Versatile Agricultural Land	Land identified by the Department for Environment, Food and Rural Affairs (Defra) as falling within classification grades 1, 2 or 3a, based on the physical characteristics of the land and the limits these impose upon its agricultural uses.
Blue Infrastructure	Blue landscape elements are linked to water. Examples include pools, ponds and pond systems, artificial buffer basins, Sustainable Drainage Systems and water courses.
Borrow Pit	A temporary mineral working to supply material for a specific construction project.

Term (abbreviation)	Definition
Construction, Demolition and Excavation (CD&E) Wastes	Controlled (predominantly inert) waste arising from the construction, repair, maintenance and demolition of buildings and structures and the excavation of minerals. It mostly includes brick, concrete, hardcore, subsoil and topsoil, but can include timber, metal, plastics and occasionally special hazardous waste materials.
Development Management (DM)	The process whereby a Local Planning Authority manages development by considering the merits of a planning application and determines the application, having regard to the Development Plan and all other material considerations.
Development Plan	A document setting out the local planning authority's policies and proposals for the development and use of land and buildings in the authority's area. This includes adopted Local Plans, neighbourhood plans and the London Plan, and is defined in section 38 of the Planning and Compulsory Purchase Act 2004. (Regional strategies remain part of the development plan until they are abolished by Order using powers taken in the Localism Act.
East of England Aggregates Working Party	The Aggregates Working Party that Essex County Council is a member of through being the Minerals Planning Authority for the county.
Environment Agency (EA)	A body that aims to prevent or minimise the effects of pollution on the environment and issues permits to monitor and control activities that handle or produce waste. It also provides up-to-date information on waste management and deals with other matters such as water issues, including flood protection advice.
Historic England (HE)	Advisors with responsibility for all aspects of protecting and promoting the historic environment. Historic England is responsible for advising the government on the listing of historic assets.
Environmental Impact Assessment (EIA) and Environmental Statement (ES)	Applicants for certain types of development, usually more significant schemes, are required to submit an environmental statement accompanying a planning application. This evaluates the likely environmental impacts of the development, together with an assessment of how the severity of the impacts could be mitigated.

Term (abbreviation)	Definition
Examination in Public (EiP)	A term given to the public examination of Development Plan Documents
Flood Risk Assessment (FRA) / Strategic Flood Risk Assessment (SFRA)	An assessment of the flooding risk in a particular area so that development needs and mitigation measures can be carefully considered. A SFRA is undertaken at the Plan level.
Green Infrastructure (GI)	Green infrastructure includes parks, open spaces, playing fields, woodlands and also street trees, allotments, private gardens, green roofs and walls, sustainable drainage systems (SuDS) and soils. It can include rivers, streams, canals and other water bodies, sometimes called 'blue infrastructure'.
Groundwater	An important part of the natural water cycle present underground, within strata known as aquifers.
Habitats Regulation Assessment (HRA)	The assessment of the impacts of implementing a plan or policy on a Habitats site. It considers the impacts of a land use plan or project against the conservation objectives of the site and ascertains whether any impacts would adversely affect the integrity of them.
Habitats Site	As per the NPPF, any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites.
Landbank	In the context of the Minerals Local Plan (MLP) this is the stock of planning permissions for the winning and working of minerals.
Local Aggregate Assessment (LAA)	Aids in the planning of a steady and adequate supply of minerals by assessing historic sales data and accounting for all potential supply options. The assessment is produced by the Minerals Planning Authority (MPA) and incorporates the advice of the relevant Aggregates Working Party (AWP).
Local Plan	A Development Plan Document prepared by district and other local planning authorities, including minerals and waste planning authorities, to guide development in their administrative area.

Term (abbreviation)	Definition
Local Planning Authority (LPA)	The local authority or council that is empowered by law to exercise planning functions. Often the local borough/ district/ city council. County councils are the authority for waste and minerals matters.
Low Level Restoration	The re-establishment of land following mineral extraction to a lower level with partial or no infilling (filling the hole created by extraction).
Mineral Consultation Area (MCA)	An area designated up to 100m around Mineral Safeguarding Areas (MSAs), identified in order to ensure consultation with the relevant Minerals Planning Authority (MPA), on applications for non-mineral development in that area located in close proximity to safeguarded land that may compromise the potential future working of that land.
Minerals Development	Any development primarily involving the extraction, processing, storage, transportation or manufacture of minerals. It includes associated minerals development such as rail aggregate depots, facilities for aggregate recycling, secondary processing facilities and coastal wharves for mineral transhipment.
Mineral Extraction	Refers to the quarrying of mineral and the ancillary development associated with this such as processing plants, site offices and weighbridges.
Minerals Hierarchy	The minerals hierarchy sets out the different approaches to the supply of minerals, and orders them in terms of their sustainability. The most sustainable option is to reduce the amount of minerals used, followed by sourcing minerals from secondary and recycled materials, and finally through the primary extraction of minerals.
Mineral Infrastructure	Mineral Infrastructure applies to mineral facilities that are involved in the working and distribution of mineral resources.
Mineral Infrastructure Impact Assessments	Minerals Infrastructure Impact Assessments assess both the potential impact of a nonmineral led development on proximal safeguarded mineral infrastructure, and the impact of the latter on the former, to understand what mitigation measures may be required such that the operations of the mineral infrastructure are not compromised. The assessment should be carried out at such a time as to be capable of informing the planning application that it supports.'

Term (abbreviation)	Definition
Mineral Infrastructure Consultation Areas (MICA)	Mineral Infrastructure Consultation Areas cover land up to 250m from safeguarded mineral infrastructure. Where non-mineral development is proposed within Minerals Consultation Areas, the appropriate Planning Authority must consult the Mineral Planning Authority and the application be informed by a Minerals Infrastructure Impact Assessment.
Minerals Local Plan (MLP) .	A statutory development plan prepared by a Minerals Planning Authority setting out policies for the control of development constituting of the winning and working of minerals, or the deposit of mineral waste.
Mineral Planning Authority (MPA)	The planning authority responsible for planning control of minerals development. Essex County Council is the MPA for Essex.
Mineral Resource	A potential mineral deposit where the quality and quantity of material present has not been tested.
Mineral Reserves	Mineral deposits which have been tested to establish the quality and quantity of material present and which could be economically and technically exploited.
Mineral Safeguarding Area (MSA)	An area designated by Minerals Planning Authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development.
National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG)	Sets out the Government's planning policies for England and how these are expected to be applied. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.
Natural Capital	Natural capital is another term for the stock of renewable and non-renewable resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people.
Natural England (NE)	Body formed by bringing together English Nature, the landscape, access and recreation elements of the Countryside Agency and the environmental land management functions of the Rural Development Service.

Term (abbreviation)	Definition
Permitted Reserves	Mineral deposits with the benefit of planning permission for extraction.
Preferred Site	An area containing mineral resources identified within this Plan where there is a strong presumption in favour of extraction.
Recycled Aggregates	Aggregates comprising waste materials (for example damaged bricks, broken concrete, brickwork, masonry and tarmac) from roads, construction and demolition sites that have been recovered and recycled in the form of manufactured materials such as concrete, brick, plasterboard and ceramic articles.
Restoration (in terms of minerals operations)	The method used to positively enhance a site once mineral extraction has ceased. This could be to restore the site to its original state or another suitable use, by filling the void to former levels, flooding the void or using low level restoration techniques.
Special Area Of Conservation (SAC)	A site designated under the European Community Habitats Directive, to protect internationally important natural habitats and species.
Statutory	Required by law (statute), usually through an Act of Parliament.
Sterilisation	When development or land use changes prevent possible mineral exploitation in the foreseeable future.
Strategic Environmental Assessment (SEA) & Sustainability Appraisal (SA)	SEAs integrate environmental considerations into the preparation and adoption of plans and programmes. They are required by the European Directive 2000/42/EC “on the assessment of the effects of certain plans and programmes on the environment” (the SEA Strategic Environmental Assessment Directive). Government guidance considers that it is possible to satisfy the requirements for Sustainability Appraisal (SA) and SEA through a single approach provided that the requirements of the SEA Directive are met. The environmental, economic and social effects of the plan are presented in the form of an iterative Environmental Report which informs each consultation stage of the Minerals Local Plan’s development.
Traffic Assessment (TA)	The Local Validation Checklist states that a Transport Assessment (TA) is to be required where there is likely to be a significant amount of traffic generated. This is defined as generating in excess of 50pcu (passenger car units (PCU’s)) in the peak hour. PCU’s are a Traffic Assessment calculation of all

Term (abbreviation)	Definition
	types of vehicles as car equivalents: an HGV is 2 car units. Mineral sites generate few car movements, but often significant volumes of Heavy Goods Vehicle (HGV) traffic. This can have major impacts on neighbouring residents and businesses, and is often the cause of most local concern. A TA forms part of an Environmental Statement submitted with most applications requiring Environmental Impact Assessment (EIA). However smaller developments not requiring an EIA do not submit a TA.
Traffic Statement (TS)	A short, straightforward document, dealing with impacts on the transport network accompanying planning applications without providing detailed capacity assessments. A TS is required by the new validation checklists (June 2008) for all development that fall beneath the threshold for a TA but still have some form of material impact on the highway.
Windfall Site	A site not specifically allocated for development in a development plan, but which becomes available for development during the lifetime of a plan.

1. Introduction

1.1 Background

On behalf of Essex County Council (ECC), Place Services has been commissioned to undertake an independent Sustainability Appraisal (SA) for the emerging ECC Minerals Local Plan (MLP).

1.2 The SA Scoping Report

A Scoping Report was produced for the SA of the emerging Minerals Local Plan in 2020, which sought to identify the context and baseline relevant to the remit of the MLP. Following consultation with the statutory consultees of the Environment Agency, Historic England and Natural England, the baseline has been updated for the SA of the MLP at this stage. Annex A sets out the baseline information profile for Greater Essex and where necessary and relevant, beyond. Annex B outlines the contextual review for the emerging MLP and SA, outlining a summary of the key objectives of plans and programmes relevant to both the Plan and the sustainability themes.

2. Annex A - Baseline Information Profile

The baseline information identifies current sustainability issues and problems in the Plan area to be addressed and provides a summary of those themes which provide the basis for predicting and monitoring the effects of implementing the document. To ensure the data collected within this annex was relevant and captured the full range of sustainability issues, it was categorised under 13 thematic topics. They cover all the topics referred to in Annex 1(f) of the SEA Directive and follow the order of:

- Minerals
- Waste
- Economy & employment
- Housing
- Health & wellbeing
- Transport & connectivity
- The historic environment
- Biodiversity & nature conservation
- Landscapes
- Water
- Climate & energy
- Air
- Noise

The following sub-sections address and include baseline information in regard to each of the above themes in kind. Please note that due to the large size of the Plan area, certain baseline information is presented at a high level only.

2.1 Minerals

2.1.1 Introduction

Please note that this section provides a snapshot of the evidence that has been used in the assessment of the Plan and options within the SA. For the full suite of baseline information, two documents provide the most up to date data for the Plan area in regard to minerals and waste. These are:

- The Minerals & Waste Authority Monitoring Report - 1 April 2018 to 31 March 2021 (Waste) & 1 April 2020 to 31 March 2021 (Minerals) (2023)
- Greater Essex Local Aggregate Assessment (LAA) 2022 (Covering the calendar year of 2021)

Both of these documents are available online at the Essex County Council website.

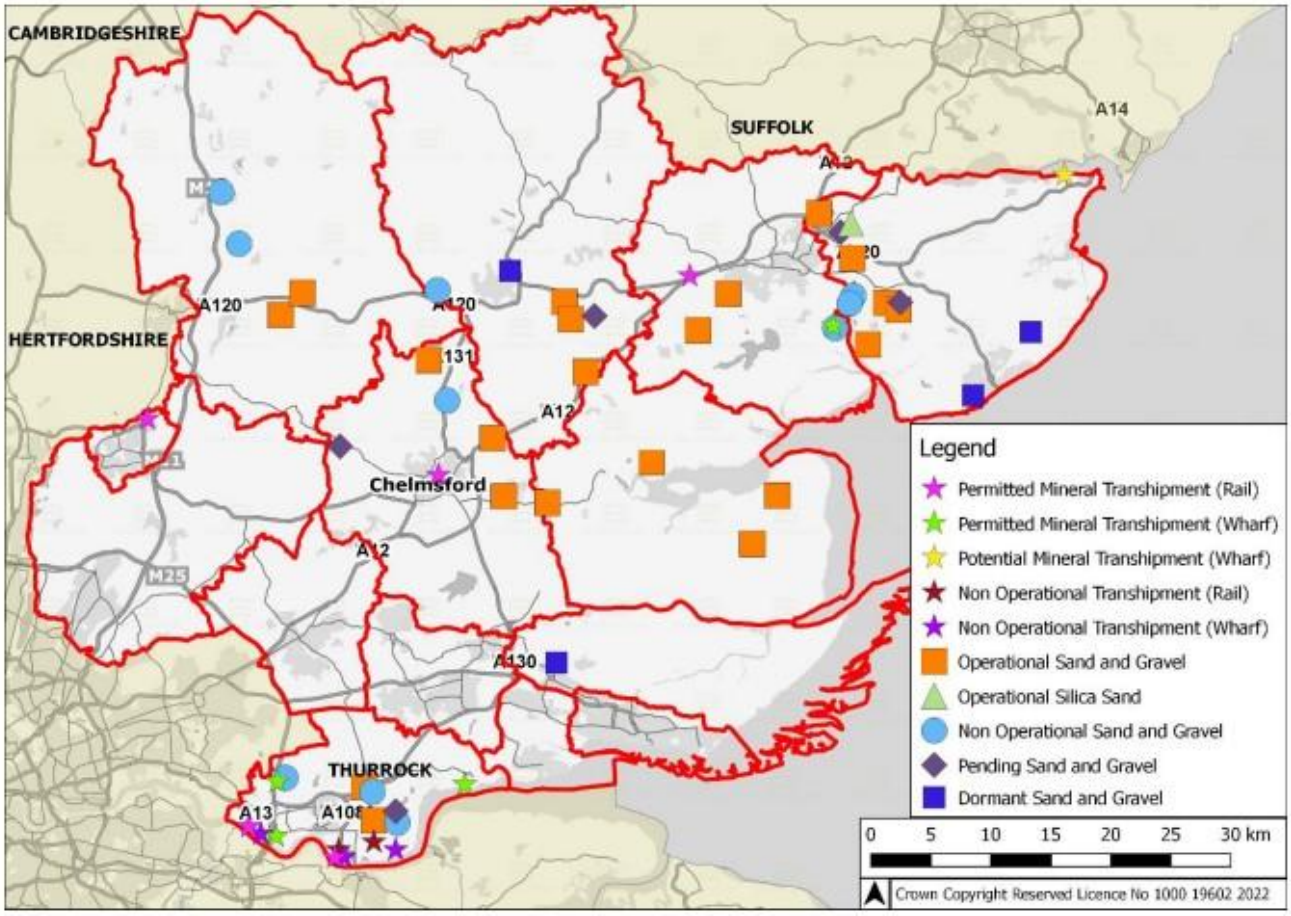
Minerals extraction and requirements are closely linked to construction and demolition and excavation waste (CDEW) arisings. Such arisings are a source for recyclable aggregates and may be particularly important in relation to planned growth in certain areas in Essex. The growth agenda in Essex, combined with the preference for development to take place on previously developed land suggests that indigenous supply of secondary and recycled aggregate is also likely to be significant.

Sand and gravel are by far the most common extracted mineral in the country. Essex is a nationally significant exporter of sand and gravel and is one of the largest producers in the UK. Sand and gravel deposits are largely concentrated in the north of the county and particularly in the districts of Uttlesford, Braintree, Colchester, Tendring and Chelmsford. Sand and gravel deposits are far less abundant in the south of Essex and are less workable. Sand and gravel extracted in Essex is used as a raw material to produce, amongst other things, concrete and asphalt.

Whilst there are many sand and gravel sites throughout Essex, other minerals such as silica sand, brick clay and chalk are extracted at either one or two sites in the county, namely in Colchester, Bulmer and Marks Tey, and Uttlesford respectively.

As of December 2021, there were 22 active sand and gravel quarries across the Greater Essex area, with a further 10 not active (but with permitted reserves) and 5 closed or dormant. The map below identifies all the mineral extraction and transhipment sites within Essex.

Figure 1: Mineral Extraction and Transhipment Sites (31 Dec 2021)



Source: Essex County Council (2022)

2.1.2 Hierarchical Approach

The NPPF requires that a hierarchical approach is employed in considering mineral supply, where the first consideration should be reduction in the quantity of material used and reduction of wastes generated. The second consideration should be to optimise the use of recycled and secondary material, closely associated with CDEW waste management and the third is to secure the remaining required material through primary extraction.

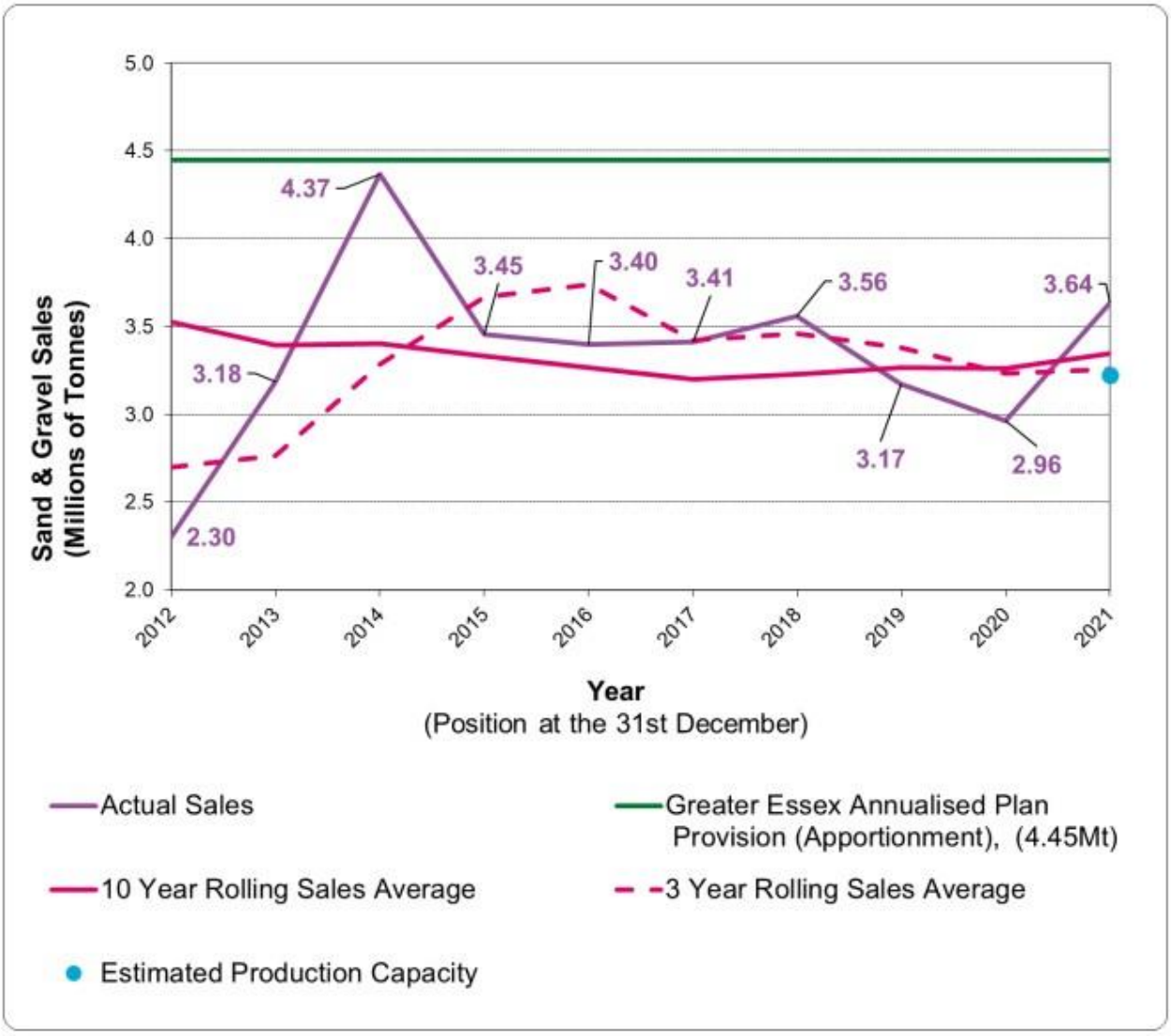
2.1.3 Planned Provision

Responding to the third consideration in the minerals supply hierarchy, extraction will be more prevalent where recyclable aggregate waste arisings are not effectively managed and utilised. Essex is composed of three geological zones; coastal (clays and marshes), mid-Essex (sands, gravels, acidic soil and glacial outwash) and North-Western Essex (chalk). The main materials of economic significance are sands and gravels, of which Essex is one of the largest producers in the country. Brick clay and brick earth is also found as well as chalk (for agriculture or pharmaceutical use), silica (glass, ceramics and water filtration), London

Clay (cement) and crag, although this is not currently extracted in the Plan area.

The provision of minerals designated for extraction as identified within the adopted MLP (2014) was originally derived from the 'National and Sub-National Guidelines for Aggregates Provision in England 2005-2020'[1]. The guidelines sought Greater Essex to supply 4.45 million tonnes per annum (Mtpa). Of this amount, 4.31Mtpa was attributed to Essex. The figure below shows both the Annualised Plan Provision and the Actual Sand and Gravel Sales for the period 2012-2021.

Figure 2: Greater Essex Sand and Gravel Sales 2012 to 2021 (10 years)



Note: The y-axis (vertical) does not start at zero | Source: Annual collated Aggregate Survey data, Essex County Council, 2023

[1] DCLG, June 2009

The figure above shows that Sand and Gravel Sales have been fluctuating. Sales peaked in 2014 at 4.37Mt, troughed in 2012 at 2.30Mt (lowest level in 10 years) and maintained a ten-year average of roughly 3.23mtpa. The ten-year average is below the Minerals Local Plan annual apportionment.

2.1.4 Movement of Minerals

Minerals are transported in, out and around Greater Essex by three methods – rail, road and water. The road network is the most effective and heavily utilised form of transportation for mineral movement within Greater Essex as relatively short journeys to the local Essex Market are required. Exportation to London is predominantly undertaken by rail. There are also several relevant port and wharf facilities on the coast in Thurrock and navigable sections of inland waterways.

Six active rail and three active wharf transhipment sites operate within the Greater Essex area. These facilities handle the long-distance movement of aggregate. At present there is also some cross-boundary movement of aggregate, however, movement into London is conducted predominantly by rail.

Table 1: Imports of Minerals (2021)

Total tonnage of aggregate imported into Greater Essex	Source of Material	Types of Material
.29Mt	Belgium & Norway, East Midlands, Scotland, Southeast England, Southwest England	Limestone, granite & crushed rock

Source: Annual collated mineral survey data.

2.1.5 Recycled Aggregates

Secondary and recycled aggregates are considered an alternate source of aggregate. ‘Recycled’ aggregate is derived from reprocessing inorganic materials previously used in construction. ‘Secondary’ aggregates are created as by-product of a construction or industrial process.

Reusing these materials achieves two things, the first being a reduction in the need to extract primary aggregate and the second being the reduced need to dispose of waste. Both benefits offer economic, environmental and social benefits.

Construction, Demolition and Excavation (CDE) waste arisings are a source for recyclable aggregates and may be particularly important in relation to planned growth in certain areas in Essex. The Greater Essex authorities positively encourage the re-use and recycling of CD&E

waste through development plans and policies. However, this does not mean to say that increasing CD&E waste to be recycled would always be deemed acceptable or beneficial.

The Local Aggregate Assessment (LAA) (2023) considers that for a product to be made from waste, recycled aggregate must meet the 'end of waste' criteria set out the WRAP/ Environment Agency Quality Protocol. The guidance contains standardised methodologies for planners to measure production of recycled aggregate more accurately.

The most recent LAA uses the Waste Data Interrogator methodology for reporting on 2019, 2020 and 2021 data. This provides data received from Environment Agency regulated waste

management facilities, with the submission of this data being a legal requirement of a waste management permit. When using the EA Waste Data Interrogator (WDI) to determine the amount of waste material sold as recycled aggregate, it is important to note that the data from the WDI excludes the proportion of waste material which is processed by mobile plant at construction sites. The data used in the LAA uses an approach that the amount of recycled aggregate produced from fixed processing plant represents 80% of the total recycled aggregate produced in a planning area, with the remaining 20% produced from mobile plant at construction sites. Production at extraction and / or transhipment sites in Greater Essex is shown in the table below.

Table 2: Aggregate Recycling Production at Extraction and/or Transhipment Sites in Greater Essex (2019 to 2021)

Indicator	Year		
	2019	2020	2021
Million Tonnes Recycled Aggregate (as specified in the WDI)	0.77	0.67	0.70
Plus 20% (estimated tonnage from mobile plant at construction sites) (As clarified at WTAB)	0.19	0.17	0.18
Total Recycled Aggregate Produced (Tonnes)	0.97	0.83	0.88

Source: Essex County Council (2022)

It can be seen from the graph above that during 2021, 0.88Mt of recycled aggregate was produced at mineral extraction and/or transhipment sites, which is an increase of 5.68% on the 2020 level. Between 2019 and 2021 the amount of recycled aggregate produced decreased by 9.21%. Production of recycled aggregate fell by 14.09% in 2020 on the 2019 levels but started to seemingly recover in 2021. It is likely that this can be attributed to the impact of COVID-19 on sales and data collation rather than the reduction in recycled aggregate being truly reflective of the market.

2.1.6 Restoration

The table below lists all flagship sites which are committed restoration plans. The adopted MLP (2014) had a target of creating 200ha of priority habitat over the plan period, either through mineral site restoration or through contributions to support off-site enhancements in proximity to the extraction site, as per Policy S12 of that Plan. Relevant progress is measured under Mineral Monitoring Indicator Monitoring Indicator 11 of the MLP (Amount of newly restored land for habitat creation). Provided all flagship sites go ahead, 193ha of priority habitat will be created.

Table 3: Summary & Status of Flagship Sites at 01 September 2019 (1)

SPG Scheme Ref:	MLP Site Ref	Location	Minimum area of Priority Habitat Creation at each preferred or reserve site	Committed area of Priority Habitat Creation	Application reference
1	A3, A4 & A5	Bradwell, Rivenhall (P)	28ha	16.05ha & 12.4ha	ESS/24/14/BTE & ESS/03/18/BTE
1	A6 & A7	Bradwell, Rivenhall (R)	22ha	N/A	N/A
2	A9	Broadfield Farm, Rayne	50ha	57.3ha	ESS/19/17/BTE
3	A46	Coleman's Farm	20ha	24.1ha	ESS/39/14/BTE
4	A31	Maldon Road, Birch	23ha	N/A	N/A
5	A22	Sunnymead, Alresford	50ha	36.05ha	ESS/17/18/TEN

Source: Essex County Council (2019) As derived & updated from ECC (2016)

Note: This table only includes the amount of hectares that have been committed to at those flagship schemes set out in the SPG.

The above shows the current baseline position on each site, but cumulatively the following bullets show the Plan level position:

- There remains 90.15ha to be delivered to achieve MLP priority habitat target of 200ha.
- There remains 54.1ha to be delivered to achieve MLP priority habitat creation target of 200ha (45ha of which could potentially come from sites yet to be submitted).

2.2 Waste

2.2.1 Introduction

Please note that Essex and Southend-on-Sea have a strategic partnership for all waste matters. As such all references to the 'plan area' within this section refer to Essex and Southend-on-Sea, the plan area of the Waste Local Plan, rather than the plan area of the MLP which is Essex, defined as the 12 district and boroughs for which Essex acts as the top-tier authority. This waste section draws on data and information supplied by Essex County Council's Waste Planning Team and that accumulated as part of the Regional Spatial Strategy's evidence base for waste policy in the East of England.

Essex currently has existing capacity to manage all types of waste (municipal, commercial, industrial and construction/demolition wastes), including recycling and composting capacity, and inert and non-hazardous landfill void space. However, nearly 50% of household waste in Essex is sent to landfill, with 30% recycled and 20% composted.

A substantial proportion of waste sent to landfill originates from London, and there should be an aim for this to be progressively reduced over time. Southend-on-Sea has a large shortfall in waste management capacity and relies on Essex for much of its waste management needs. There is a requirement to safeguard existing facilities to ensure the capacity gap does not grow and to ensure a larger proportion of waste is managed through recycling, composting and recovery methods in the future.

2.2.2 Waste Type Definitions

2.2.2.1Non-Hazardous Waste

Non-Hazardous Waste comprises two different types of waste; 'organic' (compostable materials) and 'non-organic' (recyclables). This waste is collected from the following two sources:

- Local Authority Collected Waste (LACW) – this is waste collected from households and a small number of commercial properties. This can include public gardens and bins.
- Commercial and Industrial Waste – this is waste collected from shops, industrial and business premises. This includes a wide range of waste including food waste and packaging.

2.2.2.2Construction, Demolition & Excavation Waste

Construction waste is essentially controlled waste arising from construction and demolition. The majority of this waste is bulky and inert. There is potential for using recycled construction and demolition waste as a substitute for primary aggregates.

The construction industry is a major source of waste in England, using the highest tonnage of solid material resources in any sector nationally. The construction and demolition (C&D) sector generates more waste in England than any other sector. Examples of C&D waste include waste building and dredging materials, tree stumps and rubble resulting from construction, remodelling, repair, and demolition operations on houses, commercial buildings and other structures, and pavements. It is also the largest generator of hazardous waste of all sectors, and may contain lead, asbestos, or other hazardous materials.

Excavation waste can typically consist of soils and stones which are unable to be used beneficially. They can arise from projects such as tunnelling and the removal of soils in preparation for mineral extraction.

2.2.2.3Hazardous Waste

Hazardous waste is essentially waste that contains hazardous properties that may render it harmful to human health or the Environment. The European Commission has issued a Directive on the controlled management of such waste (91/689/EEC) and hazardous waste is defined on the basis of a list, the European Waste Catalogue, drawn up under that Directive. This list includes waste that is explosive, oxidising, highly flammable, toxic, carcinogenic, corrosive, mutagenic or ecotoxic.

2.2.2.4Radioactive Waste

Radioactive waste can be divided into two categories:

- Nuclear – waste produced within the nuclear power industry.
- Non-nuclear – waste produced within medical facilities and educational establishments

2.2.2.5Wastewater (sewage)

This is waste that is processed in Water Recycling Centres via the foul sewer network. Produced by domestic residences, commercial properties, industry and agricultural activities.

2.2.2.6Agricultural Waste

Agricultural waste is waste created from farming practices. This includes waste from horticulture, dairy farming, livestock breeding and keeping and grazing land amongst other farming activities. The creation of manure or slurry is not included in agricultural waste figures where it is utilised as fertilizer.

2.2.3 Existing Waste Facilities

In total since the adoption of the Waste local Plan (2017) there have been 13 applications granted on allocated sites (Policy 3) and a further 2 sites granted on Areas of Search (Policy 4). Most of these applications (Including both of the areas of search) were for time extensions to existing capacity or alterations to sites and did not yield additional waste management capacity to the plan area.

There were two applications that have resulted in additional capacity at allocated sites since the Waste local Plan adoption in 2017. The first was at Newport Chalk Quarry (ref: ESS/42/18/UTT). The site had been allocated via Policy 3 for inert recovery and inert landfill facilities (site ref: L(i)17R). The application resulted in 850,000 tonnes capacity of inert landfill which will be operational for over 10 years and provide a temporary permission to provide 200,000 tonnes of inert recovery capacity over 7 years (which was estimated to be a throughput of 28,500tpa).

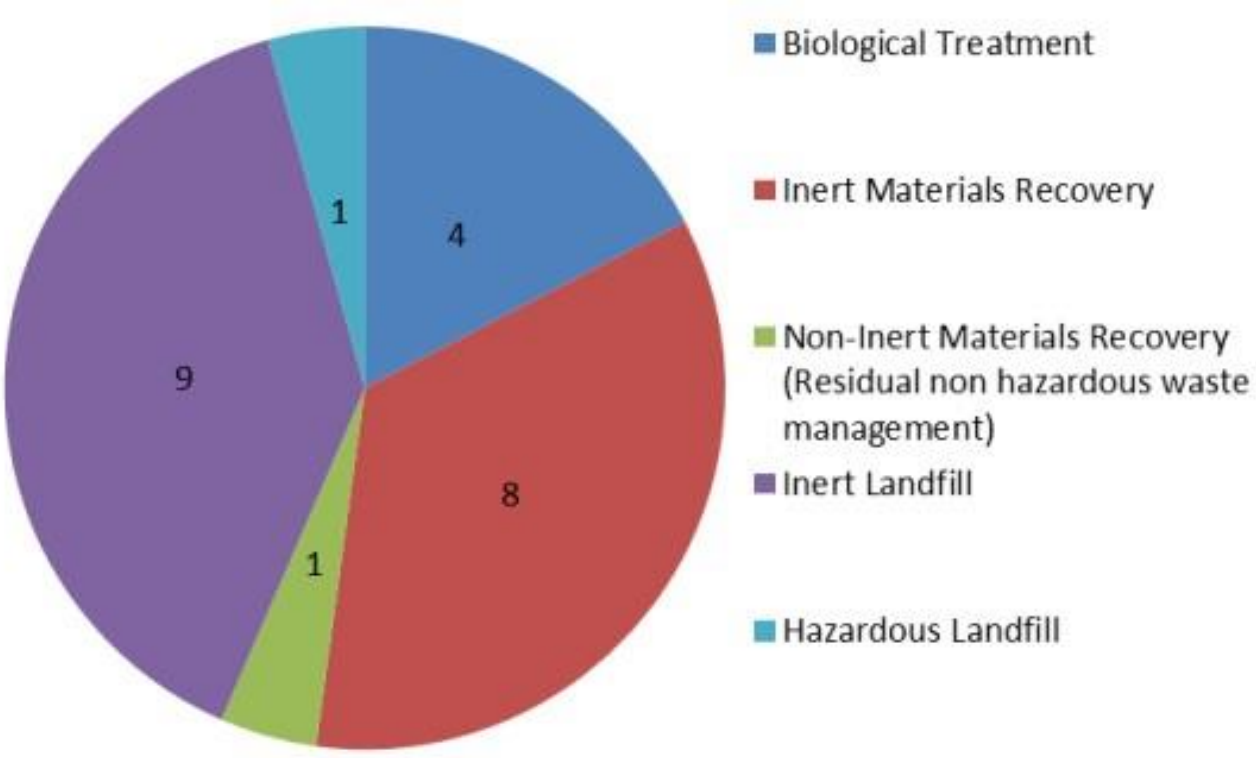
Figure 3: Waste Facilities Applications from 2017/18

Year	Number of Applications Granted on Allocated Sites	Number of Applications Granted in Areas of Search
2017/18	4	0
2018/19	2	0
2019/20	4	2
2020/21	3	0
TOTAL	13	2

Source: Essex Authority Monitoring Report (2023)

The WLP contains a total of 23 strategic site allocations for a variety of waste management needs, as part of Policy 3.

Table 4: Strategic Site Allocations by Facility Type



Source: Essex Authority Monitoring Report (2023)

2.2.4 Need for Waste Management Facilities

The 2017 Waste Local Plan contains policies that outline the future needs for waste developments within Essex. Policy 1 provides the required permitted development to meet shortfall. These are outlined below:

- Up to 218,000 tonnes per annum by 2031/32 of biological treatment for non-hazardous organic waste;
- Up to 1.95million tonnes per annum by 2031/32 for the management of inert waste;
- Up to 200,000 tonnes per annum by 2031/32 for the further management of non-hazardous residual waste; and
- Up to 50,250 tonnes per annum by 2031/32 for the management of hazardous waste.

2.2.5 Minerals Restoration and Waste Management

The re-use and recycling of Construction, Demolition and Excavation (CD&E) waste helps reduce the amount of re-usable materials which are unnecessarily disposed to landfill. Nevertheless, some inert waste is required for the beneficial restoration of mineral extraction sites, or voids. The Essex & Southend on Sea C, D & E Waste Management Needs 2018

Update document reports that total non-hazardous CD&E waste from Essex & Southend on Sea managed through permitted sites amounted to 3.1 million tonnes in 2017. Of inert material, 383,457 tonnes were deposited to landfill in the Plan area (Essex) with a further 116,042 deposited outside the Plan area. The EU Waste Framework Directive requires waste management authorities to plan on the basis that over time there should be a significant reduction in the amount of CD&E waste that is sent for disposal to landfill, in support of moving the management of waste up the waste hierarchy and landfilling being the last resort.

The 'Essex Minerals Local Plan Review 2021 – Report setting out the Rationale behind the Proposed Amendments' (hereafter referred to as 'the Rationale document'), an evidence based document in support of the MLP, states that, 'The latest CD&E forecast suggests that the likely amount of CD&E waste arising in the plan area across the plan period was underestimated at the point in time that the policy approaches in the Minerals Local Plan were finalised. This is potentially due to the fact that earlier projections used data influenced by the 2008 recession and did not benefit from the changes to the Environment Agency permitting regime, which effectively required more CD&E activities to be permitted through the regime. This provided additional data to inform the EA reports on throughput.

With the MDD: Preferred Approach (2010) recognising the need for restoration to be considered on a site-by-site basis (with the acknowledgement that restoration to the lowest possible level might not always be appropriate), and the perceived difficulty of sourcing enough inert waste to accommodate anything other than the lowest level of restoration possible seemingly now unfounded, it is considered appropriate to remove this hierarchical preference as its evidential basis has been superseded.'

2.3 Economy & Employment

2.3.1 Introduction

In order to meet the needs of a growing population and economy Local Authorities must account for future growth by forecasting the requirement for economic floorspace. This is typically provided by an Employment Land Needs Assessment (ELNA) to predict and meet employment needs. The table below summarises the floorspace requirements of each Local Authority within Greater Essex.

Table 5: Local Plan Employment Needs

LPA	Net new employment provision over Local Plan periods	Source of requirement
Basildon	Making provision of 92ha of land in order to deliver at least 51ha of additional employment development falling within use classes B1, B2 and B8 during	Basildon Borough Council Revised Publication Local Plan 2014-2034 (withdrawn)

LPA	Net new employment provision over Local Plan periods	Source of requirement
	the plan period.	
Braintree	The Plan sets out employment land requirements for the period 2016 – 33 for two plausible scenarios, baseline and higher growth. These two bookends provide flexibility to allow for a supply trajectory to reflect their differing requirements. For Braintree, there is a requirement for between 23 and 43.3 hectares of employment land required.	Braintree District Local Plan 2033 (Section 1 and 2) (2022)
Brentwood	Job growth will be provided for by […] a total of circa 47.39 ha of new employment land (B-use) allocations and continued support for existing employment sites and appropriate redevelopment where appropriate.	Brentwood Local Plan 2016-2033 (2022)
Castle Point	In order to support the wider economy in South Essex, the economy of Castle Point will be enhanced through […] The provision of at least an additional 24 hectares of land identified for employment development falling within the B Use Classes of the Use Classes Order; and […] Support for the provision of at least an additional 1 hectare of land and 6,605 square metres of floorspace elsewhere in the borough for employment development falling within the B Use Classes of the Use	Castle Point Local Plan (withdrawn)

LPA	Net new employment provision over Local Plan periods	Source of requirement
	Classes Order.	
Chelmsford	The Plan allocates land for 55,000 sqm of office / flexible business space and 13,400sqm for food retail.	Chelmsford Local Plan 2013-2036 (2020) and Issues and Options Consultation Document (plan review) (2022)
Colchester	The Plan sets out employment land requirements for the period 2016 – 33 for two plausible scenarios, baseline and higher growth. These two bookends provide flexibility to allow for a supply trajectory to reflect their differing requirements. For Colchester, there is a requirement for between 22 and 55.8 hectares of employment land required.	Colchester Local Plan 2017-2033 (Section 1 and 2) (2021)
Epping Forest	The Plan sets out that the components of employment land requirement over the period 2011-2033 are 16-19ha (to be provided).	Epping Forest District Local Plan 2011 to 2033 (2023)
Harlow	The Plan states that to reflect the Economic Development and Prosperity Strategy for Harlow and the sub-regional service role of the Harlow and Gilston Garden Town, up to 18.8ha of B1 uses will be delivered at Harlow Business Park at The Pinnacles and at the Harlow Enterprise Zone at London Road. A further 2.2ha of land will be delivered for employment uses at Templefields.	Harlow Local Development Plan (2020)

LPA	Net new employment provision over Local Plan periods	Source of requirement
Maldon	The Plan identifies three allocated sites to meet B1, B2 and B8 use needs at a total of 8.4ha.	Maldon District Council Local Development Plan (2014-2029) (2017) and Local Development Plan Review 2021+
Rochford	Although no allocations are identified at this stage of the plan-making process, evidence suggests an employment land requirement of 16 hectares is needed to meet future needs.	Rochford District Council Local Plan (2025-2040) (emerging)
Tending	The Plan sets out employment land requirements for the period 2016 – 33 for two plausible scenarios, baseline and higher growth. These two bookends provide flexibility to allow for a supply trajectory to reflect their differing requirements. For Tendring, there is a requirement for between 20 and 38 hectares of employment land required.	Tendring District Council Local Plan 2013-2033 and Beyond (Section 1 and 2) (2022)
Uttlesford	The Plan outlines that there is 49,000sqm of employment floorspace available at sites where planning permission is already in place, which contributes to the portfolio of sites available to assist meeting the delivery targets of premises B1, B2 & B8 uses. The Plan then identifies a further need for 48,983 sqm of land for office and industrial purposes, to be met through Plan allocations.	Uttlesford Local Plan 2021 to 2041 Regulation 18 (2023)

LPA	Net new employment provision over Local Plan periods	Source of requirement
Southend-on-Sea	Although no allocations are identified at this stage of the plan-making process, evidence suggests an employment land requirement of 11 hectares is needed to meet future needs.	Southend-on-Sea New Local Plan Refining the Plan Options (2021)
Thurrock	Although no allocations are identified at this stage of the plan-making process, the combined employment floorspace requirement for Thurrock is 1,050,397 sqm of new floorspace, which translates into an employment land requirement of 259 hectares to be provided to meet future needs in full.	Thurrock Local Plan Initial Proposals (2023) (emerging)
Greater Essex (grouped)	A total of 158,184 dwellings over various plan periods (15-20 years)	N/A

2.4 Housing

2.4.1 Introduction

The latest population trend data shows that the population in Essex is growing; therefore, the provision of adequate housing is a key issue. Not only should there be sufficient housing for the growing population, there should also be suitable housing to meet a wide range of needs.

Table 6: Local Plan Housing Needs

LPA	Housing needs over Local Plan periods
Basildon	The withdrawn Plan set housing need at 20,160 dwellings (16,792 dwellings outstanding as of April 2021) by 2034.

LPA	Housing needs over Local Plan periods
Braintree	The adopted Plan sets housing need at 14,320 dwellings (10,159 dwellings outstanding as of April 2021) by 2033.
Brentwood	The adopted Plan sets housing need at 7,752 dwellings (6,775 dwellings outstanding as of April 2021) by 2033.
Castle Point	The previous withdrawn Plan set housing need at 5,325 dwellings (4,888 dwellings outstanding as of April 2021) by 2033.
Chelmsford	The Plan sets housing need at 21,843 dwellings (14,828 dwellings outstanding as of April 2021) by 2036.
Colchester	The Plan sets housing need at 18,400 dwellings (10,593 dwellings outstanding as of April 2021) by 2033.
Epping Forest	The adopted Plan sets housing need at 11,400 dwellings (8,705 dwellings outstanding as of April 2021) by 2033.
Harlow	The adopted Plan sets housing need at 9,200 dwellings (5,547 dwellings outstanding as of April 2021) by 2033.
Maldon	The adopted Plan sets housing need at 4,650 dwellings (2,748 dwellings outstanding as of April 2021) by 2029.
Rochford	The emerging Plan sets housing need at 7,200 dwellings (6,851 dwellings outstanding as of April 2021) by 2040.
Tending	The Plan sets housing need at 11,000 dwellings (6,716 dwellings outstanding as of April 2021) by 2033.
Uttlesford	The emerging Plan sets housing need at 14,020 dwellings (13,658 dwellings outstanding as of April 2021) by 2040.
Southend-on-Sea	The emerging Plan sets housing need at 23,600 dwellings

LPA	Housing needs over Local Plan periods
	(22,451 dwellings outstanding as of April 2021) by 2040.
Thurrock	The emerging Plan sets housing need at 25,234 dwellings (23,774 dwellings outstanding as of April 2021) by 2040.

2.5 Health & Wellbeing

2.5.1 Introduction

The health implications of noise and air quality are dealt with in the Air Quality chapter of this report. As a result, road safety issues form the majority of this chapter. Overall, the health of people in Essex is generally better than the England average. Life expectancy for men is higher than the England average and Essex is generally less deprived than the rest of England, with an average IMD (2015) score of 17.2 compared to the national average of 21.8.

2.5.2 Accessible Natural Greenspace

Accessible local greenspace is an important contributor to good health. It not only provides a daily experience of wildlife but contact with nature boosts people's physical and mental health. Exercise in the outdoors reduces obesity and is shown to reduce heart disease, blood pressure and diabetes – among England's most common medical problems. In addition to this, regular outdoor exercise can help to reduce obesity across all age groups. In Essex, the percentage of adults classified as obese between 2017-2018 was 62.5%, which was marginally higher than the national average for England at 62%. Thus, encouraging an active lifestyle will be key to improving public health in Essex.

Natural England has devised the Accessible Natural Greenspace Standard (ANGSt), which sets out the minimum amount of accessible natural greenspace that any household should be within reach of. The criteria state that:

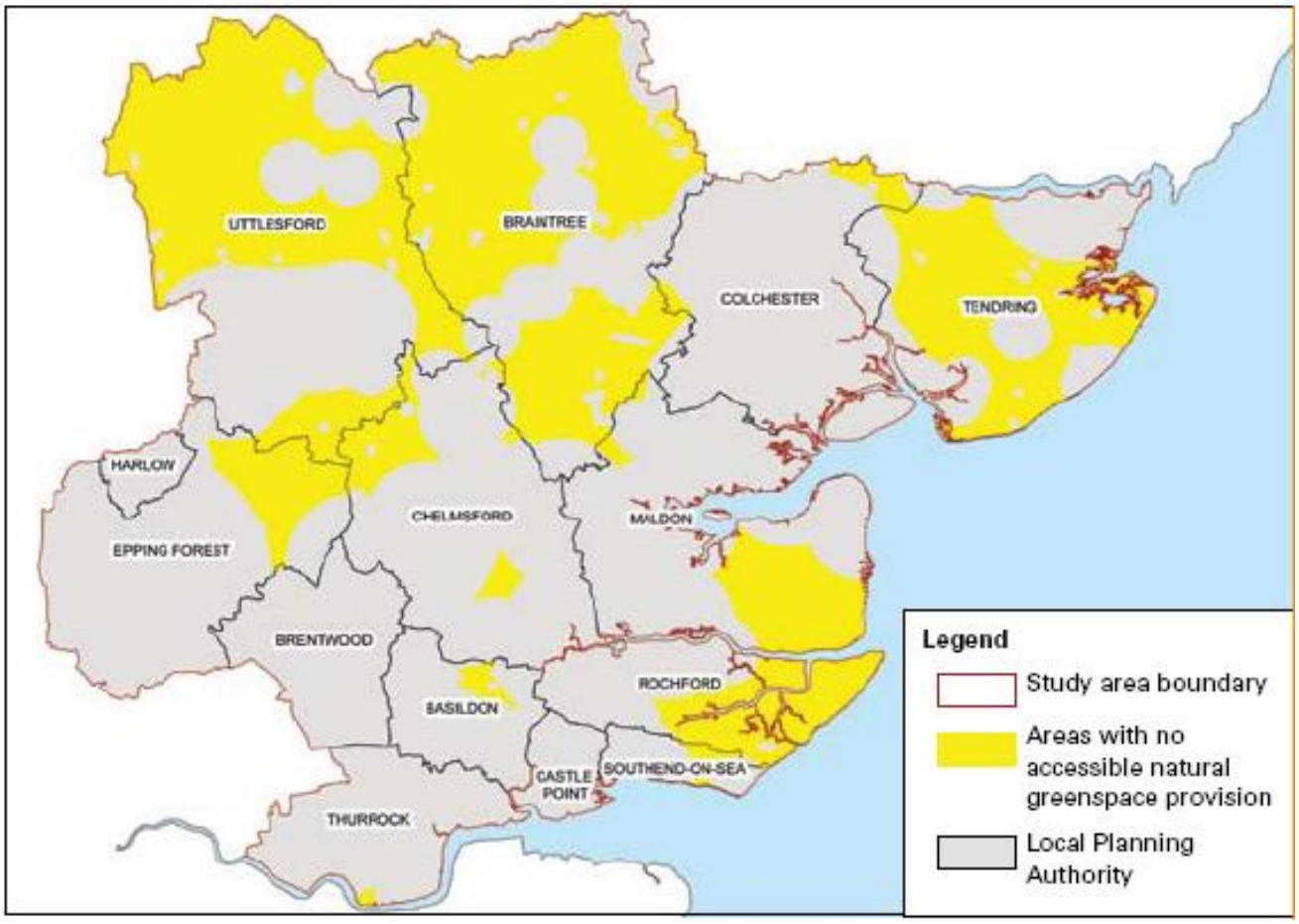
- an accessible natural greenspace of at least 2 hectares in size, no more than 300 metres (5 minutes' walk) from home;
- at least one accessible 20-hectare site within two kilometres of home;
- one accessible 100-hectare site within five kilometres of home; and
- one accessible 500-hectare site within ten kilometres of home.

In Essex there is 15,055ha of accessible natural greenspace however only 9% of Essex households have all of their ANGSt requirements met, while 16% of households within Essex have none of their ANGSt requirements met. The areas that fare the worst according to the ANGSt criteria are the more rural parts of the county as there is often limited official public

access beyond the footpath network as shown in the figure below.

The districts of Tendring, Uttlesford and Braintree had the highest proportions of households without access to natural greenspace with 59%, 54% and 35% respectively. There were no households in Basildon. Braintree, Castle Point, Chelmsford, Rochford and Uttlesford meeting all of their ANGSt requirements and Brentwood, Maldon and Tendring had less than 1% being met.

Figure 4: Areas in Essex with No Accessible Natural Greenspace provision



Source: Analysis of Accessible Natural Greenspace Provision for Essex, including Southend-on-Sea and Thurrock Unitary Authorities, Essex Wildlife Trust.

2.5.3 Road Safety & Traffic Accidents

Road safety is an important indicator of the physical health risks linked to motorised transport and traffic accident data can help to monitor the level of road safety in Essex. Baseline data taken from Public Health England on Essex's Public Health profile suggests that road safety across the county could be significantly improved to reduce accidents and fatalities on the road.

Between 2014-2018, the rate for serious casualties from road traffic accidents (age group 0-24) in Essex was 48.6 per 100,000, which was significantly worse than the national average for England (37.4). Over the same period, the rate of car occupants killed or seriously inured in road traffic accidents (aged 15-24) was 46.6 per 100,000, which was also significantly worse than the national average for England (28.4). Between 2016-2018, the KSI (Killed/Seriously Injured) rate on England's roads for children in Essex was 19.2, which was higher than the average for England (17.7). Over the same period, the rate of children (aged 11-15) killed or seriously injured in road traffic accidents was 45.8, which was significantly worse than the average for England (34.5).

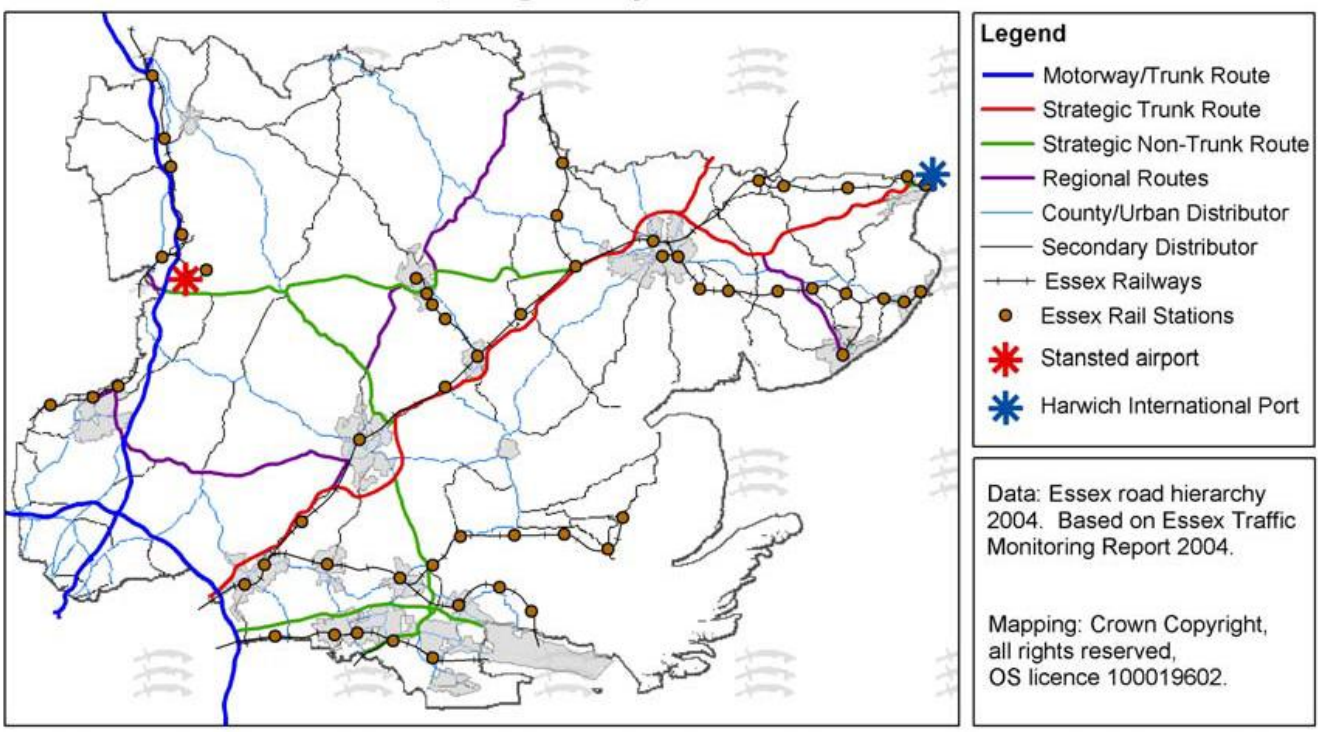
2.6 Transport & Connectivity

2.6.1 Transport Infrastructure

Essex has good transport connections by road, rail, air and sea. The nationally important M11, M25, A12 and A120 run through the county, and major local roads including the A13, A127, A130 and A414 provide good coverage. Three main rail lines radiate from London, supplemented by a number of branch lines, serving 57 railway stations, and the London Underground extends into the south of the county. As a result of its proximity to London, there is a large commuter population. The county also contains two major 'International Gateways': the UK's third busiest airport at Stansted (which handles around 20 million passengers each year); and Harwich International sea port which provides nationally important connections to Holland and Denmark[2].

[2] Essex Transport Strategy 2011

Figure 5: Travel networks and Transport Gateways in Essex



Source: Essex Trends

2.6.2 Road Network

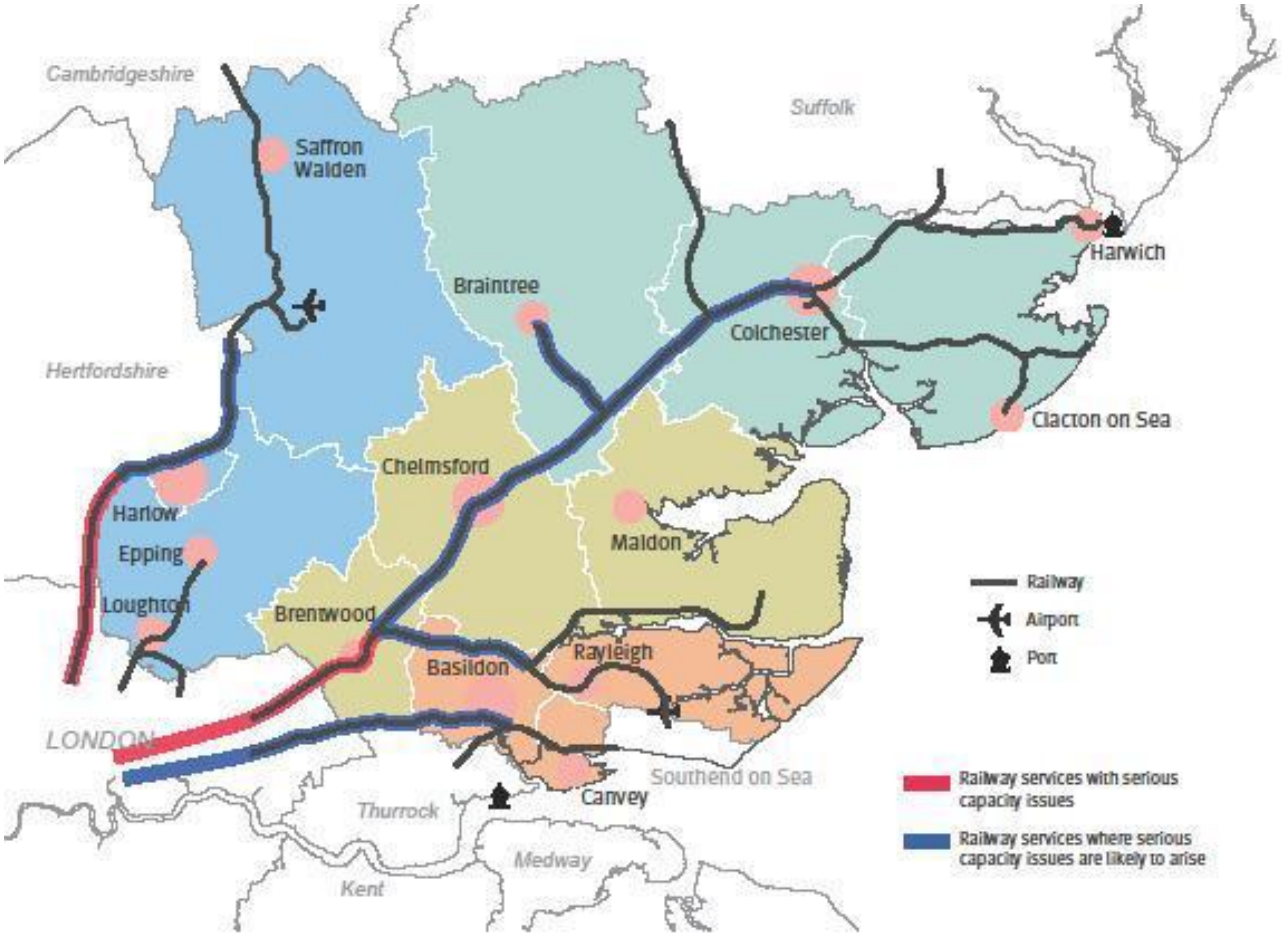
Essex road network operates safely and largely efficiently. According to the Essex Transport Strategy (2011) the number of lives lost on local roads in Essex has been halved since 1998 and journey-time reliability has improved since 2005, particularly in main centres through targeted measures to tackle congestion. However, the traffic accident statistics reported in the Health chapter of this document indicate that there is scope for improvement with regards to road safety to help bring the KSI rate for younger age groups below the national average.

2.6.3 Rail Network

There are two mainline railway networks that operate across Essex, C2C and Greater Anglia, both of which are important transport and commuter links connecting Essex with London and beyond.

The figure below shows that some sections of the railway network in Essex, which are nearest to London, are currently experiencing serious capacity issues. By 2031 it is anticipated that capacity will be a problem on most of the railway network.

Figure 6: Railway network in Essex



Source: Essex Transport Strategy (2011) Crown Copyright. All rights reserved. Essex County Council 10019602.

2.6.4 Freight Movement

Around 6% of traffic on Essex's roads is made up of HGVs, rising to nearly a fifth on the Essex section of the M25, 16% on the M11 and around 14% on sections of the A12 and A120[3]. There are also around 50 freight trains passing through Essex each day, travelling mainly between Felixstowe and the North-West via London[4].

Strategic sites located in close proximity to the point of use of the minerals are required to comply with sustainable transport policies. In the UK, minerals are moved over longer distances by rail or barge mainly to urban conurbations.

[3] Average Annual Daily Traffic Flow (AADF) data produced by the Department for Transport, 2010
[4] Strategic Freight Network (2008) Network Rail

2.7 The Historic Environment

2.7.1 Introduction

The historic environment should be effectively protected and valued for its own sake, as an irreplaceable record which contributes to our understanding of both the present and the past. Cultural heritage adds to the quality of life, by enhancing the local scene and sustaining a sense of local distinctiveness, which is an important aspect of the character and appearance of towns, villages and countryside and should not be compromised by the insensitive location of development. It also has an importance for leisure and recreation. The location and scale of new mineral management facilities may have an adverse impact on nearby features of a cultural heritage value. It is important that new facilities respond to this in determining the location of new proposed site allocations or incorporate necessary mitigation to offset any negative externalities.

The Essex Historic Environment Record (EHER), maintained by Essex County Council, is a computerised database of all listed and other historic buildings and all known archaeological sites, historic parks and gardens and other historic landscape features in the county and currently holds over 36,000 records.

2.7.2 Listed Buildings

All buildings built before 1700 which survive in anything like their original condition are listed, as are most of those built between 1700 and 1840. The criteria become tighter with time, so that post-1945 buildings must be exceptionally important to be listed. A building normally must be over 30 years old to be eligible for listing. New mineral management facilities and sites should not negatively impact on the setting of listed buildings aesthetically or through operational noise or nuisance.

Table 7: Listed Buildings in Essex

Administrative area	Grade 1 Listed	Grade II* Listed	Grade II Listed	Total
Essex	266	751	12,970	13,947

Source: Historic England (2020)

The total number of listed buildings or groups of buildings in England is over 377,000 and in Essex there are around 14,000. Grade I buildings are of exceptional interest, sometimes considered to be internationally important. Only 1.9% of all listed buildings in Essex are Grade I. 5.3% have been designated as Grade II* buildings which are particularly important buildings of more than special interest and the rest are Grade II listed which means they are nationally important and of special interest.

There is a fairly even distribution of listed buildings within Essex; however, there is a greater concentration to the north particularly in the districts of Uttlesford and Braintree and also around historic towns such as Colchester.

2.7.3 Archaeology, Recorded Sites and Finds in Essex

As with rest of the UK, it is true to say that most archaeological sites and deposits in Essex remain buried, hidden and thus preserved. However, the known archaeological resource in the county is very varied and highly significant. There are over 36,000 records of archaeological sites and finds, recorded on the Essex Historic Environment Record (EHER) for the county. The archaeological deposits range in date from the Palaeolithic, through to structures related to the Cold War. However, it should also be remembered that the EHER represent only the known deposits with many new sites being identified each year. Archaeological sites (and their setting) constitute a finite, non-renewable resource, vulnerable to damage.

2.7.4 Scheduled Monuments

Scheduled Monuments (SMs) are sites of national importance and protected by the Ancient Monuments and Archaeological Areas Act 1979. SMs are designated to preserve the monument for the future and protect it from damage, destruction or any unnecessary interference. Mineral management facilities and new sites will have to respect the location of any SMs in light of perceived interference. There are 296 SMs in Essex, ranging from prehistoric burial mounds to unusual examples of World War II defensive structures.

2.7.5 Conservation Areas

Essex currently has 193 designated Conservation Areas. The Conservation Areas are defined as historical town centres and buildings having ‘special architectural or historical interest, the character of which is desirable to preserve or enhance’ which are protected under the Listed Buildings and Conservations Areas Act (1990). The objective of the Conservation Area designation is to ensure that the character of the defined area is preserved from developments which do not preserve or enhance its character. Mineral activities should not negatively affect the quality and condition of conservation areas.

2.7.6 Historic Parks and Gardens

These are designated by English Heritage and defined as “a park or garden of special historic interest”. They are graded I (highest quality), II* or II. There are currently 37 historic parks and gardens in Essex. Of the 37, six have been graded II* and one, Audley End, has been awarded grade I status which is the highest quality.

2.7.7 Historic Battlefields

There is one registered battle site within Essex, located at Northey Island in the Blackwater Estuary. It is known as the Battle of Maldon which took place in 991AD between the Saxons

and the Vikings who wanted to invade England. The battlefield site is situated within a number of designations: The Coastal Protection Belt, Special Landscape Area and a SSSI.

2.8 Biodiversity & Nature Conservation

2.8.1 Introduction

Essex is predominantly rural in character with a diverse wildlife. There are sites designated as internationally, nationally and locally important due to the habitats and species present. The Essex coastline affords international protection due to a series of saltmarshes, mudflats, sandflats, lagoons and estuaries which are not only important examples of habitats but are home to over 100,000 migratory birds. Conservation of sites and designations of biodiversity value have an important role within the planning process, land management, and controlling development pressure. Mineral management facilities and related activities need to respond to these designations in scale, location and any associated impacts that could affect biodiversity, flora and fauna and bird strike issues surrounding landfill sites. This includes restoring land used for mineral purposes for habitat creation in order to protect and enhance biodiversity across Essex and beyond, in accordance with Policy S12.

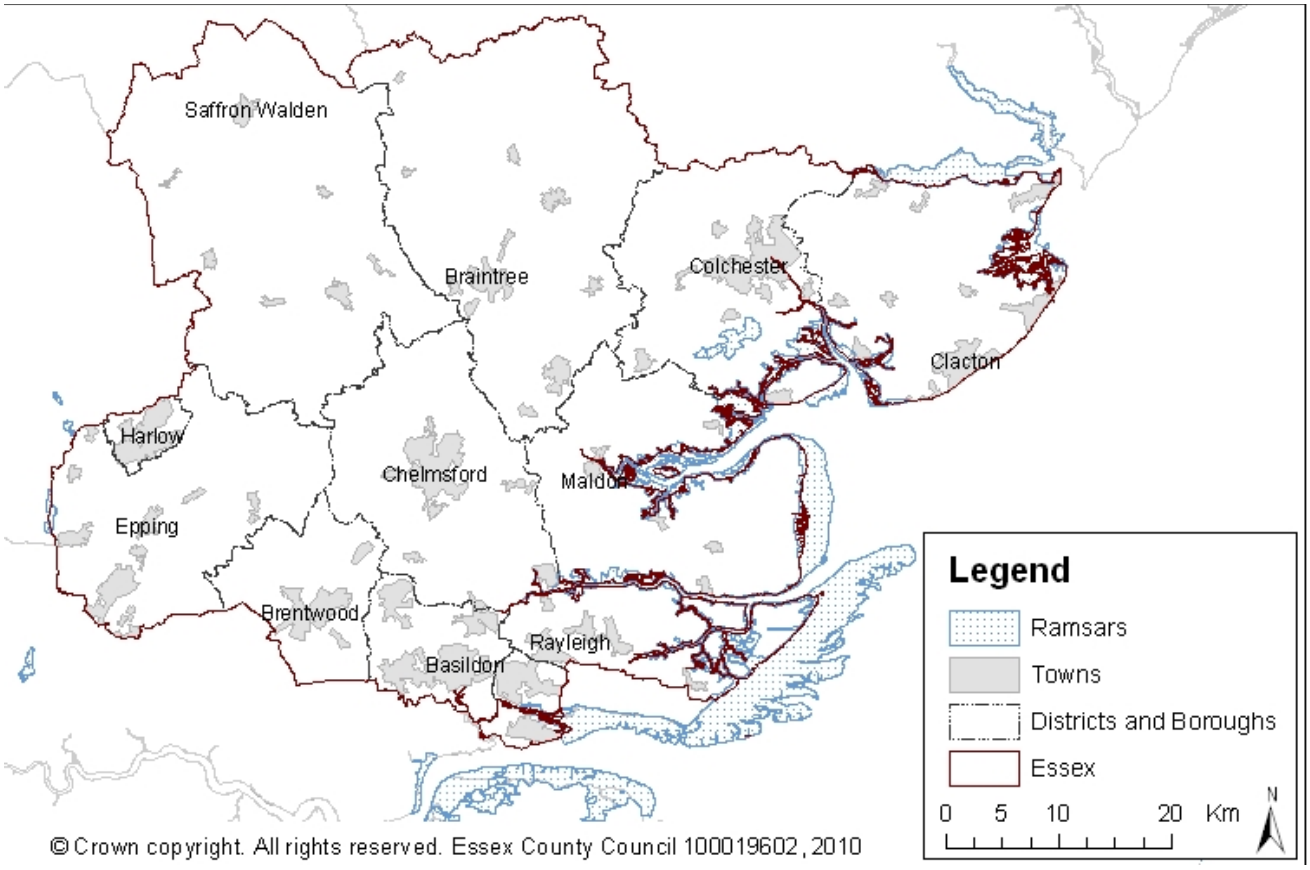
2.8.2 Land Designations

2.8.2.1Ramsar Sites

Ramsar sites are wetlands of international importance designated under the Ramsar Convention which have a high degree of protection. They often incorporate Special Protection Areas (SPAs) and Special Areas for Conservation (SACs).

In Essex there are 10 Ramsar sites (as shown in the figure below) which cover approximately 30,524ha and include coastal areas, estuaries, rivers and lakes/reservoirs. These include Hamford Water, parts of the Colne and Blackwater estuaries, and the Dengie Marshes. Development is not suitable on such sites or in any location that may see a decline in their habitat quality.

Figure 7: Ramsar Sites in Essex



Source: Essex County Council, 2010

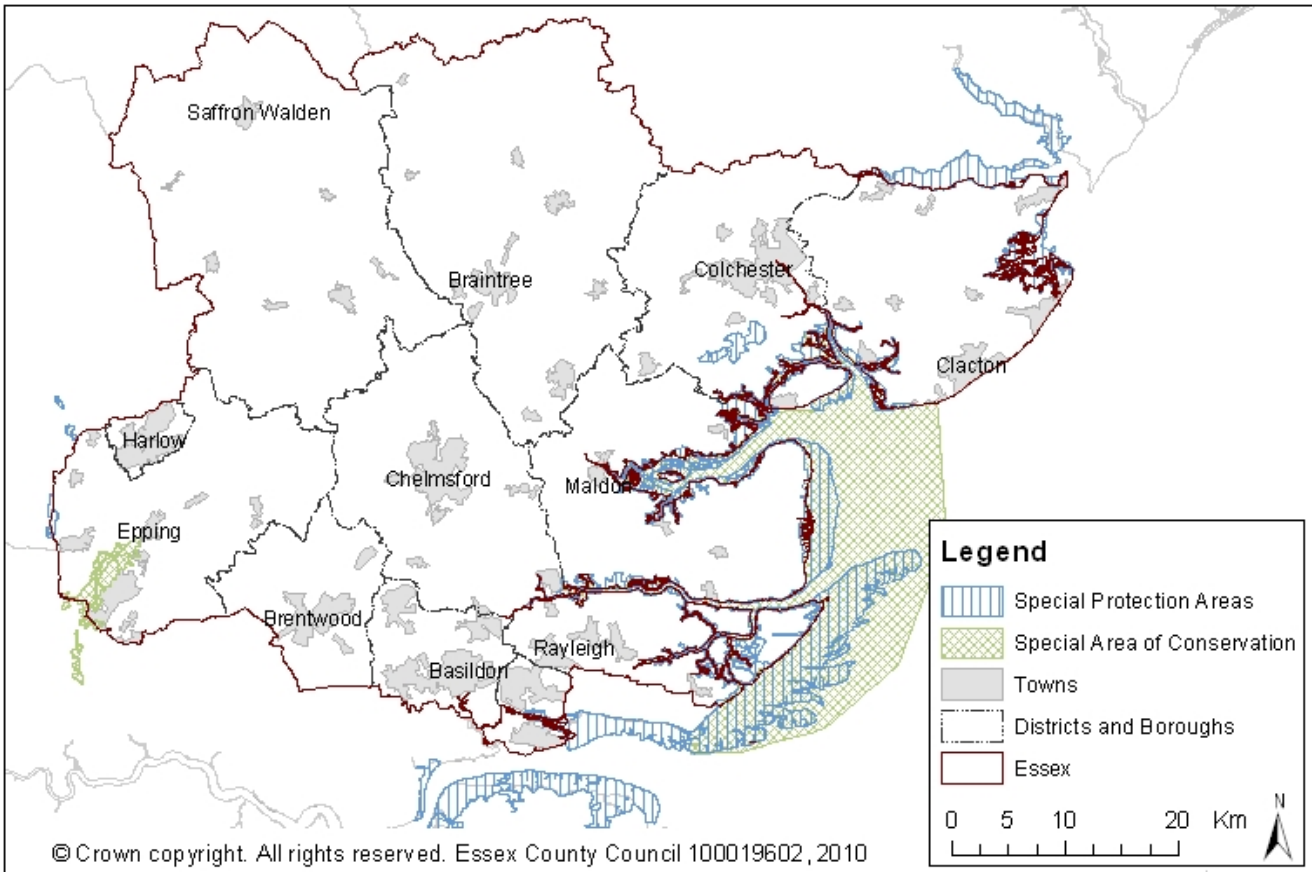
2.8.2.2Special Protection Areas and Special Areas for Conservation

Special Protection Areas (SPAs) are internationally protected sites which are classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC). SPAs are designated to protect rare and vulnerable birds and for regularly occurring migratory species. They are also often designated as Ramsar sites and comprise areas of estuaries and coasts. The majority of the Essex coastline has been designated as part of the Mid-Essex Coast Phase, which is made up of 5 separately designated SPAs. Combined, these cover an area of approximately 23,000 ha.

Special Areas for Conservation (SACs) are sites of international importance designated under the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC). There are three SACs in the County: Epping Forest, Essex Estuaries and Hamford Water.

The designated SPAs and SACs are shown in the figure below. Together the SPAs and SACs form 'Natura 2000', a European wide network of areas of special nature conservation interest. Due to the high level of protection that these designations are given appropriate measures to reduce potential adverse impacts arising from development proposals are required.

Figure 8: Special Protection Areas and Special Areas for Conservation in Essex

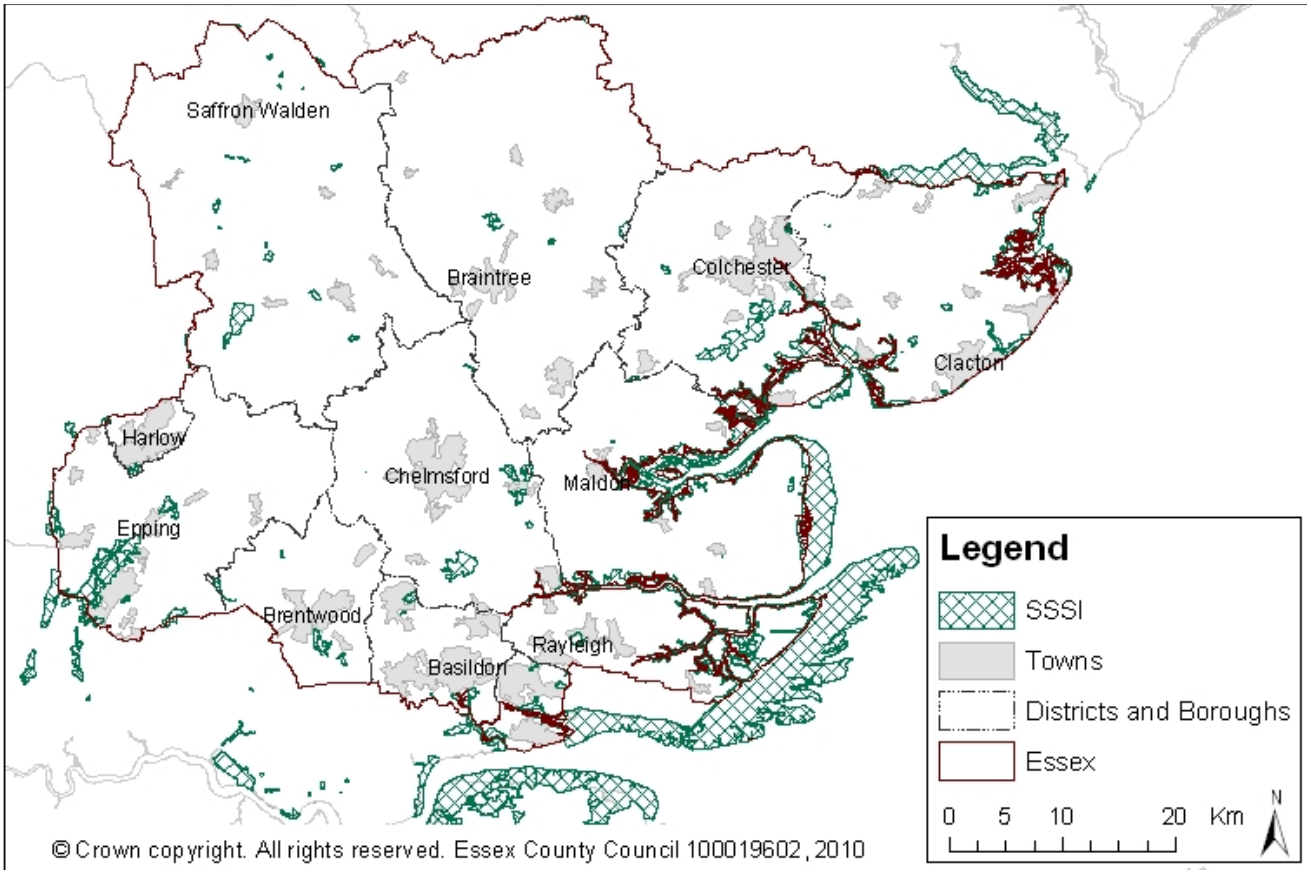


Source: Essex County Council, 2010

2.8.2.3Sites of Special Scientific Interest

Sites of Special Scientific Interest (SSSIs) are designated areas of land which are considered to be of special interest due to their fauna, flora, geological and/or physiographical features. In Essex there are 87 SSSIs covering a total of approximately 37,000 ha, the largest proportion of which are along the coastline as shown in the figure below. There are over 4,000 SSSIs in England.

Figure 9: SSSIs in Essex



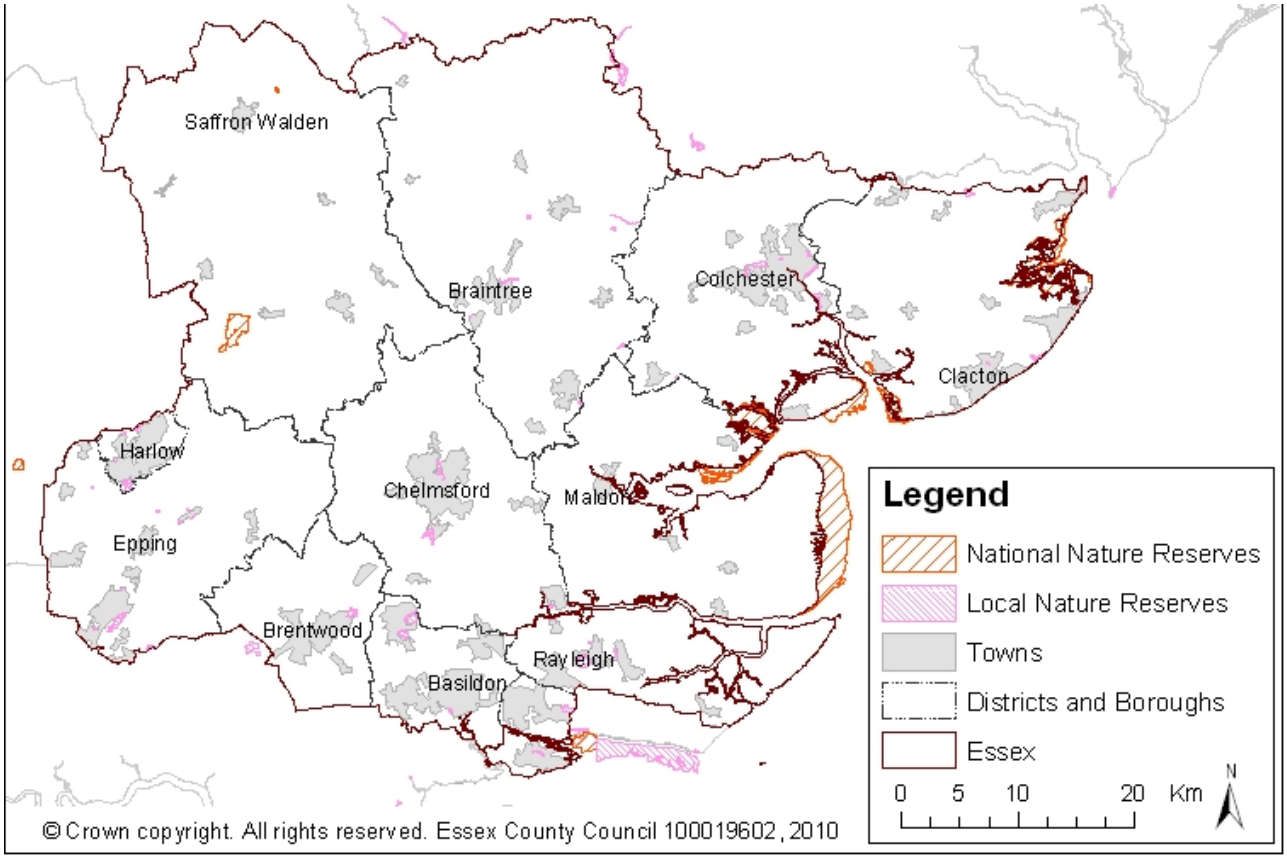
Source: Essex County Council, 2010

2.8.2.4National Nature Reserves

Natural England is the body empowered to declare National Nature Reserves (NNRs) in England, the Reserves being a selection of the very best parts of England's Sites of Special Scientific Interest. It is this underlying designation which gives NNRs their strong legal protection. The majority also have European nature conservation designations.

There are seven NNRs located in Essex. They are the Blackwater Estuary, Colne Estuary, Dengie, Hales Wood, Hamford Water, Hatfield Forest and Leigh. It is important that new primary extraction sites and associated activities do not negatively impact upon these designations through inappropriate location or through associated noise, vibration and pollution.

Figure 10: National Nature Reserves and Local Nature Reserves



Source: Essex County Council, 2010

2.8.2.5Local Nature Reserves

Local Nature Reserves (LNRs) are designated by local authorities in conjunction with Natural England in recognition of their high interest in the local context for their wildlife or wildlife education value; or because they offer an important area for informal enjoyment of nature by the public. There are currently 49 LNRs in Essex as shown in the figure above along with the designated NNRs.

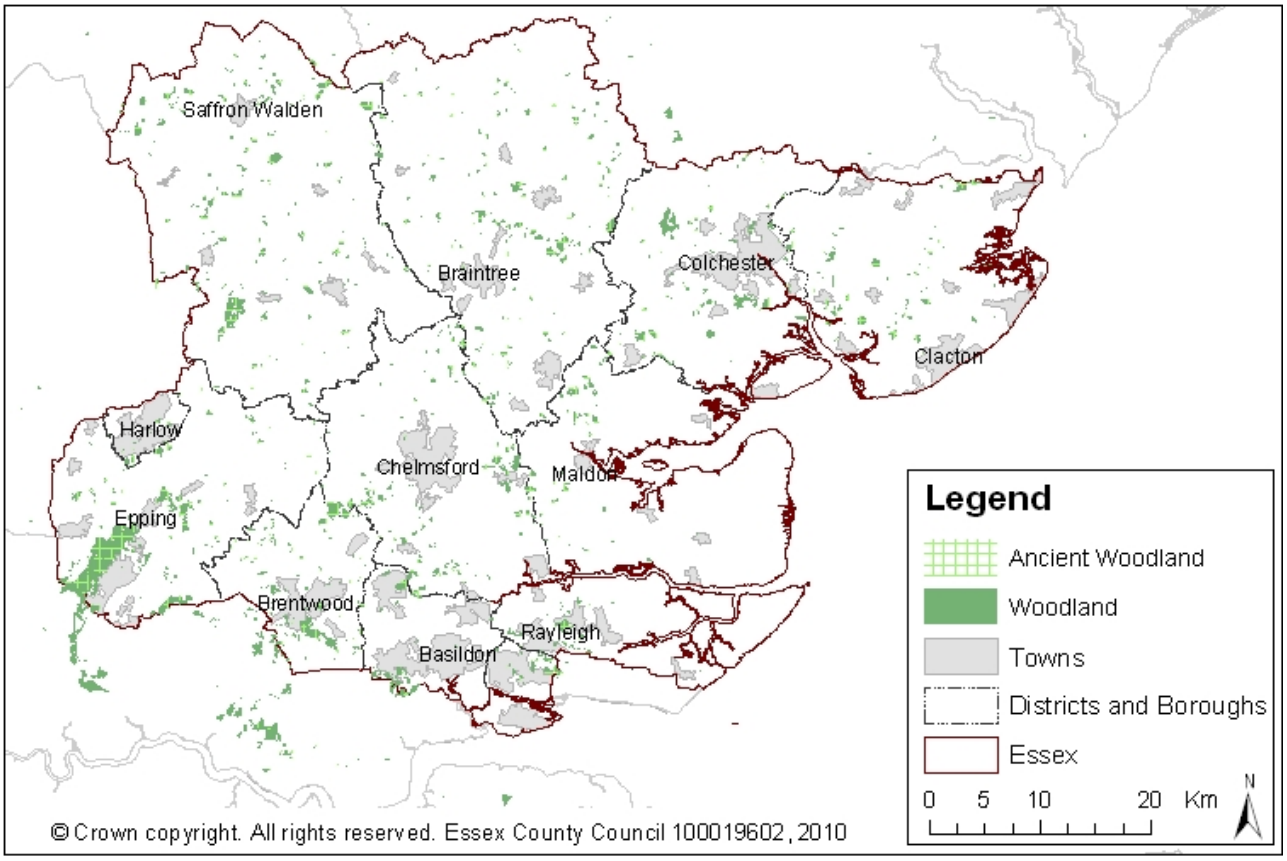
2.8.2.6Local Wildlife Sites

Previously known as Sites of Importance for Nature Conservation (SINC) they are now known as Local Wildlife Sites (LoWS) and support both locally and nationally threatened wildlife species and habitats. In Essex there are approximately 1,440 LoWS covering around 13,000ha and together with statutorily protected areas they represent the minimum habitat to maintain current levels of wildlife. New mineral facilities and sites should not be in areas that would see any decline in these levels of wildlife.

2.8.2.7Woodlands

The amount of woodland has diminished considerably in Essex over time. Three quarters has been lost since the 11th Century. The total wooded area is now 5.7% and this is fragmented and scattered across Essex as shown in the figure below.

Figure 11: Woodland in Essex



Source: Essex County Council, 2010

Ancient woodlands are wooded areas having been in continuous existence since 1600 AD. The amount of ancient woodland should not be reduced through new development, particularly of a large scale. Ancient Woodlands in Essex:

- Cover approximately 12,800ha. or 3.5% of the County;
- Include Epping Forest, clusters in the north-west (e.g. Oxlip woodlands), south-east (e.g. Hockley Woods) and heathland and woodlands on the Danbury ridge.

2.9 Landscapes

2.9.1 Introduction

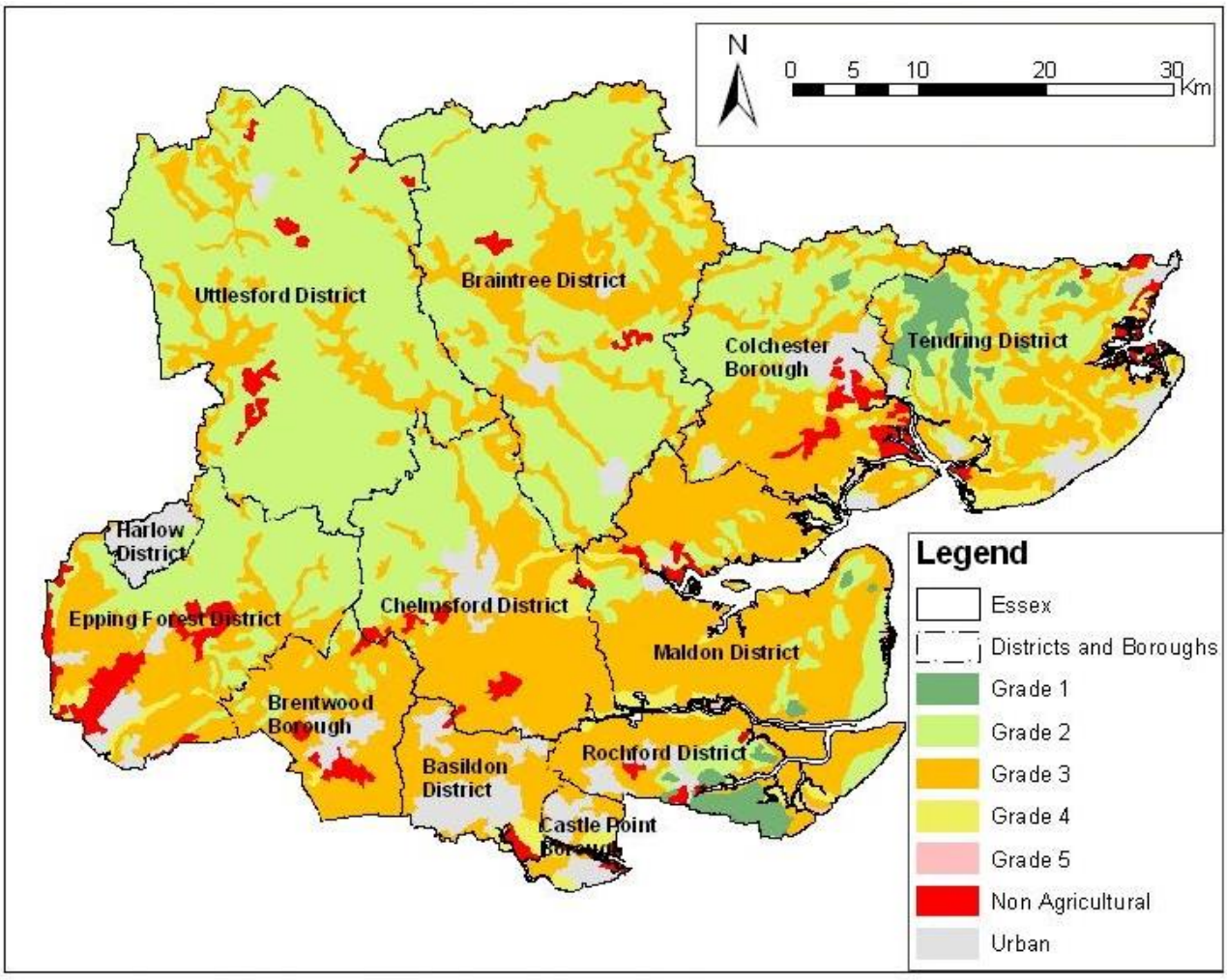
Since the end of the last Ice Age, natural processes and successive human use have shaped the Essex landscape into its present form. The result is a combination of physical components such as landform, visible spatial components and non-visible spatial components which can incorporate sound and cultural associations. It is the combination of these aspects that determines an areas distinctive character, which can then be classified into wider character areas, or remain as distinct unique areas. Within the Essex landscape there are many areas of special interest which have been designated and protected from inappropriate development. The scale and location of mineral sites and activities will have to

adhere to such landscape interest, being either unsuitable for development in certain areas, requiring mitigation to offset any negative impacts, or proven that the benefits of facilities at certain locations outweigh the loss of landscape amenity.

2.9.2 Agricultural Land

Soil types within Essex have also helped to shape the landscape, wildlife and economy of the County. New mineral related activities and sites should not result in a loss of the County's most fertile land through its location or any potential pollution. Agricultural Land is classified by quality in a grading system with Grade 1 being the highest quality and Grade 5 the lowest. Grades 1-3a are classified as the 'best and most versatile agricultural land' (BMV). BMV is the land which is most flexible, productive, and efficient in response to inputs and which can best deliver future crops for food and non food uses such as biomass, fibres and pharmaceuticals.

Figure 12: Essex Agricultural Land Classification



Source: Essex County Council, 2008

In Essex, 75% of the land area is considered agricultural land and over half of this is of high-grade soils as shown in the figure above.

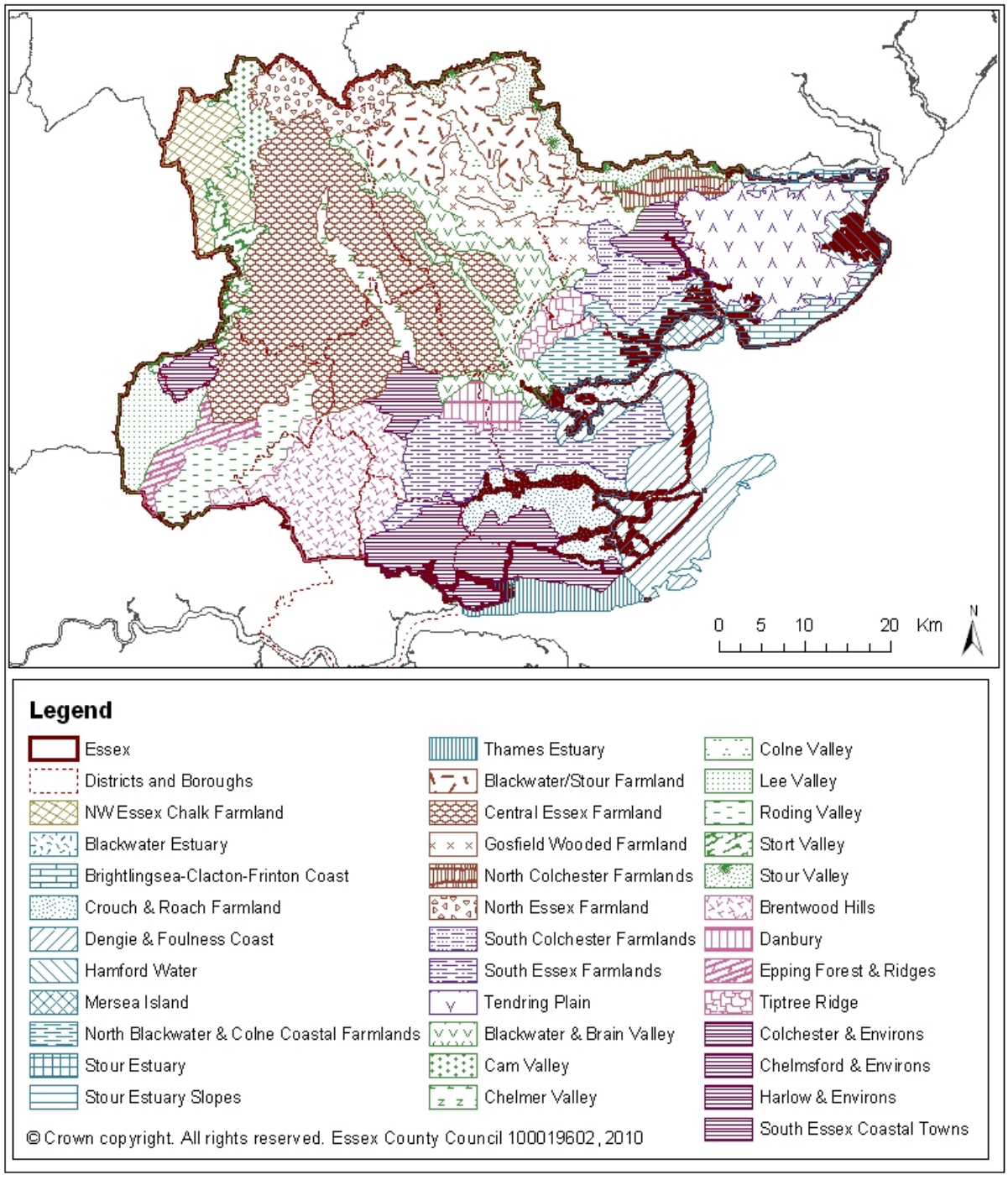
There are significant areas of Grade 1 agricultural land within Tendring and Rochford Districts, and smaller areas within Maldon District and Colchester Borough. Such land would not be suitable for mineral sites and associated facilities and activities. Most agricultural land within Essex can be broadly classified as Grade 2 in the north and Grade 3 to the south. This is related to the location of the Essex till, with better quality land located in the north-west of the County.

Much of Harlow District is classified as an urban area, and to a lesser degree so too is Basildon District and Castle Point Borough. Lands classified as non-agricultural are located within all districts, except for Harlow. Low grade, undesignated non-agricultural and underused agricultural land would be preferable for the location of new mineral sites and strategic mineral facilities.

2.9.3 Landscape Character Areas

The Essex Landscape Character Assessment (Chris Blandford Associates, 2003) is based on the Countryside Agency's guidance, and establishes a 'baseline' of the existing character of the Essex landscape. The assessment involved a broad review of the landscape identifying 35 'Landscape Character Areas' (LCAs) within Essex (the figure below). They are areas with a recognisable pattern of landscape characteristics, both physical and experiential, that combine to create a distinct sense of place.

Figure 13: Essex Landscape Character Areas



Source: Essex County Council

Further to the Landscape Character Assessment carried out in 2003 and the coastal character assessment in 2005, several Essex districts, namely Braintree, Brentwood, Chelmsford, Maldon and Uttlesford, underwent a combined Landscape Character Assessment in 2006. This report divides the County's Landscape Character Areas into a further twenty-two smaller local Landscape Character Areas. This information can be used to

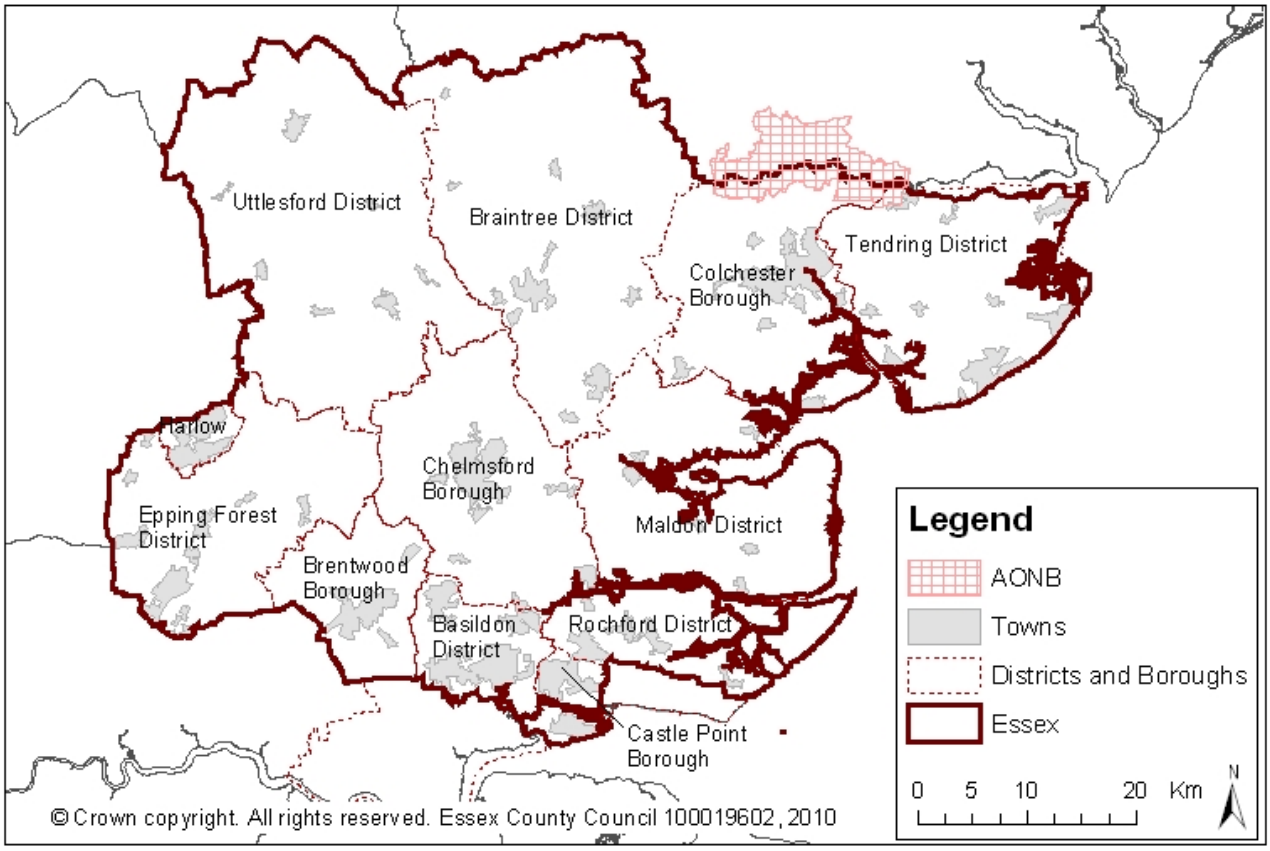
determine the sensitivity of certain landscapes and areas to development and can be utilised in the appraisal of new mineral extraction sites.

2.9.4 Areas of Outstanding Natural Beauty

Areas of Outstanding Natural Beauty (AONBs) are described by Natural England as areas of high scenic quality that have statutory protection in order to conserve and enhance the natural beauty of their landscapes.

There are 34 AONBs solely in England covering approximately 15% of the country. These have been designated for protection under the Countryside and Rights of Way Act 2000.

Figure 14: Area of Outstanding Natural Beauty



Source: Essex County Council, 2010

In Essex there is one AONB, Dedham Vale, which lies on the border of Suffolk and Essex and covers an area of 90 sq. km. It has been designated as such because it is an exceptional example of a lowland river valley. It has an extraordinary range of different scales and special features giving rise to distinctive landscape characters - rolling fields on the valley slopes, lush and sheltered valley-floor meadows and open marshes and intimate tributary valleys of the River Stour. Due to the location of Dedham Vale and the small area of land in the County currently under this designation, it can be seen as unlikely that new

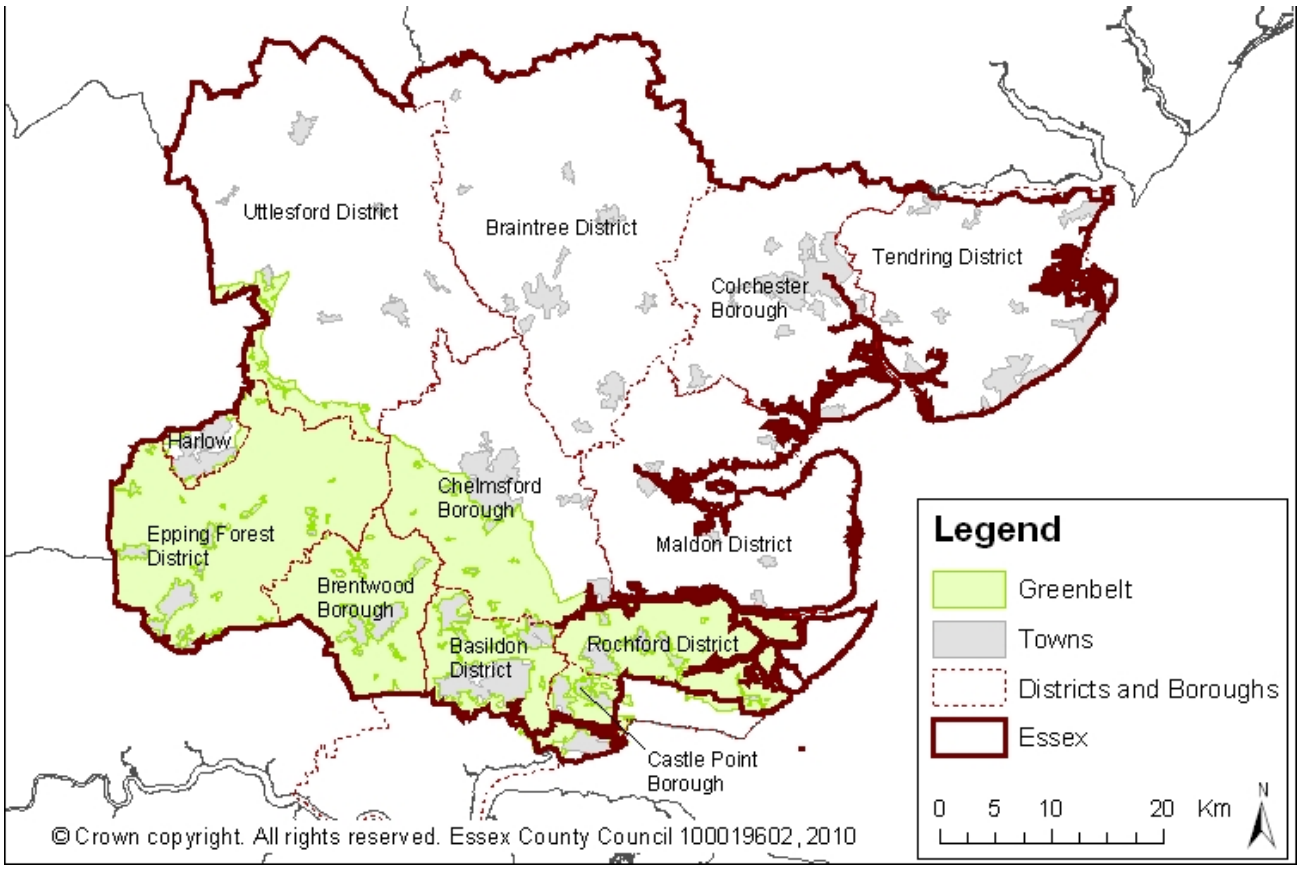
mineral sites and associated facilities will be located in such an area that would negatively impact on any AONB. Not shown in the map is the recently extended Suffolk Coast and Heaths AONB, which can be found in Essex to the immediate south of the Stour Estuary.

2.9.5 Green Belt

The largest green belt within the UK is the Metropolitan Green Belt around London which includes a large area of land in Essex. It is protected by planning policies within Local Plans which enforce restrictions on certain development within the designated area. There are five purposes of including land in Green Belts as set out in NPPF (2019). They are:

- to check the unrestricted sprawl of large built-up areas;
- to prevent neighbouring towns from merging into one another;
- to assist in safeguarding the countryside from encroachment;
- to preserve the setting and special character of historic towns; and
- to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

Figure 15: Metropolitan Green Belt coverage in Essex



Source: Essex County Council, 2010

Table 8: Area of Designated Green Belt Land by Local Planning Authority

Local Planning Authority	Are (Hectares)	Local Planning Authority	Area (Hectares)
Basildon	7,000	Harlow	640
Brentwood	13,700	Rochford	12,760
Castle Point	2,750	Uttlesford	3,810
Chelmsford	12,900	Essex	85,240
Epping Forest	31,680		

Source: CLG, March 2011

Of the 85,240 hectares of greenbelt in Essex, the biggest proportions can be found in Epping Forest (37%) and Brentwood (16%). It should be noted however that Green Belt release, leading to its development, is proposed in the majority of the emerging Local Plans of the above LPAs.

2.9.6 Protected Lanes

Protected lanes have significant historic and landscape values. They generally originate from pre-historic track ways, which have been in continual (if lighter) use since. Protected lanes are often narrow, sunken and enclosed by a combination of mixed deciduous hedges and mature trees, ditches and raised verges that can be indications of great age.

The volume weights and speed of traffic is often limited to preserve the special character and due to their age and use they also have great biological value. This would distance their use as access routes for mineral related vehicles.

2.9.7 Special Verges

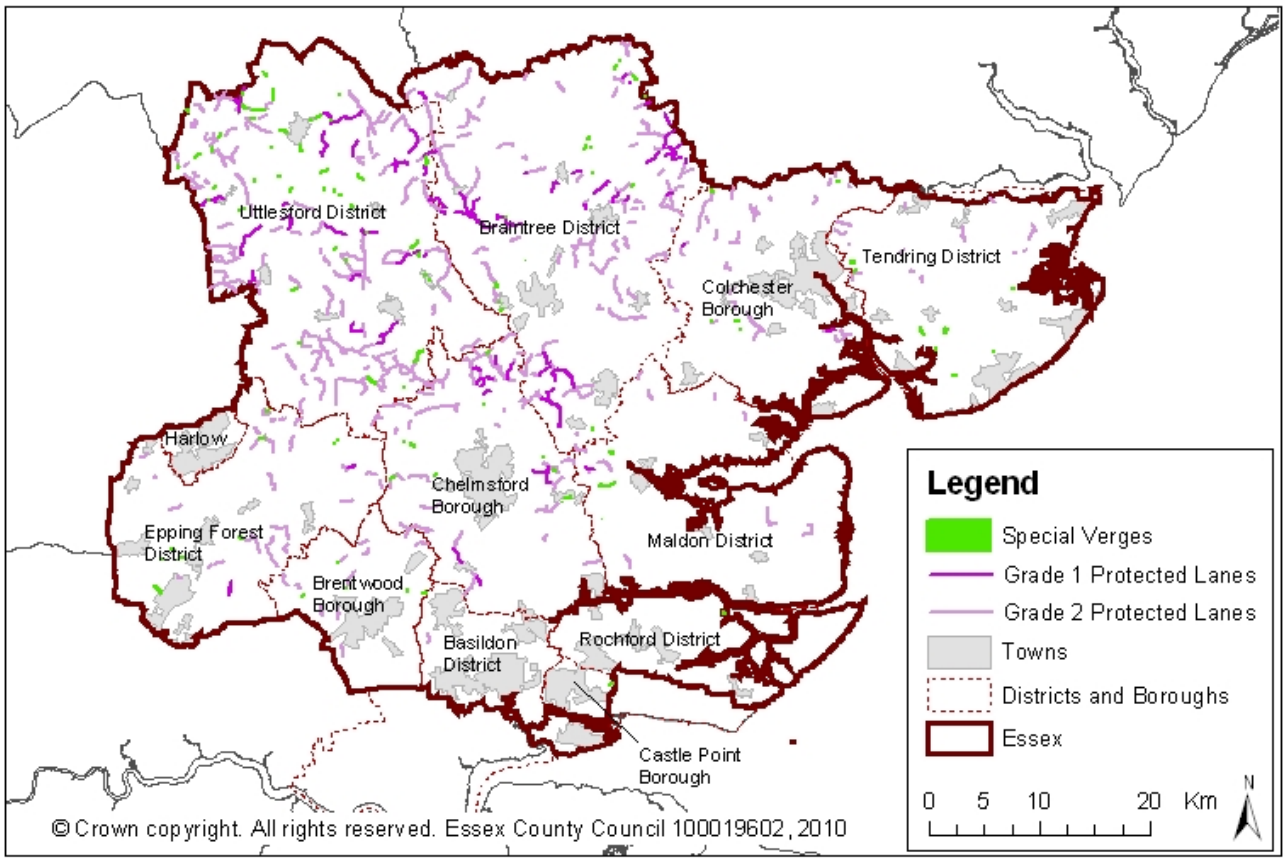
Roadside Verges are important and if sensitively managed they can increase the biodiversity of the verges themselves and from that the surrounding countryside. The reason for this is that verges can act as corridors interlinking fragmented or isolated habitats. In terms of wildlife value, verges can be split into three broad types:

- Landscaped and intensively managed verges: poorest quality.
- Recently created verges left to colonise naturally: vary in ecological value.

- Ancient verges: often of high ecological value.

With this in mind, in the 1970s, Essex County Council Highways Agency, Nature Conservancy Council and Essex Wildlife Trust identified a number of important verges which were subsequently designated as Special Roadside Nature Reserves. They aim to protect the future of rare and uncommon flowers growing on them. As such, access routes for mineral related vehicles should seek to deviate away from these verges. There are over 100 special verges designated in Essex.

Figure 16: Special Verges and Protected Lanes in Essex



Source: Essex County Council, 2010

2.10 Water

2.10.1 Introduction

Water policy in England aims to protect both public health and the environment by maintaining and improving the quality of water. In addition to the ever-increasing demand from human uses, water contributes to the natural environment, having ecological, aesthetic, scientific, educational and recreational value. The quality of water resources can be severely affected by mineral operations and landfill, where the quality of groundwater and

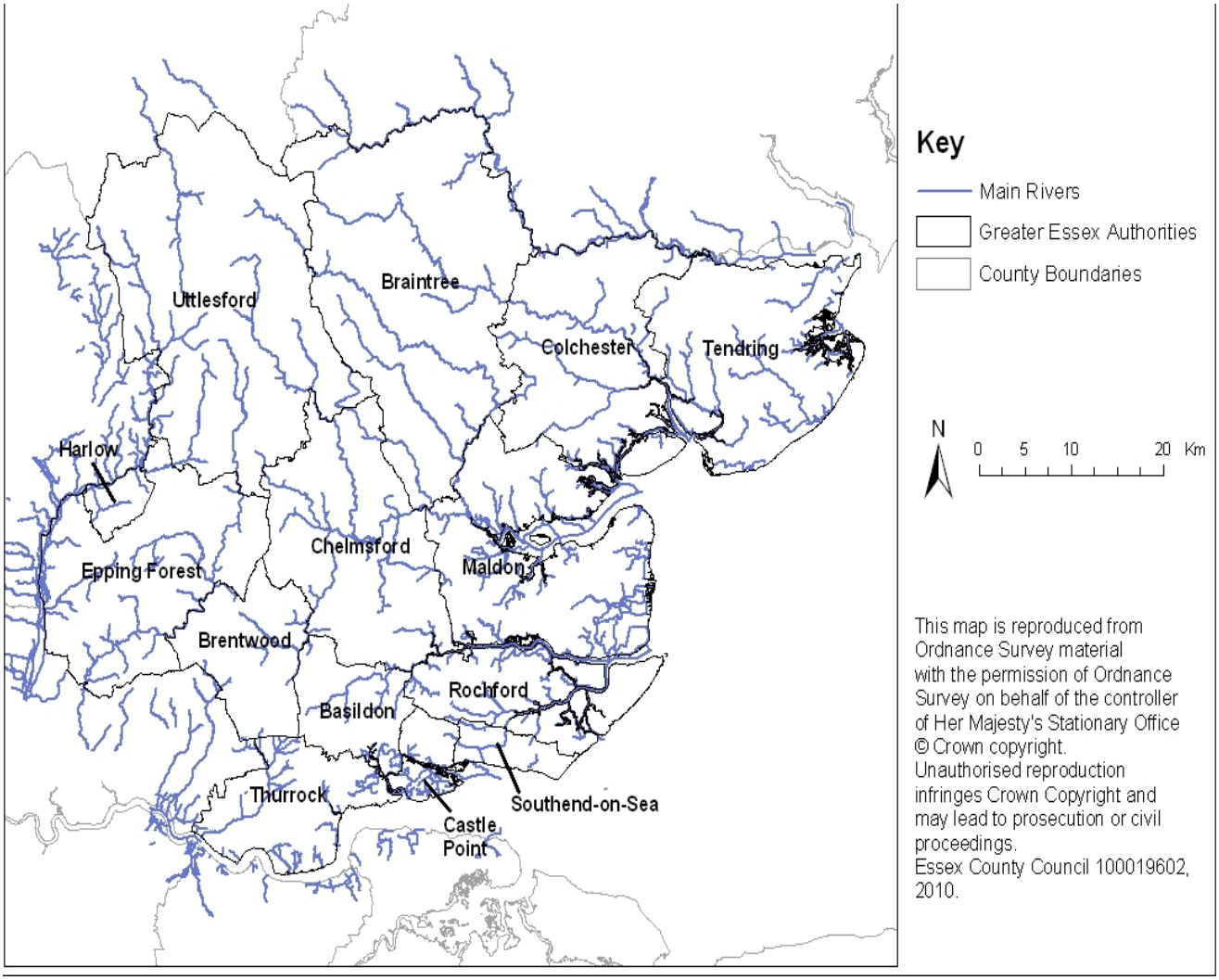
waterbodies can become compromised by leachates. Considerations will include the proximity of vulnerable surface and groundwater.

In England, the Department for Environment, Food and Rural Affairs (Defra) oversees water policy. The Environment Agency makes sure that these policies are carried out and they have a responsibility to protect and enhance the environment.

2.10.2 Inland Water Resources in Essex

The figure below shows the location of the main water courses running through Essex.

Figure 17: Rivers in Essex



Source: Essex County Council, 2010

The main rivers in the north of Essex are:

- Stour
- Colne
- Pant/Blackwater and
- Chelmer

The main rivers in the south of Essex are:

- Mardyke
- Crouch
- Roach
- Asheldham Brook

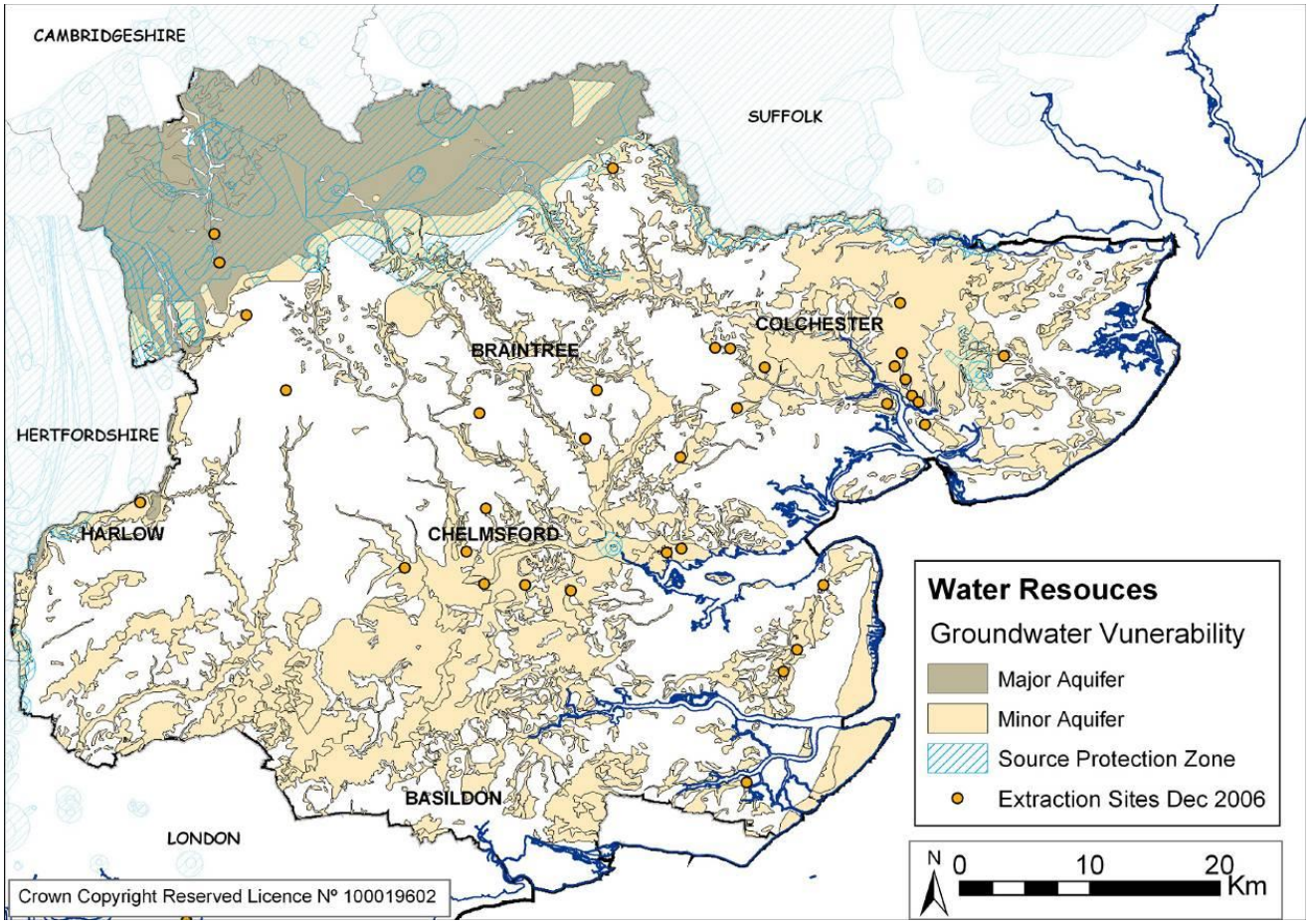
The main rivers in the west of Essex are:

- Lee
- Roding
- Stort

Essex is bounded by the River Thames to the South of the County. Mineral sites and facilities should not cause a decline in water quality where possible. Effects on water quality should be mitigated and minimised through effective (surface water) drainage mechanisms.

As well as surface water resources, the north of Essex, as outlined in the figure below, contains Chalk, Crag and Drift aquifers. The Chalk aquifer is the largest and most important type. It is used primarily for public water supply and spray irrigation. The Crag and Drift aquifers are overlain by sands and gravels of varying thickness which are locally important minor aquifers.

Figure 18: Aquifers in Essex



Source: Essex County Council, 2010

The majority of Essex has a very low contamination vulnerability rating. It is only the northern part of the county, including Halstead and Saffron Walden that has a higher vulnerability because of the porosity of the underlying chalk. In addition to natural water bodies there are various artificial water bodies in the county, especially reservoirs created through mineral extraction. Hanningfield and Abberton are Essex's largest inland water resources.

2.10.3 River Basin Management Plans

2.10.3.1 Water Quality

The European Water Framework Directive requires member states to identify the individual river basins within their national territory and assign them to River Basin Districts (RBDs). Essex falls within two River Basin Districts; the River Basin Management Plan for the Anglian RBD and the River Basin Management Plan for the Thames RBD although it is primarily within the former. These plans highlight the pressures facing the water environment and the actions that will address them.

Table 9: Water Quality – Anglian River Basin District

Status	River, canals and SWTs	Lakes and SSSI ditches	Estuaries	Coastal	Surface waters combined	Ground water
% of water bodies at good or better ecological status /potential now	10%	15%	11%	15%	11%	N/A
% of water bodies predicted to be at good ecological status /potential or better by 2021	13%	17%	11%	15%	13%	N/A
% of water bodies with an objective of good ecological status /potential or better	42%	57%	22%	31%	43%	N/A
% of water bodies at good chemical status now	99%	98%	100%	100%	99%	N/A
% of water bodies predicted to be at good chemical status by 2021	99%	98%	100%	100%	99%	N/A
% of water bodies with an objective of good chemical status	>99%	100%	100%	100%	>99%	N/A
% of water bodies at good or better overall status now	10%	15%	11%	15%	11%	29%

Status	River, canals and SWTs	Lakes and SSSI ditches	Estuaries	Coastal	Surface waters combined	Ground water
% of water bodies predicted to be at good or better overall status by 2021	13%	17%	11%	15%	13%	32%
% of water bodies with an objective of good or better overall status	42%	57%	22%	31%	43%	55%

Source: River Basin management Plan for Anglia river basin district, December 2015

Note: SWTs – Surface Water Transfers

The overall percentages of rivers, canals and surface water transfers in the Anglia River Basin District are expected to improve in ecological, chemical and biological status by 2021. This is also the case regarding lakes and SSSI ditches and combined surface waters. There is expected to be no percentage improvement or decline in estuaries or coastal waters.

The Anglian River Basin District is subdivided into catchment areas and the Essex Rivers catchment area lies within the counties of Essex and Suffolk as well as a small part of Cambridgeshire. It encompasses the rivers and tributaries of the Stour, Colne, Pant/Blackwater, Chelmer, Crouch and Roach, along with the smaller catchments of Sixpenny, Tenpenny, Holland and Asheldham Brook.

Table 10: Water Quality – Thames River Basin District

	River, canals and SWTs	Lakes and SSSI ditches	Estuaries	Coastal	Surface waters combined	Ground water
% of water bodies at good or better ecological status/potential now	6%	15%	50%	0%	8%	N/A
% of water bodies predicted to be at	8%	18%	50%	0%	10%	N/A

	River, canals and SWTs	Lakes and SSSI ditches	Estuaries	Coastal	Surface waters combined	Ground water
good ecological status /potential or better by 2021						
% of water bodies with an objective of good ecological status /potential or better	56%	68%	60%	0%	58%	N/A
% of water bodies at good chemical status now	99%	100%	100%	100%	99%	N/A
% of water bodies predicted to be at good chemical status by 2021	99%	100%	100%	100%	99%	N/A
% of water bodies with an objective of good chemical status	>99%	100%	100%	100%	>99%	N/A
% of water bodies at good or better overall status now	6%	15%	50%	0%	8%	40%
% of water bodies predicted to be at good or better overall status by 2021	8%	18%	50%	0%	10%	45%
% of water bodies with an objective of good or better	56%	68%	60%	0%	58%	64%

	River, canals and SWTs	Lakes and SSSI ditches	Estuaries	Coastal	Surface waters combined	Ground water
overall status						

Source: River Basin Management Plan for the Thames River Basin District, December 2015

Note: SWTs – Surface Water Transfers

The overall percentage of rivers, canals and surface water transfers in Thames River Basin District are expected to improve in ecological, chemical and biological status but 2021. There is expected to be improvement in the ecological and biological status of lakes and surface waters combined. There is expected to be no percentage improvement or decline in estuaries for ecological, chemical or biological status by 2021.

2.11 Climate & Energy

2.11.1 Introduction

Planning's role is not only to shape sustainable communities which are resilient to future climates but to reduce emissions and minimise the human impact on the environment. Changes in climate are inevitable and 'PPS: Planning and Climate Change' acknowledges that in the future "*we are likely to see more extreme weather events, including hotter and drier summers, flooding and rising sea-levels increasing the risk of coastal erosion*" in the UK.

Mineral development has important climate change impacts, particularly with regards to the problem of transporting such a bulky resource

2.11.2 Climate Change Projections

The UK Climate Impact Programme has developed the UK Climate Change Projections 2009 (UKCP09) which models future climate scenarios for the UK.

The key findings from UKCP09 of how our climate might change in the future are:

- All areas of the UK will get warmer, and the warming is greater in summer than in winter. Across the UK, central estimates of the average regional summer (June, July, August) temperature rise in the 2080s are between 3 and 4°C.
- Across the UK, central estimates of regional average summer precipitation change are projected to be between -17% to -23% in the 2080s.
- Greater sea level rise in the south of the UK than the north. The central estimates for sea level rise (taking into account land movement) show that sea level is projected to rise by 18cm in London by 2040 and 36cm by 2080.
- Across the UK, central estimates of regional average winter precipitation change

are projected to be in the region of +14% (NE) to +23% (SW), in the 2080s.

- Reaching a peak in global emissions in 2016 and achieving a 4% decrease per year thereafter, a global temperature rise to 1.8°C by 2050 is expected, which would then stabilise at about 2°C by 2100.

Key findings for the East of England for the 2080s (based on medium (current) emissions scenario) are:

- Under medium emissions, the central estimate of increase in winter mean temperature is 3ºC; it is very unlikely to be less than 1.6ºC and is very unlikely to be more than 4.7ºC.
- Under medium emissions, the central estimate of increase in summer mean temperature is 3.6ºC; it is very unlikely to be less than 1.9ºC and is very unlikely to be more than 5.9ºC.
- Under medium emissions, the central estimate of change in winter mean precipitation is 20%; it is very unlikely to be less than 4% and is very unlikely to be more than 44%.
- Under medium emissions, the central estimate of change in summer mean precipitation is –20%; it is very unlikely to be less than –44% and is very unlikely to be more than 6%.

Sea level rise and subsidence will lead to more frequent flooding of coastal areas. Increased temperatures and greater fluctuation in annual precipitation will further increase pressure on water resources. With this in mind it is possible to determine the potential flood risk that mineral sites can add to water bodies in areas of concern. Essex is already one of the driest areas in the UK.

2.11.3 CO2 Emissions

Changes in land use, and various industrial processes are adding heat-trapping gases, particularly carbon dioxide (CO_2), to the atmosphere. There is now roughly 40% more CO_2 in the atmosphere than there was before the industrial revolution. One of the main causes of increased CO_2 in the atmosphere is through the burning of fossil fuels for electricity and transportation.

Table 11: Reduction is CO2 Emissions across Essex

Area	2017 per Capita CO2 Emissions (tonnes)	Reduction since 2012 (%)	Area	2017 per Capita CO2 Emissions (tonnes	Reduction since 2012 (%)
Basildon	4.2	26.32	Epping Forest	7.8	9.30

Area	2017 per Capita CO2 Emissions (tonnes)	Reduction since 2012 (%)	Area	2017 per Capita CO2 Emissions (tonnes	Reduction since 2012 (%)
Braintree	4.7	21.67	Harlow	4.2	33.33
Brentwood	6.2	16.22	Maldon	3.9	29.09
Castle Point	3.2	21.95	Rochford	3.5	25.53
Chelmsford	4.9	23.44	Tendring	4	23.08
Colchester	4.3	25.86	Uttlesford	9	14.29
			Essex Average	5	22.51

Source: DEFRA, 2019

Within Essex, Uttlesford District residents emitted the highest per capita amount of CO2 at 9t with Castle Point residents emitting the least at 3.2t. The Essex average was recorded at 5t.

There was a 22.51% per capita reduction in CO2 emissions across Essex between 2012 and 2017. All local authorities in the plan area experienced a reduction in CO2 emissions per capita. The greatest CO2 emissions reduction per capita was in Harlow, achieving a 33.33% reduction between 2012 and 2017. The location of new extraction sites and extractions facilities should not compromise any district or borough's reductions beyond what is reasonably acceptable.

Table 12: CO2 Emissions in Kilotonnes by Sector 2017

Authority	Industrial & Commercial	Domestic	Transport	Total
Basildon	209 (27.1)	249 (32.3)	312 (40.5)	770
Braintree	168 (22.8)	218 (29.6)	350 (47.6)	736

Authority	Industrial & Commercial	Domestic	Transport	Total
Brentwood	77 (16.0)	132 (27.4)	272 (56.5)	481
Castle Point	44 (15.2)	140 (48.4)	105 (36.3)	289
Chelmsford	198 (22.5)	260 (29.5)	422 (48.0)	880
Colchester	196 (23.6)	259 (31.2)	376 (45.2)	831
Epping Forest	145 (14.1)	220 (21.3)	667 (64.6)	1,032
Harlow	148 (41.0)	110 (30.5)	103 (28.5)	361
Maldon	82 (31.1)	99 (37.5)	83 (31.4)	264
Rochford	60 (19.8)	132 (43.6)	111 (36.6)	303
Tendring	133 (22.3)	221 (37.1)	242 (40.6)	596
Uttlesford	118 (14.5)	144 (17.7)	551 (67.8)	813
Essex	1,575 (21.4)	2,183 (29.7)	3,593 (48.9)	7,351

Source: DBEI, 2019

In Essex the largest proportion of CO2 emissions produced in 2017 was within the transport sector, accounting for 48.9% of total CO2 emissions, followed by the domestic sector which produced 29.7%. Recycling facilities and where possible, primary extraction sites should be located in strategic locations in order to minimise emissions produced through transportation around the County, which equate to 3,593kt of CO2 in 2017.

2.11.4 Flooding and Flood Risk

2.11.4.1 Introduction

River flooding is a natural process that plays an important role in shaping the natural environment. The effects of heavy and/or prolonged rainfall can be increased in severity as

a result of planning decisions relating to the location, design, nature of settlement and land use. Increasingly flooding is viewed as a potential consequence of future climate change.

Although flooding cannot be completely prevented, its impacts can be avoided and reduced through good planning and land management. Data compiled on this subject is useful to identify whether broad potential future locations for development represent the most appropriate choices. Impacts on water flows may arise from the presence of hard surfaces being located in previously soft surfaced areas. The larger the facility or plant, the more significant such effects could become, especially if located near water-bodies associated with flooding. Drainage systems may be required to ensure that such effects are minimised.

2.11.4.2 Flood Zones

NPPF requires development to be carried out in areas of as low a risk of flooding as possible. A risk-based sequential test should be applied at all stages of the planning process. The aim is to steer new development to areas with the lowest probability of flooding.

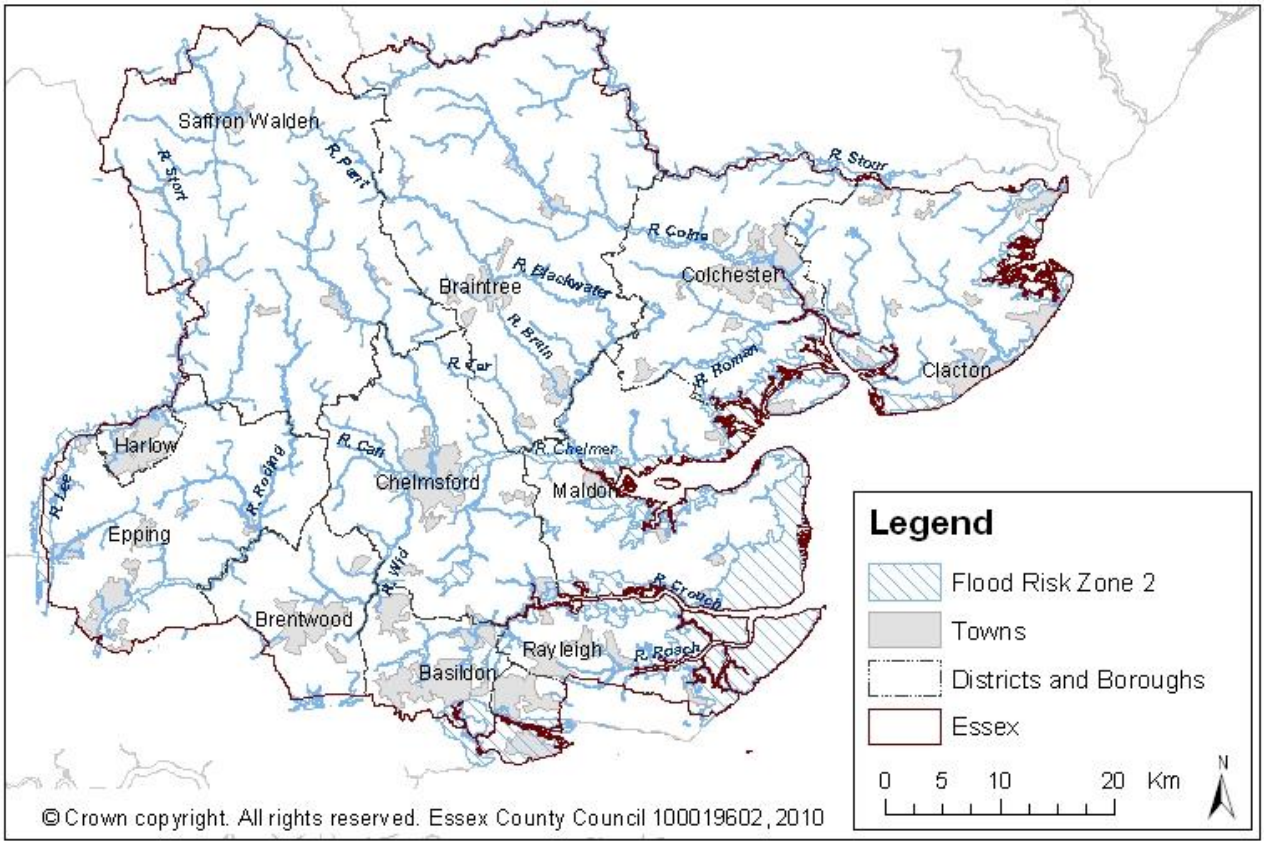
It is recognised that sand and gravel extraction is a water compatible use. Sequential working and restoration can be designed to reduce flood risk by providing flood storage and attenuation. This is likely to be most effective at a strategic (county) scale. Operations can pose a pollution threat. Risks will need to be fully taken into account in applying the sequential approach. Sand and gravel extraction are however considered to be a water-compatible use and their presence is permitted in Flood Zone 3a.

A hierarchy of flood zones for application of the sequential test is defined as:

- Zone 1 - Low Probability: Encompasses land assessed as having a less than 1 in 1000 annual probability of flooding in any year (<0.1%).
- Zone 2 - Medium Probability: Comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1%).
- Zone 3a - High Probability: Covers land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) in any year.
- Zone 3b - The Functional Floodplain: This zone consists of land where water has to flow or be stored in times of flood. It is land which would flood with an annual probability of 1 in 20 (5%) or greater in any year.

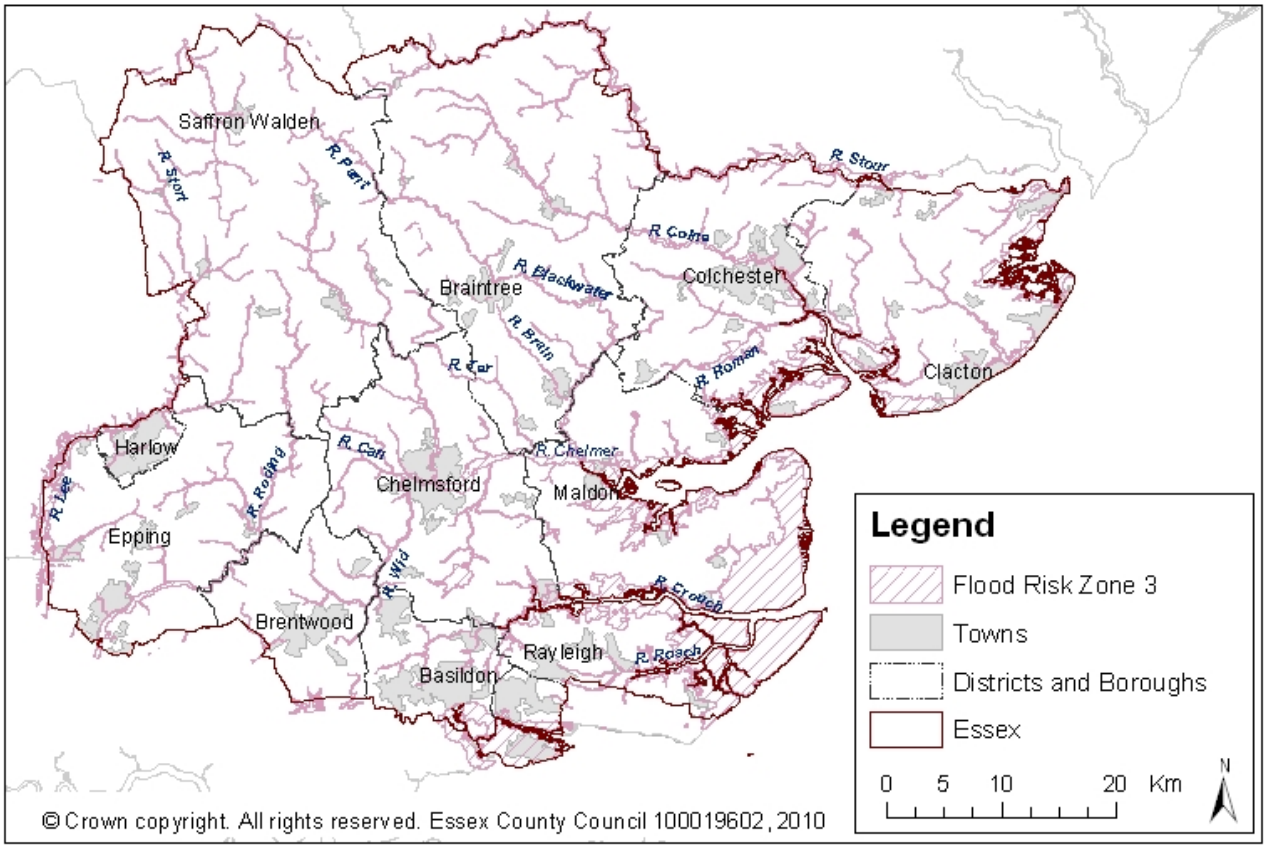
The two figures below show the locations in Essex which are within flood zone 2 and flood zone 3. The Essex coastline is at risk of flooding as well as river floodplains which include the rivers Stour, Colne, Chelmer, Crouch and the Thames estuary. As climate change continues, flood risk is likely to increase.

Figure 19: Flood Risk Zone 2



Source: Essex County Council

Figure 20: Flood Risk Zone 3a

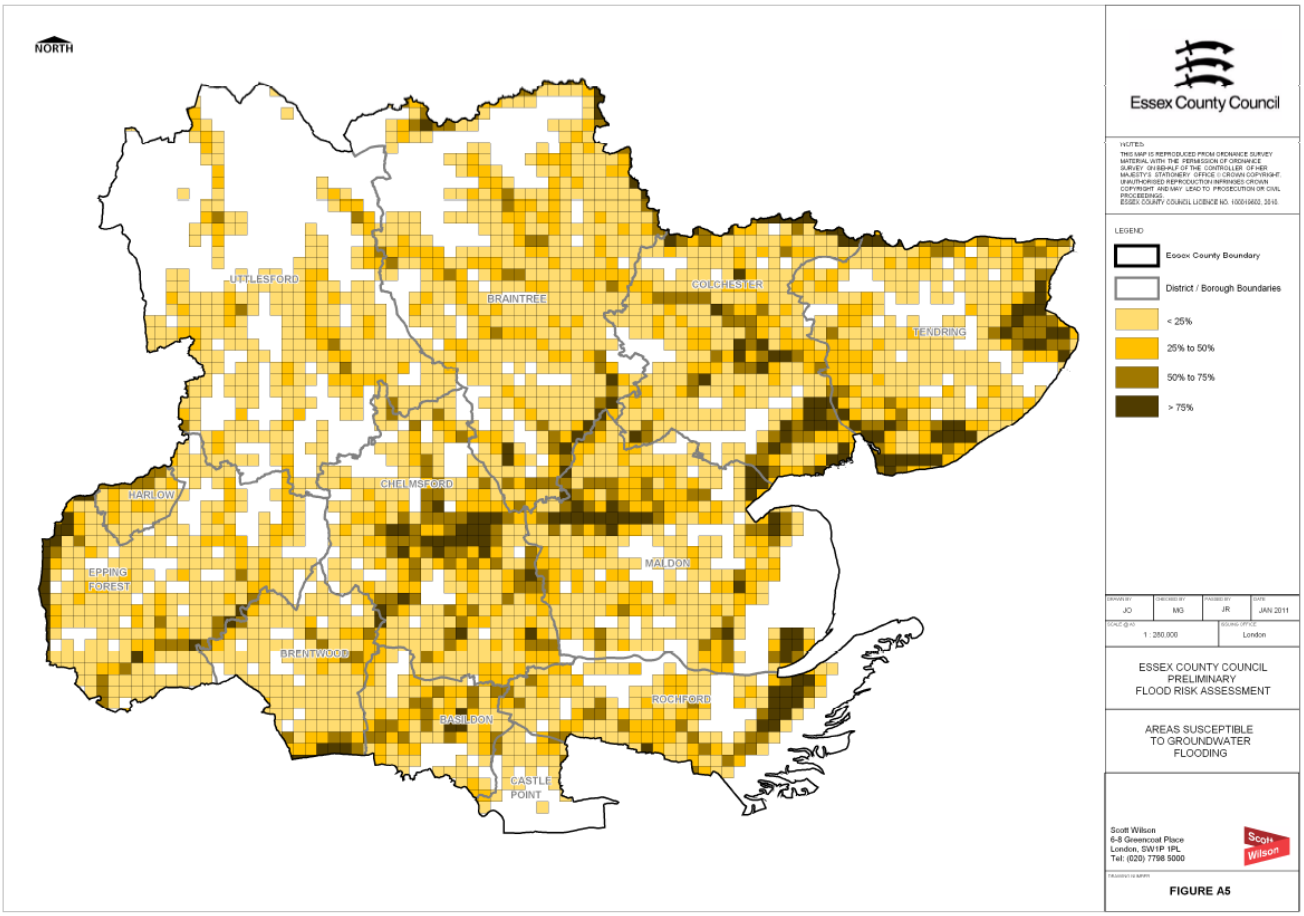


Source: Essex County Council, 2010

2.11.4.3 Groundwater Flood Risk

There is no available information on future groundwater flood risk in Essex however the Environment Agency's dataset for areas susceptible to groundwater flooding is shown in the figure below.

Figure 21: Area Susceptible to Groundwater Flooding



Source: Essex County Council Preliminary Flood Risk Assessment, January 2011

2.12 Air

2.12.1 Introduction

The transportation of minerals to various sites throughout the County is an important issue with regard to associated air quality through vehicle emissions. In addition to transport related air quality aggregate recycling dust from surface mineral operations can have a noticeable environmental impact and affect the quality of life of local communities. Amenities can potentially be affected by dust up to 1km from the source, although concerns are most likely to be experienced near to dust sources, generally within 100 m, depending on site characteristics and in the absence of appropriate mitigation

2.12.2 Air Quality Management Areas (AQMAs)

Each local authority in the UK has been carrying out reviews and assessments of air quality within their area since December 1997. The aim of reviewing and assessing the information is to ensure that future and current air quality objectives can be achieved by the deadlines set. If a local authority has an area with measurements of air pollution that are unlikely to meet the objectives, an Air Quality Management Area (AQMA) must be declared. The size of this area can vary from a section of one street to a much larger area of the locality. Likely routes for the transportation of mineral arisings should deviate from these areas where possible. In 2017, 0.6% of Essex's population was recorded living within an AQMA, which was higher than the national average for England at 0.2%.

Air quality in Essex is generally good. The air quality in Essex is influenced by its close proximity to mainland Europe whilst most industrial processes in Essex are concentrated along the Thames Estuary. There are currently 7 AQMAs within the Plan Area.

Table 13: Number of AQMAs within each District/Borough in Essex

Local Authority	Number of AQMAs	Local Authority	Number of AQMAs
Basildon	0	Epping Forest	1
Braintree	0	Harlow	0
Brentwood	3	Maldon	1
Castle Point	0	Rochford	1
Chelmsford	2	Tendring	0

Local Authority	Number of AQMAs	Local Authority	Number of AQMAs
Colchester	3	Uttlesford	1

Table 14: Location of AQMAs within each District/Borough in Essex

Local Authority	AQMA	Pollutant
Brentwood	A12 / Brook Street	NO2
Brentwood	A12 / Warescot Road / Hurstwood Avenue / Ongar Road	NO2
Brentwood	A128 / A1023 (Wilson's Corner)	NO2
Chelmsford	The Army and Navy Roundabout	NO2
Chelmsford	Gay Bowers Lane & Danbury Village Green	NO2
Colchester	Central corridors	NO2
Colchester	East Street and the adjoining lower end of Ipswich Road	NO2
Colchester	Lucy Land North, Stanway	NO2
Epping Forest	Near the B1393 / Theydon Road junction at Epping, Bell Common	NO2
Maldon	Stretch of Market Hill between Anchorage Hill and Bull Lane, Maldon	NO2
Rochford	Rayleigh Weir junction to and encompasses the Rayleigh town centre one-way system	NO2
Uttlesford	Circle of radius 1400m centred on Elm Grove in Saffron	NO2

Local Authority	AQMA	Pollutant
	Walden Town Centre	

Source: Defra, 2020

All of the AQMAs have been designated due to increased levels of nitrogen dioxide with some also reporting elevated emissions of PM_{10}. This infers that the levels of nitrogen dioxide at these sites exceed the National Air Quality Standard of 200µg.m^{-3} more than 18 times in a single year or that the annual mean target of 40µg/m^{-3} is being exceeded. High levels of nitrogen dioxide can have adverse effects on human health relating to the respiratory system. PM_{10} emissions at certain sites would have been found to exceed the 40µg/m^{-3} annual target and/or the maximum number of tolerated annual exceedances of the PM_{10} threshold of 50µg/m^{-3}.

2.12.3 Air Quality & Public Health in Essex

"Even short-term exposure to high levels of air pollution can cause a wide range of negative health effects – it can trigger asthma, affect lung function, and increases hospital admissions, as well as mortality." – Essex Highways

In 2017, air pollution levels (as measured by fine particulate matter) for Essex were 9.8%, which was higher than both the regional average (9.7%) and the national average for England (8.9%). In 2018, the fraction of mortality attributable to particulate air pollution for Essex was 5.5%, which was higher than the national average for England at 5.2%. Nitrogen Dioxide appears to be the most common air pollutant in Essex.

Figure 22: Fraction of mortality attributable to particulate air pollution in Essex

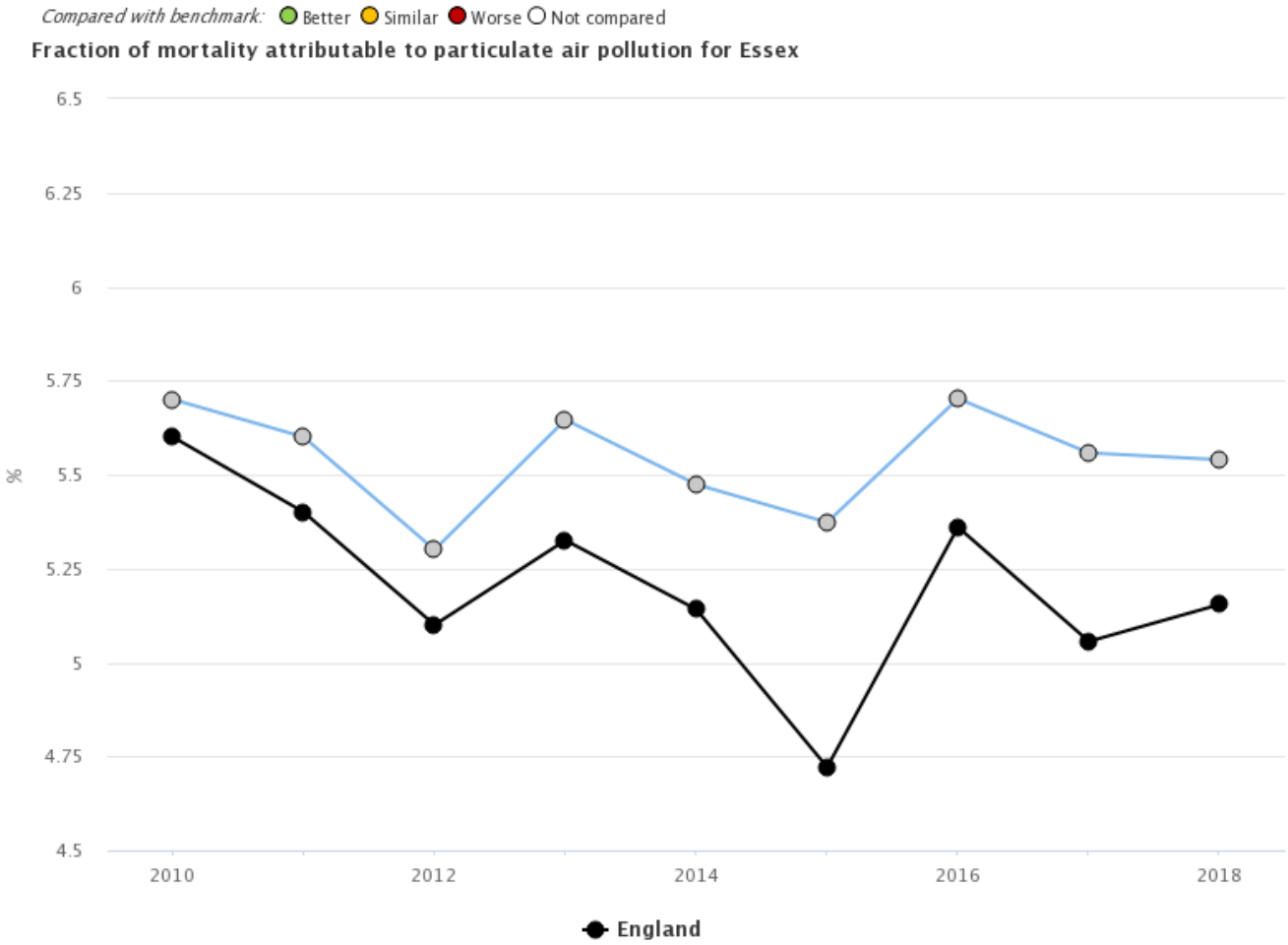
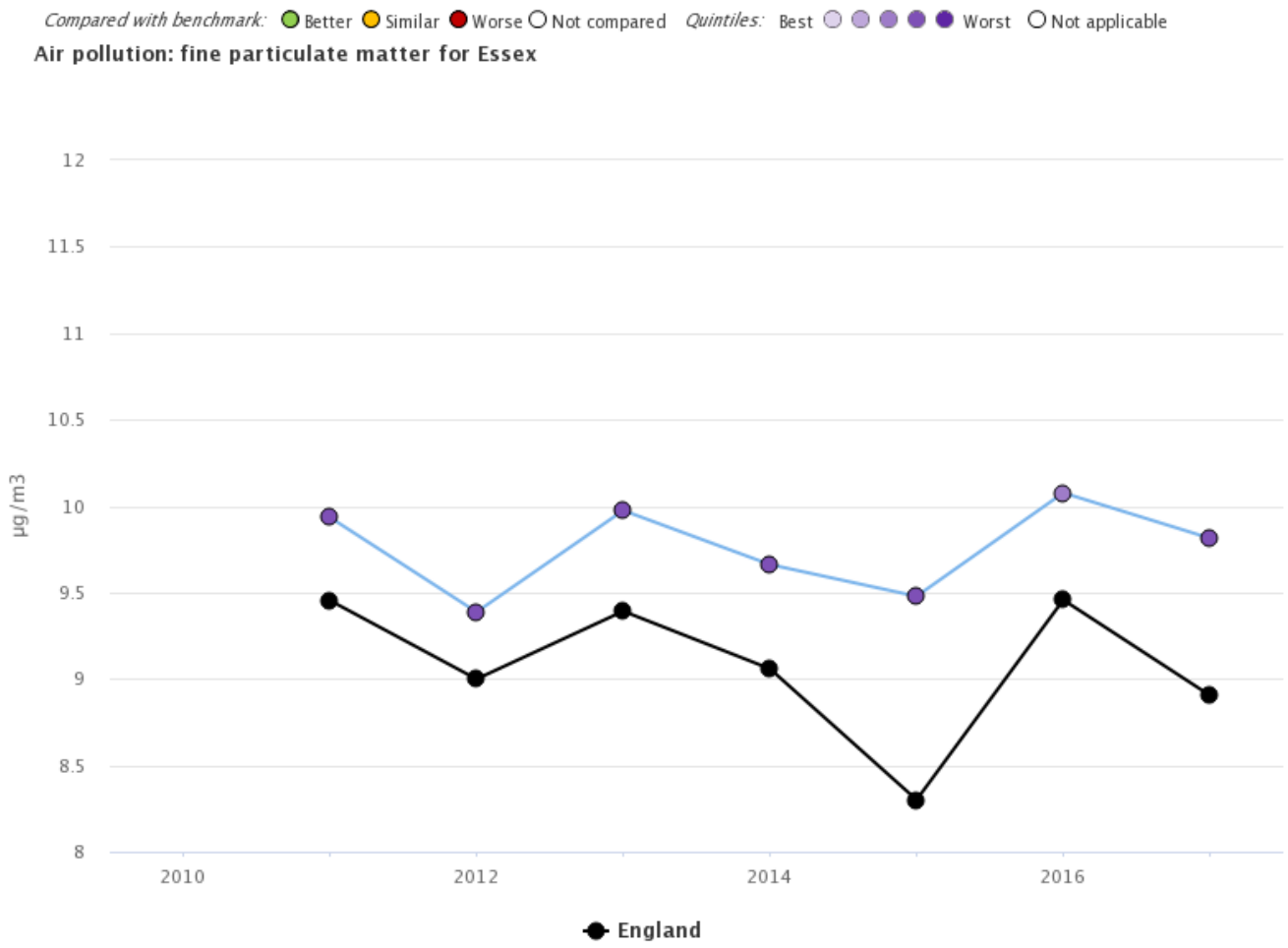


Figure 23: Air Pollution – fine particulate matter for Essex



2.13 Noise

2.13.1 Introduction

Noise from mineral sites can also be created from associated machinery and impact on neighbouring developments. It is good practice for noise generating activities to be positioned away from site boundaries. Existing buildings can also be used to shield the noise source. Unfortunately monitoring these sources of noise is problematic and can not therefore be included in this baseline chapter.

2.13.2 Ambient Noise

Ambient or environmental noise is defined as noise which is either unwanted or harmful. It is created by human activities and includes noise emitted by transport including road, rail and air traffic, as well as from sites of industrial activity. Mapping of ambient noise in England was carried out during 2006-07 in line with the Government's work to implement the EU's

Environmental Noise Directive.

Table 15: Summary of Key Terms

Term	Explanation
dB(A)	A unit of sound pressure level, adjusted in accordance with the A waiting scale, a scale which takes into account the increased sensitivity of the human ear at some frequencies
Lden	The day, evening and night level. Lden is a logarithmic composite of the Lday, Levening and Lnight levels but with the 5dB(A) being added to the Levening value and 10dB(A) being added to the Lnight level.
Lnight	The A-weighted average sound level over the 8hour nigh period of 2300-0700 hours.

Source: Descriptions taken from DEFRA, 2008

2.13.3 Exposure to ambient noise generated by transport

Owing to its predominantly rural landscape, Essex is generally less exposed to ambient noise emitted from transport than other regions across England. In 2016, the percentage of Essex's population exposed to road, rail, and air transport noise of 65dB(A) or more, during the daytime was 2.9%, which was lower than the national average for England at 5.5%. In 2016, the percentage of Essex's population exposed to road, rail, and air transport noise of 55dB(A) or more during the night-time was 4.6%, which was also lower than the national average for England at 8.5%.

Exposure to ambient noise can be reduced by limiting the longer-distance transportation of mineral resources or by planning appropriate travel routes which bypass communities who are at potential risk from the noise implications of HGVs and other related transport activity arising from mineral development.

3. Annex B - Contextual Review

3.1 Introduction

Any amendment to the Minerals Local Plan 2014 must have regard to existing policies, plans and programmes at national and regional levels and strengthen and support other plans and strategies. It is therefore important to identify and review those policies, plans and programmes which are likely to influence the Plan. The content of these plans and programmes can also assist in the identification of any conflicting content of plans and programmes in accumulation with the Plan. Local supporting documents have also been included within this list as they will significantly shape policies and decisions in the area.

It is recognised that no list of plans or programmes can be definitive and as a result this report describes only the key documents which influence the Plan. The table below outlines the key documents, whilst a comprehensive description of these documents together with their relevance to the Plan is provided within the following sub-sections.

Table 16: Relevant plans, policies, and programmes

International Plans and Programmes
European Landscape Convention (Florence, 2002)
European Union Water Framework Directive 2000
European Union Nitrates Directive 1991
European Union Noise Directive 2002
European Union Floods Directive 2007
European Union Air Quality Directive 2008 (2008/50/EC) and previous directives (96/62/EC; 99/30/EC; 2000/69/EC & 2002/3/EC)
European Union Directive on the Conservation of Wild Birds 2009
European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992

European Community Biodiversity Strategy to 2020
United Nations Kyoto Protocol
World Commission on Environment and Development 'Our Common Future' 1987
The World Summit on Sustainable Development Johannesburg Summit 2002
Environmental Assessment of Plans and Programmes Regulations 2004 (the SEA Regulations)
The Conservation of Habitats and Species Regulations, 2010
The Industrial Emissions Directive 2010
European Convention on the Protection of the Archaeological Heritage (Valletta, 1992)
National Plans and Programmes
The Conservation of Habitats and Species Regulations, 2017 (as amended)
Safeguarding our Soils: A Strategy for England (Defra, 2009)
National Planning Policy for Waste (NPPW, 2014)
National and Regional Guidelines for Aggregates Provision in England 2005 – 2020 (2009)
The Countryside and Rights of Way (CRoW) Act, 2000
Model Procedures for the Management of Land Contamination – Contaminated Land Report 11 (September 2004)
Water Resources Strategy for England and Wales, 2009

Flood and Water Management Act, 2010
Underground, Under Threat – Groundwater protection: policy and practice (GP3)
Planning (Listed Buildings and Conservation Areas) Act, 1990
Ancient Monuments & Archaeological Areas Act 1979
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007
(National) Planning Practice Guidance (updated)
National Planning Policy Framework (2024)
County / Regional Plans and Programmes
Essex Minerals Local Plan (including Inspector's Report) (2014)
Greater Essex Local Aggregate Assessment (2022)
Mineral Site Restoration for Biodiversity – Supplementary Planning Guidance (2016)
Essex and Southend-on-Sea Waste Local Plan (2017)
Minerals and Waste Authority Monitoring Report 1 April 2020 to 31 March 2021 (2023)
Draft report to determine whether marine aggregate supply can offset the demand for land-won aggregates in Essex (October 2020)
Essex Minerals Local Plan Review 2021 – Report setting out the Rationale behind the Proposed Amendments (2020) (referred to as the 'The Rationale Document')
Review of 'Windfall Sites' for Mineral Extraction, Essex County Council (September 2019)

A Re-examination of Building Sand Provision in Essex (September 2019)
Forecasting the Need for Mineral Provision in Essex 2025-2040 (2023)
The South East Inshore Marine Plan (2021)
Local Level Plans and Programmes
Basildon Borough Council Revised Publication Local Plan 2014-2034 (withdrawn)
Braintree District Local Plan 2033 (Section 1 and 2) (2022)
Brentwood Local Plan 2016-2033 (2022)
Castle Point Local Plan (emerging)
Chelmsford Local Plan 2013-2036 (2020) and Issues and Options Consultation Document (plan review) (2022)
Colchester Local Plan 2017-2033 (Section 1 and 2) (2021)
Epping Forest District Local Plan 2011 to 2033 (2023)
Harlow Local Development Plan (2020)
Maldon District Council Local Development Plan (2014-2029) (2017) and Local Development Plan Review 2021+
Rochford District Council Local Plan (2025-2040) (emerging)
Tendring District Council Local Plan 2013-2033 and Beyond (Section 1 and 2) (2022)
Uttlesford Local Plan 2021 to 2041 Regulation 18 (2023)

Southend-on-Sea New Local Plan Refining the Plan Options (2021)
Thurrock Local Plan Initial Proposals (2023) (emerging)

3.2 International Plans & Programmes

Table 19: Contextual Review of International Plans and Programmes

International Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
European Landscape Convention 2002	The aims of this Convention are to promote landscape protection, management and planning, and to organise European co-operation on landscape issues.	In order to co-operate on matters concerning landscape conservation and protection, the Plan may will need to adhere to this policy to inform practices and avoid substantial harm to protected landscapes.
European Union Water Framework Directive 2000	The framework amalgamates multiple directives into one to provide the operational tool for water treatment, setting the objectives for water protection for the future. Directives included in the framework are: - the Urban Waste Water Treatment Directive, providing for secondary (biological) waste water treatment, and even more stringent treatment where necessary - the Nitrates Directive, addressing water pollution by nitrates from agriculture - a new Drinking Water Directive, reviewing the quality standards and, where necessary, tightening them	The Plan may need to consider waste water provisions and considerations for the EU water framework to align with the approach defined in the directive. Complying with all aspects and directives ensures that the Plan will not have a detrimental effect on water courses in the Plan area.

International Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	(adopted November 1998) - a Directive for Integrated Pollution and Prevention Control (IPPC), adopted in 1996, addressing pollution from large industrial installations.	
European Union Nitrates Directive 1991	The Nitrates Directive (1991) aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices.	The Plan may need to include Nitrate retention provisions to align with the approach defined in the directive.
European Union Noise Directive 2002	The aim of this Directive shall be to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. To that end the following actions shall be implemented progressively: - the determination of exposure to environmental noise, through noise mapping, by methods of assessment common to the Member States; - ensuring that information on environmental noise and its effects is made available to the public; - adoption of action plans by the Member States, based upon noise-mapping results, with a view to preventing and reducing environmental noise where necessary and particularly where exposure levels can induce harmful effects on human health and to preserving environmental noise quality where it is good.	The Plan may need to consider this strategy to noise pollution when formulating policy for the Plan area.

International Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	This Directive shall also aim at providing a basis for developing Community measures to reduce noise emitted by the major sources, in particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment and mobile machinery.	
European Union Floods Directive 2007	The purpose of this Directive is to establish a framework for the assessment and management of flood risks, aiming at the reduction of the adverse consequences for human health, the environment, cultural heritage and economic activity associated with floods in the Community.	Flood risk policy should be informed by the approach within the EU Floods Directive in order to align with European practices for flood prevention and management.
European Union Air Quality Directive 2008 (2008/50/EC) and previous directives (96/62/EC; 99/30/EC; 2000/69/EC & 2002/3/EC)	Council Directive 96/62/EC on ambient air quality assessment and management. Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air. Directive 2000/69/EC of the European Parliament and of the Council relating to limit values for benzene and carbon monoxide in ambient air. Directive 2002/3/EC of the European Parliament and of the Council relating to ozone in ambient air. This new Directive includes the following key elements: - that most of existing legislation be merged into a single directive (except for the fourth daughter directive) with no change to existing air quality objectives* - New air quality objectives for PM2.5	Air quality management principles relating to the range of pollutant gases outlines within the EU Air Quality Directive are a required consideration for the Plan to counteract emissions within the Plan area. The Plan may need to adopt mitigation approaches to minimise the impact of operations, increased energy consumption and road usage in the locality.

International Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	(fine particles) including the limit value and exposure related objectives – exposure concentration obligation and exposure reduction target - the possibility to discount natural sources of pollution when assessing compliance against limit values - possibility for time extensions of three years (PM10) or up to five years (NO2, benzene) for complying with limit values, based on conditions and the assessment by the European Commission. * Framework Directive 96/62/EC, 1-3 daughter Directives 1999/30/EC, 2000/69/EC, 2002/3/EC, and Decision on Exchange of Information 97/101/EC.	
European Union Directive on the Conservation of Wild Birds 2009	This Directive relates to the conservation of all species of naturally occurring birds in the wild state in the European territory of the Member States to which the Treaty applies. It covers the protection, management and control of these species and lays down rules for their exploitation. It shall apply to birds, their eggs, nests and habitats.	Conservation of bird species must be incorporated in ecological considerations at the Plan level. The Plan, in accordance with this EU directive, should evaluate the impact on bird habitats through a Habitats Regulations Assessment.
European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992	The aim of this Directive shall be to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies.	Conservation of habitats must be incorporated in ecological considerations at the Plan level. The Plan, in accordance with this EU directive, should

International Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
		evaluate the impact on bird habitats through a Habitats Regulations Assessment.
European Union Biodiversity Strategy to 2020	This strategy aims to conserve biodiversity within Europe in an attempt to achieve the following target and vision: 2020 headline target Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss. 2050 vision By 2050, European Union biodiversity and the ecosystem services it provides — its natural capital — are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided.	The Plan should consider the impact of operations and the Plan as a whole on the environment and biodiversity.
United Nations Kyoto Protocol	This protocol aims to Implement and/or further elaborate policies and measures for member states in accordance with its national circumstances, such as: - Enhancement of energy efficiency in relevant sectors of the national economy; - Protection and enhancement of sinks and reservoirs of greenhouse gases not controlled by the Montreal Protocol, taking into account its commitments under relevant	The Plan should attempt to ensure a low carbon and low emissions ethos. Policy that accommodates new technologies, techniques or materials should be considered in the Plan where appropriate.

International Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	international environmental agreements; promotion of sustainable forest management practices, afforestation and reforestation; - Promotion of sustainable forms of agriculture in light of climate change considerations; - Research on, and promotion, development and increased use of, new and renewable forms of energy, of carbon dioxide sequestration technologies and of advanced and innovative environmentally sound technologies; - Progressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all greenhouse gas emitting sectors that run counter to the objective of the Convention and application of market instruments; - Encouragement of appropriate reforms in relevant sectors aimed at promoting policies and measures which limit or reduce emissions of greenhouse gases not controlled by the Montreal Protocol; - Measures to limit and/or reduce emissions of greenhouse gases not controlled by the Montreal Protocol in the transport sector; - Limitation and/or reduction of methane emissions through recovery and use in waste management, as well as in the production, transport and distribution	

International Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	of energy	
World Commission on Environment and Development 'Our Common Future' 1987	This report aims are: - to propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond; to recommend ways concern for the environment may be translated into greater co-operation among developing countries and between countries at different stages of economic and social development and lead to the achievement of common and mutually supportive objectives that take account of the interrelationships between people, resources, environment, and development; - to consider ways and means by which the international community can deal more effectively with environment concerns; and - to help define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long-term agenda for action during the coming decades, and aspirational goals for the world community.	The Plan should seek to minimise environmental impacts through policy to promote more efficient and carbon neutral techniques.
The World Summit on Sustainable Development Johannesburg Summit 2002	The Summit sought to address social, environmental and economic with particular focus on the issues facing some of the most deprived people across the world. It aimed to: - halve the proportion of the world's	Issues surrounding climate change and renewable energy have significant implications for the Plan area. The Plan should strive to ensure low carbon

International Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	population that lives on less than $1 a day; - halve the number of people living without safe drinking water or basic sanitation; and - reduce mortality rates for infants and children under five by two thirds, and maternal mortality by three quarters; Other provisions address a comprehensive range of environmental and development issues, such as climate change, energy, agriculture, trade, African development, and small island States. The Implementation Plan calls for a substantial increase in use of renewable sources of energy "with a sense of urgency". Although it sets no specific targets; implementation of a new global system for classification and labelling of chemicals was discussed in an attempt to restore depleted fish stocks.	outcomes and reduce environmental degradation through responsible practices.
Environmental Assessment of Plans and Programmes Regulations (SEA Regulations)	These regulations transpose the requirements of the SEA Directive (2001/42/EC) into national law. The SEA Directive sets out the requirement for an environmental assessment to be undertaken when preparing certain plans and programmes and also details which types of plans and programmes are likely to be subject to SEA. The regulations also set out procedures for preparing the environmental report and consultation.	By assessing impacts of Policy within the plan area and beyond, and investigating alternative approaches, development can meet the needs of the Plan area while also positively impacting on the economy, society and environment where possible.
The Conservation of Habitats and	These regulations transpose the Habitats Directive into national law, and updates and consolidates all the amendments to	The Neighbourhood Plan must ensure the protection of sites of

International Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
Species Regulations, 2010	the Regulations since they were first made in 1994. They set out protection and registry of European sites, including SACs and SPAs classified under the Birds Directive. They also make special provisions for the protection of European marine sites and the preservation of protected species.	European Significance in relation to their flora and fauna and enter into the agreement that compensatory measures will be required where damage may occur through development or the carrying out of extraction.
The Industrial Emissions Directive 2010	The EU's Industrial Emissions Directive (IED) takes an integrated approach to controlling pollution to air, water and land, and sets challenging industry standards for the most polluting industries. The IED aims to prevent and reduce harmful industrial emissions, while promoting the use of techniques that reduce pollutant emissions and that are energy and resource efficient. Larger industrial facilities undertaking specific types of activity are required to use BAT to reduce emissions to air, water and land. BAT means the available techniques which are the best for preventing or minimising emissions and impacts on the environment. 'Techniques' include both the technology used and the way the installation is designed, built, maintained, operated and decommissioned. BAT reference documents (BREFs) include BAT Conclusions that contain emission limits associated with BAT, which must not be exceeded unless agreed by the relevant competent authority.	Mineral development processes and activities can give rise to industrial emissions. The UK is committed to maintaining environmental standards and continues to apply the existing successful model of integrated pollution control. The EU Withdrawal Act 2018 maintains established environmental principles and ensures that existing EU environmental law will continue to have effect in UK law, including the IED and BAT Conclusion Implementing Decision made under it.
European Convention on	Aims to protect archaeological heritage as a source of European interest and also for	The Plan should take into account historically

International Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
the Protection of the Archaeological Heritage (Valletta, 1992)	historical or scientific study.	important landscape features and protect these from any negative impacts of mineral extraction.

3.3 National Plans & Programmes

Table 20: Contextual Review of National Plans and Programmes

National Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
The Conservation of Habitats and Species Regulations (2017 (as emended, 2019)	These regulations transpose the Habitats Directive into national law, and updates and consolidates all the amendments to the Regulations since they were first made in 1994. They set out protection and registry of European sites, including SACs and SPAs classified under the Birds Directive. They also make special provisions for the protection of European marine sites and the protection of protected species.	The Plan must ensure the protection of sites of European Significance in relation to their flora and fauna and enter into the agreement that compensatory measures will be required where damage may occur through development or the carrying out of extraction.
Safeguarding Our Soils: A Strategy for England (2009)	By 2030, the strategy aims to have all of England's soils to be managed sustainably and degradation threats tackled successfully. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations: - agricultural soils will be better managed and threats to them will be addressed; - soils will play a greater role in the	Soil quality has a key role in water quality, climate change issues and the historic legacy and health of the environment. The Plan should attempt to retain and protect soil quality through construction techniques. Through aligning with the strategy, minerals development can occur

National Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	fight against climate change and in helping us to manage its impacts; - soils in urban areas will be valued during development, and construction practices will ensure vital soil functions can be maintained; - pollution of our soils is prevented, and our historic legacy of contaminated land is being dealt with.	responsibly without causing soil degradation.
National Planning Policy for Waste (NPPW, 2014)	Sets out detailed waste planning policies – using a proportionate evidence base, identifying need for waste management facilities, identifying suitable sites and areas, determining planning applications, monitoring and reporting.	Plan policies need to be developed in line with the NPPW. The SA framework, where applicable, needs to be relevant and include objectives to reflecting overall direction of the NPPW.
National and Regional Guidelines for Aggregates Provision in England 2005 - 2020	Sets out national and regional guidelines for aggregates provisions in England for the period 2005-2020 inclusive. It should be noted that the NPPF provides up to-date guidance on minerals planning and provision of aggregates.	Give due consideration to the guidelines in the identification of provision rates for the supply of aggregates and through the SA framework.
Countryside and Rights of Way Act 2000	Further information on Rights of Way in relation to nature conservation with wildlife protection, SSSIs and biological diversity amongst other elements of the environment, including regulations to restrict the impacts of vehicles on the environment.	The Plan should seek the protection of these designations and non-designated elements of the environment through policy.
Model Procedures for the Management	The Model Procedures for the Management of Land Contamination provides the technical framework for	Contaminated land can affect policy where it may present a risk to a

National Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
of Land Contamination – Contaminated Land Report 11	structured decision making about land contamination. They encourage the formalisation of outputs from the process in the form of written records that contain details of specific project objectives, decisions and assumptions, as well as recommendations and other specific outputs. The Model Procedures have been developed to provide the technical framework for applying a risk management process when dealing with land affected by contamination. The process involves identifying, making decisions on, and taking appropriate action to deal with land contamination in a way that is consistent with government policies and legislation within the UK. The technical approach presented in the Model Procedures is designed to be applicable to a range of non-regulatory and regulatory contexts that includes: - Development or redevelopment of land under the planning regime - Regulatory intervention under Part IIA of the Environment Protection Act 1990 or Part III of the Waste & Contaminated Land (Northern Ireland) Order 1997 - Voluntary investigation and remediation - Managing potential liabilities of those responsible for individual sites or a portfolio of sites	range of receptors including humans, ecosystems, water quality, and property. Not understanding the risks may inhibit operations. The Plan may need to incorporate best practice principles provided by the Model Procedures to prevent contamination.
Water Resources Strategy for England and	Establishes how water resources should be managed to 2050 and beyond to ensure that there will be enough water for people	Plan policies should support the Water Resources Strategy. It is important to ensure

National Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
Wales, 2009	and the environment.	that the requirements of the Strategy are reflected in the SA framework.
Flood and Water Management Act, 2010	The Act, which applies to England & Wales, aims to create a simpler and more effective means of managing the risk of flood and coastal erosion. The Act also aims to help improve the sustainability of our water resources and protect against potential droughts. The Act has a significant component which addresses groundwater flooding.	There is a need to give due consideration to the aims of this Act in devising the SA framework.
Underground, Under Threat - Groundwater protection: policy and practice (GP3)	This document sets out the Environment Agency's (EA) aims and objectives for groundwater, their technical approach to its management and protection, the tools they use to do their work and the main policies and approach to the application of legislation. The main aims are: - To encourage co-operation between the EA and other bodies with statutory responsibilities for the protection of groundwater; - To promote policies, so that land-users and potential developers may anticipate how the EA are likely to respond to a proposal or activity; - To influence the decisions of other organisations on issues the EA are concerned about but which they do not regulate; - To ensure that groundwater protection and management are consistent with EA's Vision for the environment and a sustainable future; and - To provide vital information and	Land use planning can have negative impacts on groundwaters. Groundwaters may have to be a consideration in Plan policy.

National Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	background on groundwater protection in England and Wales.	
Planning (Listed Buildings and Conservation Areas) Act, 1990	The Planning (Listed Buildings and Conservation Areas) Act is a UK Act of Parliament introduced in 1990 that changed laws relating to the granting of planning permission for building works, with a particular focus on listed buildings and conservation areas. It created special controls for the demolition, alteration or extension of buildings, objects or structures of particular architectural or historic interest, as well as conservation areas. Buildings may be listed for a number of reasons: - Architectural interest (such as design, decoration or craftsmanship). - Historic interest (for example, if the building is representative of a particular type). - Historic association (association with nationally important people or events). - Group value (part of a larger ensemble).	Provides guidance on the preparation of Plan requirements and accompanying SA.
Ancient Monuments & Archaeological Areas Act 1979	The Ancient Monuments and Archaeological Areas Act 1979 or AMAAA is a law passed by the UK government, legislating to protect the archaeological heritage of England & Wales and Scotland. Section 61(12) defines sites that warrant protection due to their being of national importance as 'ancient monuments'. These can be either scheduled monuments or "any other monument which in the opinion of the Secretary of State is of public	Provides guidance on the preparation of Plan requirements and accompanying SA.

National Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	interest by reason of the historic, architectural, traditional, artistic or archaeological interest attaching to it".	
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)	This Air Quality Strategy sets out air quality objectives and policy options to further improve air quality in the UK from today into the long term. As well as direct benefits to public health, these options are intended to provide important benefits to quality of life and help to protect our environment.	Air quality requires protection from the strain of further development and related operations associated with mineral activities such as vehicles producing pollutants. Considerations for air quality should be present within the Plan, with reduction and mitigation measures present where necessary.
(National) Planning Practice Guidance	This web-based resource provides guidance to support the National Planning Policy Framework and its application in practice. It is also easy to link easily between the National Planning Policy Framework and relevant planning practice guidance, as well as between different categories of guidance.	Provides guidance on the preparation of Plan requirements and accompanying SA.
National Planning Policy Framework (2024)	This framework sets out the Government's planning policies for England and how these are expected to be applied. It replaces all Planning Policy Statements and Planning Policy Guidance. The framework seeks to contribute to the achievement of sustainable development by pursuing economic, environmental and social gains jointly and simultaneously through the planning system. It defines planning as having: - an economic role – contributing to	The Plan must be in conformity with this national planning document in order to ensure development is approached sustainably. Therefore, the Plan should be consistent with the principles and policies set out in this Framework.

National Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	building a strong, responsive and competitive economy; - a social role – supporting strong, vibrant and healthy communities; and - an environmental role – contributing to protecting and enhancing our natural, built and historic environment. The framework sets out 12 core land-use planning principles that Neighbourhood Planning authorities should follow and provides guidance on preparing Local and Neighbourhood Plans and on determining planning applications. The framework also describes the role of planning in delivering sustainable development under 14 themes. These are: - Building a strong, competitive economy - Ensuring the vitality of town centres - Supporting a prosperous rural economy - Promoting sustainable transport - Supporting high quality communications infrastructure - Delivering a wide choice of high-quality homes - Requiring good design - Promoting healthy communities - Protecting Green Belt land - Meeting the challenge of climate	

National Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
	change, flooding and coastal change - Conserving and enhancing the natural environment - Conserving and enhancing the historic environment - Facilitating the sustainable use of minerals A key part of the NPPF is the presumption in favour of sustainable development which is relevant to both plan making and decision making.	

3.4 County / Regional Plans & Programmes

Table 21: Contextual Review of County / Regional Plans and Programmes

County / Regional Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to the Plan / SA
Essex Minerals Local Plan (including Inspector's Report) (2014)	Adopted in July 2014, the Plan provides planning policies for minerals development in Essex until 2029 and identifies future sites for mineral development. The Plan includes ways to reduce reliance on primary mineral resources in Essex. This includes the use of recycled aggregates. The Essex Minerals Local Plan includes: - the Minerals Core Strategy, which sets out the long-term direction for minerals development and a plan to deliver this; - development management policies for minerals planning;	This Plan was subject to a statutory review, which has now determined that a new MLP be drafted. The MLP (2014) includes policy, the performance of which has been monitored since and exists as the baseline underpinning the assessments within the SA. The SA of the MLP (2014) also acts as a starting point for the SA of the new MLP.

County / Regional Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to the Plan / SA
	- strategic site allocations and safeguarding for mineral extraction; and - a Policies Map, showing site locations	
Greater Essex Local Aggregate Assessment (GELAA) (2022)	The National Planning Policy Framework (NPPF) requires Essex County Council, as the Minerals Planning Authority (MPA) to produce a Local Aggregate Assessment (LAA) every year. The LAA monitors the current supply of minerals and helps to determine the amount required in the future. This ensures the production of a steady and adequate supply of minerals throughout the period covered by the Minerals Local Plan. The LAA covers the area known collectively as 'Greater Essex', which includes the unitary authorities of Southend-on-Sea and Thurrock. See below for the most recent reports.	The GELAA provides baseline to inform the Plan, specifically the need for any additional extraction sites and in some part the successfulness of adopted 2014 Minerals Local Plan policies. The GELAA also provides the baseline position for assessing effects in the SA.
Mineral Site Restoration for Biodiversity – Supplementary Planning Guidance (SPG) (2016)	The Supplementary Planning Guidance: Mineral Site Restoration for Biodiversity (June 2016) supports the adopted Minerals Local Plan 2014. It provides guidance on how to promote biodiversity on mineral sites post-extraction. Using the SPG can help site operators make successful applications. We consulted conversation bodies and the Mineral Products Association when creating the SPG. It is aimed at creating 200 hectares of new habitat for plant and animal life. It focuses on areas considered a priority for conservation. The SPG also: - implements local plan policy relating	The SPG assists the determination of minerals planning applications and also offers guidance in the form of flagship restoration schemes for biodiversity. The performance of the Minerals Local Plan and this SPG sets the baseline for a business as usual scenario against which any changes to policy from the Plan can be assessed.

County / Regional Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to the Plan / SA
	to mineral site restoration and after-use; - focuses efforts on 5 schemes that offer the best opportunity to enhance biodiversity; and - identifies an approach to creating habitats at mineral sites.	
Essex and Southend-on-Sea Waste Local Plan (2017)	The Essex and Southend-on-Sea Waste Local Plan 2017 privies the planning policy framework for the determination of waste related planning decisions. Essex County Council adopted the plan on 11 July 2017 and Southend-on-Sea Borough Council on 19 October 2017. The plan sets out how Essex and Southend-on-Sea aim to manage waste for the duration of the plan period. It also seeks to deal with waste more sustainably, encouraging recycling and reducing reliance on landfill. The Essex and Southend-on-Sea Waste Local Plan includes: - the Waste Core Strategy, which sets out the long-term direction for waste development and a plan for delivery; - development management policies for waste planning; - strategic site allocations and safeguarding of waste infrastructure; and - a Policies Map, showing new site allocations.	The Waste Local Plan provides context for the Plan area in a related rea of planning. The Waste Local Plan acts as a useful reference in the assessment of any policy amendments proposed within the Plan, and the relationship / implications they may have regarding waste management.
Minerals and Waste Authority	Essex County Council (ECC) as the Minerals Planning Authority (MPA) and the	This Report helps provide justification for

County / Regional Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to the Plan / SA
Monitoring Report 1 April 2020 to 31 March 2021 (2023)	Waste Planning Authority (WPA) are required to produce an Authority Monitoring Report, which monitors and assesses: - the effectiveness of adopted minerals and waste planning policies (in this instance the Minerals Local Plan 2014 and the Waste Local Plan 2017); - progress in preparing new local development documents; and - how well we're achieving the Statement of Community Involvement. The reports help ECC assess the effectiveness and relevance of our plans. They can prompt alterations to plans and policies to reflect changing circumstances.	any Plan policy and its assessment in this SA. The performance of the Minerals Local Plan (2014) is addressed in this Report and it sets the baseline for a business as usual scenario against which any changes to the policy position proposed can be assessed in the SA.
Draft report to determine whether marine aggregate supply can offset the demand for land-won aggregates in Essex (October 2020)	In the report of the Examination in Public of the Essex Minerals Local Plan 2014 (MLP), the Planning Inspector holding the examination stated that Essex County Council (ECC) should initiate further consideration of whether an increase in the proportion of marine-won aggregate use in Essex could be reliably quantified in order to off-set land-won provision. To that end, the MLP sets out a commitment to monitor the potential for an increased contribution of sand and gravel from marine sources. A monitoring indicator was created which sought to assess whether the potential for marine aggregate to be supplied to the Plan area was being constrained. The monitoring indicator states that if marine imports are within 90% of wharf capacity in Greater Essex, then a review is to be undertaken to determine whether capacity is constraining the landing of marine	This study forms part of the evidence base behind the Plan. This information is useful in the identification of 'reasonable' alternatives within the SA that are relevant to the scope of the Plan.

County / Regional Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to the Plan / SA
	dredged aggregate.	
Essex Minerals Local Plan Review 2021 – Report setting out the Rationale behind the Proposed Amendments (2020)	This report provides the rationale and reasoned justification behind the proposed amendments to the Minerals Local Plan at this stage. The report, referred to as the 'Rationale document', provides evidence and discussions surrounding the reasons for all of the Plan's amendments.	This study forms part of the evidence base behind the previous MLP Review. This information is useful in both assessing the amendments considered at that stage and also the identification of 'reasonable' alternatives within the SA that are relevant to the scope of the Plan.
Review of 'Windfall Sites' for Mineral Extraction, Essex County Council (September 2019)	In July 2014 Essex County Council (ECC) adopted the 'Essex Minerals Local Plan' (MLP). This document outlines minerals planning policy until 2029. Here, ECC establishes the 'preferred' and 'reserved' sites for mineral extraction, allowing the County to plan for a steady and adequate supply of aggregates. Applications for sand and gravel extraction sites that are located outline of these are normally resisted by the Mineral Planning Authority (MPA). Minerals Local Plan Policy S5 outlines MPA considerations of non-allocated sites. These Windfall applications are of County Matter if the materials extracted are either stockpiled on site, processed or treated in any way on site or are exported from the site. But, the General Permitted Development Order (GPDO) does afford rights, subject to prior approval from the LPA, to create a reservoir subject to no material leaving the site. This review pulls together information from a range of sources available to the MPA, along with information coming from a review of mineral related policy and literature. The	This study forms part of the evidence base behind the Plan. This information is useful in the identification of 'reasonable' alternatives within the SA that are relevant to the scope of the Plan.

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	result is a synthesis of social, environmental, economic and physical information relevant to windfall applications in Essex.	
A Re-examination of Building Sand Provision in Essex (September 2019)	As part of the evidence base for the Essex Minerals Local Plan 2014 a report was prepared addressing the practicality and justification of providing a separate landbank for building sand. The view of the Authority was that such a separate landbank was neither practical nor justified in Essex. This re-examination confirms that the conclusions of the 2013 report that a split landbank to provide separately for building sand and concreting sand, and possibly to split the building sand landbank into 'dry' screened or washed sand, is neither practical nor justified in Essex.	This study forms part of the evidence base behind the Plan and concludes that the supply of building sand is being maintained to meet demand. This information is useful in the identification of 'reasonable' alternatives within the SA that are relevant to the scope of the Plan.
Forecasting the Need for Mineral Provision in Essex 2025-2040 (2023)	This Topic Paper has been produced by the MPA to explore how much mineral is required over the Plan period of the emerging MLP. It is required as part of the process to justify a deviation from the provision identified within the adopted MLP (2014), which used a sub-national apportion figure.	This Topic Paper justifies the emerging MLP's provision figure but discusses various factors that should be looked at and which may or may not influence the Plan approach. This Topic Paper has therefore influenced the identification and assessment of alternatives within the SA.
South Essex Green and Blue Infrastructure Plan	In order to meet future growth requirements, the LPAs of South Essex are working towards a Joint Strategic Plan. The Green and Blue Infrastructure Study will address ecological, economic, and	Restoration proposals have the potential to contribute to this infrastructure plan and seek improvements to

County / Regional Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to the Plan / SA
	social themes, in regard to healthier communities, sustainable travel, and high-quality open spaces, while also protecting habitats and natural processes.	Green and Blue Infrastructure in Essex.
Essex Green Infrastructure Strategy	The Green Infrastructure Strategy describes the need for green infrastructure in the county and sets a vision and objectives for its delivery. A carefully planned Green Infrastructure network is crucial for the environment, our health and well-being and will help support a thriving, sustainable economy. Green Infrastructure provides recreation with opportunities to encourage people to be physically active and connects people to nature. It provides and creates green corridors for our wildlife thereby making our biodiversity more robust, particularly in the face of the challenges presented by Climate Change. It can alleviate flooding and improve air quality.	Restoration proposals have the potential to contribute to this infrastructure plan and seek improvements to Green and Blue Infrastructure in Essex.
The South East Inshore Marine Plan (2021)	Marine aggregate extraction corresponds to half of all aggregates used in construction in London being from marine sources. Therefore, protecting landing facilities, and identifying the difference in safeguarding is a key objective of this emerging plan, which seeks to expand terrestrial legislation to the marine and encourages the continuation and development at these vital landing facilities.	MLP policy should be in conformity to those objectives of the Draft Inshore Marine Plan. It should seek to safeguard marine aggregate licence areas from other activities, unless it is demonstrated that the other activities are compatible with marine aggregate extraction.

3.5 District-level Plans & Programmes

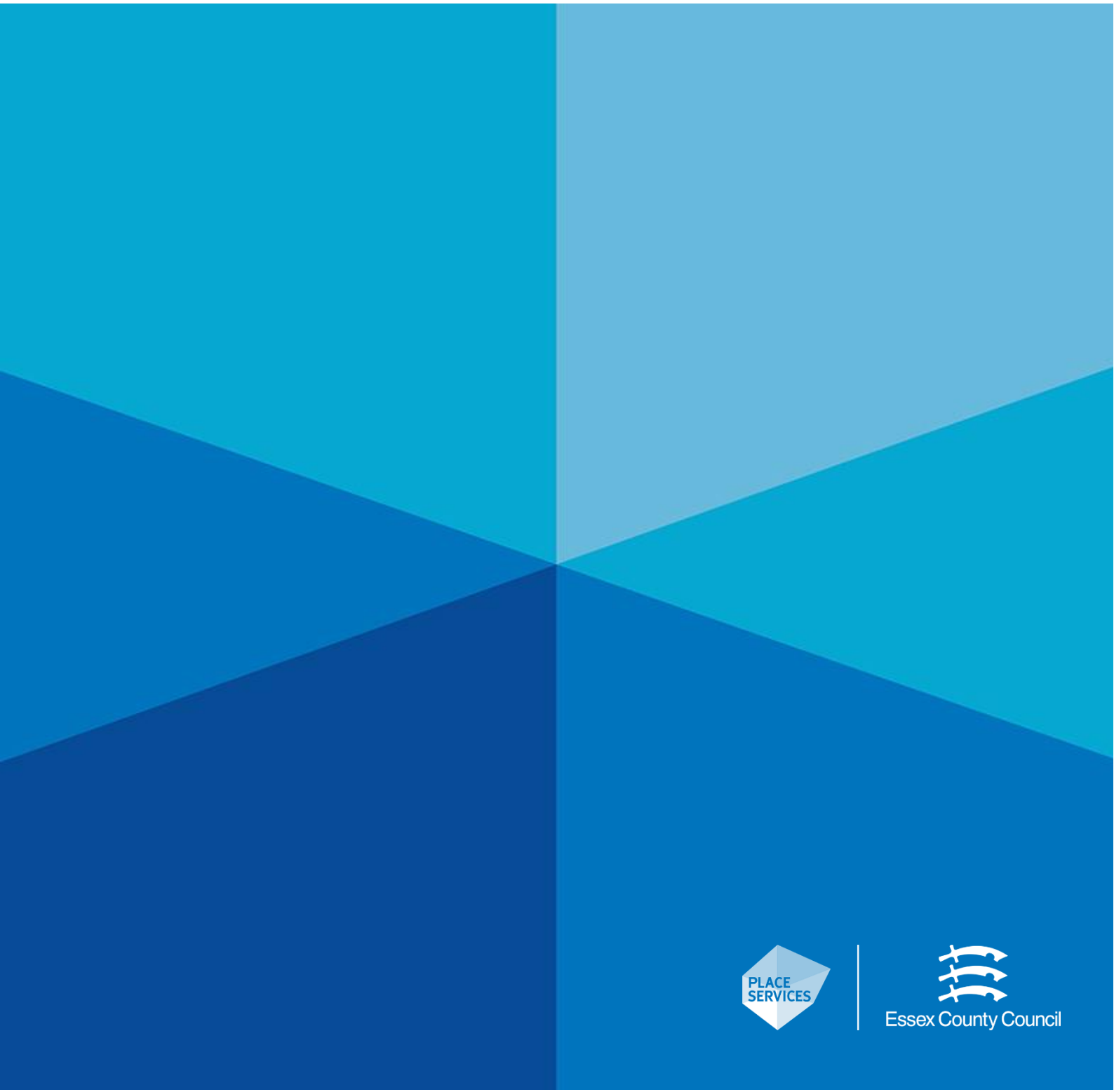
Table 22: Contextual Review of District Level Plans and Programmes

District Level Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
Basildon Borough Council Revised Publication Local Plan 2014-2034 (withdrawn)	The withdrawn Plan set housing need at 20,160 dwellings (16,792 dwellings outstanding as of April 2021) by 2034.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Braintree District Local Plan 2033 (Section 1 and 2) (2022)	The adopted Plan sets housing need at 14,320 dwellings (10,159 dwellings outstanding as of April 2021) by 2033.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Brentwood Local Plan 2016-2033 (2022)	The adopted Plan sets housing need at 7,752 dwellings (6,775 dwellings outstanding as of April 2021) by 2033.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Castle Point Local Plan (emerging)	The previous withdrawn Plan set housing need at 5,325 dwellings (4,888 dwellings outstanding as of April 2021) by 2033.	Understanding the implications of growth over Local Plan period (between 15-20 years

District Level Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
		as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Chelmsford Local Plan 2013-2036 (2020) and Issues and Options Consultation Document (plan review) (2022)	The Plan sets housing need at 21,843 dwellings (14,828 dwellings outstanding as of April 2021) by 2036.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Colchester Local Plan 2017-2033 (Section 1 and 2) (2021)	The Plan sets housing need at 18,400 dwellings (10,593 dwellings outstanding as of April 2021) by 2033.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Epping Forest District Local Plan 2011 to 2033 (2023)	The adopted Plan sets housing need at 11,400 dwellings (8,705 dwellings outstanding as of April 2021) by 2033.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Harlow Local Development	The adopted Plan sets housing need at 9,200 dwellings (5,547 dwellings	Understanding the implications of growth

District Level Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
Plan (2020)	outstanding as of April 2021) by 2033.	over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Maldon District Council Local Development Plan (2014-2029) (2017) and Local Development Plan Review 2021+	The adopted Plan sets housing need at 4,650 dwellings (2,748 dwellings outstanding as of April 2021) by 2029.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Rochford District Council Local Plan (2025-2040) (emerging)	The emerging Plan sets housing need at 7,200 dwellings (6,851 dwellings outstanding as of April 2021) by 2040.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Tendring District Council Local Plan 2013-2033 and Beyond (Section 1 and 2) (2022)	The Plan sets housing need at 11,000 dwellings (6,716 dwellings outstanding as of April 2021) by 2033.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.

District Level Plans & Programmes	Purpose / Main Aims & Objectives	Relevance to Plan / SA
Uttlesford Local Plan 2021 to 2041 Regulation 18 (2023)	The emerging Plan sets housing need at 14,020 dwellings (13,658 dwellings outstanding as of April 2021) by 2040.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Southend-on-Sea New Local Plan Refining the Plan Options (2021)	The emerging Plan sets housing need at 23,600 dwellings (22,451 dwellings outstanding as of April 2021) by 2040.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.
Thurrock Local Plan Initial Proposals (2023) (emerging)	The emerging Plan sets housing need at 25,234 dwellings (23,774 dwellings outstanding as of April 2021) by 2040.	Understanding the implications of growth over Local Plan period (between 15-20 years as stipulated in individual LPA Plans) is important to indicate forecasts in aggregate demand across the County.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