

Lower Thames Crossing

6.3 Environmental Statement Appendices

Appendix 8.1 – Designated Sites

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Appendix 8.1 – Designated Sites

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1 Introduction

- 1.1.1 This document describes the statutory and non-statutory designated sites that fall within the Zone of Influence (Zol) of the A122 Lower Thames Crossing (the Project). This includes Special Protection Areas (SPAs), Special Areas for Conservation (SACs), Ramsar sites, Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs). It also includes non-statutory designated Local Wildlife Sites (LWSs), including Roadside Nature Reserves (RNRs) and ancient semi natural woodland (ASNW). It reviews published documentation and readily available desk study data to provide a contextual overview of the current ecological condition of each site.
- 1.1.2 In broad terms, the Zol is defined as ‘the areas/resources that may be affected by the biophysical changes caused by activities associated with a project’ (CIEEM, 2018). In establishing an appropriate Zol for statutory designated sites, reference was made to the Habitats Regulations Assessment for the Project (Application Document 6.5). This comprised a search of all statutory designated sites, including European sites, within 2km of the Order Limits, as recommended in Design Manual for Roads and Bridges LA 115 Habitats Regulations Assessment (Highways England, 2020). The Zol was extended to consider any SACs designated for their bat interest within a 30km radius of the Order Limits.
- 1.1.3 For non-statutory designated sites, a Zol of 500m from the Order Limits was established so that direct and indirect effects from the Project could be sufficiently and proportionately assessed. This was extended to 2km where a potential hydrological link between the Order Limits and a non-statutory designated site was identified. Sites were also included where there were potential impacts from changes in air quality within 200m of any construction works or operational effects along the Affected Road Network (ARN) as detailed in Environmental Statement Chapter 5: Air Quality (Application Document 6.1). These sites are included in Appendix 8.14: Designated Sites Operational Air Quality Assessment (Application Document 6.3).

2 Approach and methodology

- 2.1.1 Current up-to-date information on the ecological interest features of statutory designated sites of nature conservation importance within the Zol was obtained in 2018 from the MAGIC (Multi-Agency Geographic Information for the Countryside) website (Natural England, 2020). This included SPAs, SACs, Ramsar sites, SSSIs, NNRs and LNRs.
- 2.1.2 Current up-to-date information on non-statutory designated sites was obtained from the Kent Wildlife Trust (KWT) (2017a and 2020) and the Essex Wildlife Trust Biological Records Centre (EWTBRC) (2020) in September 2017 and updated in March 2020, including information regarding LWS interest features.

2.2 Site sensitivities and ecological condition

- 2.2.1 Information relating to the sensitivities and vulnerabilities of designated sites was obtained from a variety of published information sources.
- 2.2.2 Vulnerabilities and ecological condition assessments for SACs and SPAs was obtained from the Joint Nature Conservation Committee (JNCC) (Undated) and Natural England website (Natural England, Undated). This included a review of the following documentation:
- a. The Natura 2000 standard data form (each European site has its own standard form containing site-specific information)
 - b. Site Improvement Plans produced for each European site
 - c. Regulation 33 advice and conservation objectives for each European site (where available)
 - d. Condition assessment information for the component SSSIs that underlie the European designations
 - e. Condition assessment information for individual SSSIs that do not underlie any European designations
 - f. British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) Alerts reports for SPA sites (BTO, 2018a), where these have been produced
- 2.2.3 Information pertaining to Ramsar sites has been obtained from the Ramsar Information Sheets.
- 2.2.4 Vulnerabilities and ecological condition assessments for SSSIs were obtained from the Natural England website (Natural England, Undated-a), principally in the form of condition assessments for each individual SSSI.
- 2.2.5 Limited information concerning the vulnerabilities and ecological condition of LNRs and non-statutory designated sites was available. However, some information was obtained from various wildlife conservation charities and local authority biodiversity reports. This information, together with professional judgement and the results of primary survey work undertaken for the Project, was used to inform an assessment of the current baseline condition of the relevant sites. See Appendix 8.2: Plants and Habitats (Application Document 6.3) for more information on the survey results. Where this information was not available, a precautionary approach to the condition of the site was taken.

- 2.2.6 Further assessment of ecological sites in relation to potential operational impacts from changes in air quality within 200m of the ARN was undertaken in accordance with Design Manual for Roads and Bridges LA 105 (Highways England, 2019). Details of the methodology and the results of that screening can be found in Appendix 8.14: Designated Sites Operational Air Quality Assessment (Application Document 6.3).

2.3 Baseline conditions

- 2.3.1 The following designated sites were identified within the Zol:
- a. Three European sites
 - b. Eleven nationally important SSSIs
 - c. Seven LNRs of national and county importance
 - d. 93 non-statutory designated sites and ancient woodland of national and county importance
- 2.3.2 Descriptions of the designated sites present within the Zol are provided in Table 2.1 and Table 2.2. The approximate distance from the Order Limits and the reasons for their designation are also provided. Locations of the sites are shown on Figure 8.1: Designated Sites (Application Document 6.2).
- 2.3.3 Descriptions of these designated sites are provided in Table 2.2 and Table 2.4 with the approximate distance from the Order Limits and the reasons for designation. Locations of these sites are shown on Figure 8.01 (Application Document 6.2).

Table 2.1 Statutory designated sites present within the Zol

Designated site	Cited interest features	Approximate distance from Order Limits
South of the River Thames		
Boxley Warren LNR (Natural England (2005b))	The site is noted for its internationally scarce yew woodland. The Warren supports a fascinating flora and fauna.	0m
North Downs Woodlands SAC (JNCC (2015b))	<p>SAC comprising important grasslands, shrublands and some of the UK's rarest woodland types, especially for region. There are two component SSSI within the SAC; Wouldham to Detling Escarpment SSSI; and Halling to Trottscliffe Escarpment, one of which is detailed within this table.</p> <p><u>Plants and Habitats</u></p> <p><i>Taxus baccata</i> woods (yew-dominated woodland) are present, a rare habitat of European priority interest restricted to only a few areas of England and Wales, and this SAC is considered one of their best areas.</p> <p><i>Asperulo-Fagetum</i> (beech forests) are also present, a habitat European interest and contain some of the UKs rarest orchids, including red helleborine <i>Cephalanthera rubra</i> and other notable plants such as coral-root <i>Cardamine bulbifera</i>.</p> <p><i>Festuco-Brometalia</i> (Semi-natural dry grasslands and scrubland facies: on calcareous substrates), another habitat of European interest, is also within the SAC. Denoted for being particularly rich in herbs and grasses, typically common rock-rose <i>Helianthemum nummularium</i>, meadow oat-grass <i>Helictotrichon pratense</i>, sheep's fescue <i>Festuca ovina</i> and lady's bedstraw <i>Galium verum</i>.</p>	0m
Wouldham to Detling Escarpment SSSI (Natural England (1990b))	This site is a 10km stretch of chalk escarpment north of Maidstone supporting a range of habitats with visible gradients of succession, notably, unimproved grasslands into scrub and woodlands due to a continued lack of significant grazing in the area. Because of this the site is noted for supporting several	0m

Designated site	Cited interest features	Approximate distance from Order Limits
	<p>scarce and rare plant and invertebrate species as well as the culand pits for their unique fossil diversity including a variety of fish and reptiles.</p> <p><u>Plants and habitats:</u></p> <p>The woodlands on the site have already acquired a rich variety of flora, including lady orchid <i>Orchis purpurea</i> and stinking hellebore <i>Helleborus foetidus</i>, (donated as nationally scarce) and box <i>Buxus sempervirens</i> (denoted as nationally rare) which is only found at a handful of sites in the south east</p> <p>The scrub on the site merges the woodlands and grasslands together, and is denoted for wayfaring tree <i>Viburnum lantana</i>, the scarce kent variety of wild rose <i>R. rubiginosa</i> and the rare box, mentioned above.</p> <p>The unimproved grasslands occur both in larger areas and mosaiced between the scrub and contain a great variety of flora, notably chalk milkwort <i>Polygala calcarea</i>, dropwort <i>Filipendula vulgaris</i>, burnet rose <i>Rosa pimpinellifolia</i> and adder’s-tongue fern <i>Ophioglossum vulgatum</i> (scarce in kent), man orchid <i>Aceras anthropophorum</i> and ground pine <i>Ajuga chamaepitys</i> (nationally scarce) and meadow clary <i>Salvia pratensis</i> (nationally rare).</p> <p><u>Invertebrates:</u></p> <p>The site supports a rich assemblage of insect species including 20 nationally scarce species, the most notable the straw belle <i>Asptitates gilvaria</i> and <i>Mordellistena neuwaldeggiana</i>, and two nationally rare species, <i>Oncocera obductella</i> and <i>Hallodapus montandoni</i> mostly associated with the chalk grassland but some with the woodland edge.</p>	
<p>Halling to Trottscliffe Escarpment SSSI (Natural England, 1984a)</p>	<p>A mosaic of habitats with areas of grassland, scrub and various types of woodland. The site is representative of Chalk grassland in west Kent and beech woodland on the chalk.</p> <p><u>Plants and Habitats:</u></p> <p>Chalk grassland dominated by upright brome <i>Bromopsis erecta</i> and sheep’s fescue <i>Festuca ovina</i> but supports many other plants which are characteristic of unimproved downland.</p>	<p>1,498m</p>

Designated site	Cited interest features	Approximate distance from Order Limits
	<p>Several very scarce species in the beech <i>Fagus sylvatica</i> and yew woodland such as lady orchid <i>Orchis purpurea</i> and stinking hellebore <i>Helleborus foetidus</i>.</p> <p><u>Invertebrates:</u></p> <p>Only known location in Britain for moth <i>Hypercallia citrinalis</i> and several other scarce moths, beetles and grasshoppers Orthoptera sp. also occur.</p> <p>Uncommon bug <i>Psylla viburni</i>.</p> <p>Populations of Nationally Scarce butterfly species Adonis blue <i>Polyommatus bellargus</i>.</p>	
<p>Peter's Pit SAC (JNCC, 2015c) and SSSI (Natural England 1986d)</p>	<p>Peter's Pit is an old chalk quarry situated in the North Downs in north Kent, with large ponds situated amongst grassland, scrub and woodland. The SAC is primarily designated for its large great crested newt (GCN) <i>Triturus cristatus</i> population.</p> <p><u>Plants and Habitats:</u></p> <p>Many herbs characteristic of the chalk are present such as bee orchid <i>Ophrys apifera</i>, autumn gentian <i>Gentianella amarella</i> and basil thyme <i>Acinos arvensis</i>. Two aquatic plants which are scarce in Kent are found in the ponds, viz mare's tail <i>Hippuris vulgaris</i> and the water crowfoot <i>Ranunculus aquatilis</i>.</p> <p><u>Amphibians:</u></p> <p>As well as the GCN population, both smooth newt <i>Lissotriton vulgaris</i> and palmate newt <i>L. helveticus</i>, plus common frog <i>Rana temporaria</i> are also present.</p> <p><u>Reptiles:</u></p> <p>Both grass snake <i>Natrix natrix</i> and adder <i>Vipera berus</i> have been recorded in the SSSI.</p> <p><u>Birds:</u></p> <p>Birds recorded from the site include nightingale <i>Luscinia megarhynchos</i> and several species of warbler.</p>	<p>1766m</p>

Designated site	Cited interest features	Approximate distance from Order Limits
<p>Holborough to Burnham Marshes SSSI (Natural England, 1990a)</p>	<p>This site lies along the flood plain of the River Medway, which at this point is still tidal. A variety of habitats are present including extensive reedbeds, open water, fen, grassland, scrub and woodland.</p> <p><u>Plants and Habitats:</u> A number of notable plant species including marsh sow-thistle <i>Sonchus palustris</i> and marsh mallow <i>Althaea officinalis</i> in the reedbed, slender spike-rush <i>Eleocharis uniglumis</i> and brookweed <i>Samolus valerandi</i> in the fen and a number of orchid species also occur.</p> <p>The woodland consists of dense hawthorn <i>Crataegus monogyna</i>, blackthorn <i>Prunus spinosa</i>, with alder <i>Alnus glutinosa</i> and crack willow <i>Salix fragilis</i>. On the drier ground there are some ash <i>Fraxinus excelsior</i> and oak <i>Quercus robur</i>.</p> <p><u>Invertebrates:</u> A number of scarce invertebrate species occur including of the rare marsh-mallow moth <i>Hydraecia osseota</i>, the rare rove beetle <i>Stenus calcaratus</i>, and 3 rare bee species.</p> <p><u>Birds:</u> The site is particularly noted for its bird assemblage, particularly the wetland bird assemblage. In addition, there are a number of breeding birds found in the variety of habitats present within the site. These include water rail <i>Rallus aquaticus</i>, nightingale and grasshopper warbler <i>Locustella naevia</i>.</p>	<p>1481m</p>
<p>Cobham Woods SSSI (Natural England, 1984b)</p>	<p>Old woodland and parkland representative of woods in North Kent which occur in part on acidic Thanet Sands and in part on chalk soils with an outstanding assemblage of plants.</p> <p><u>Plants and Habitats:</u> Two rare plant species, rough marsh-mallow and meadow clary <i>Salvia pratensis</i>.</p> <p>Ground pine <i>Ajuga chamaepitys</i>, Venus's looking-glass <i>Legousia hybrida</i>, blue pimpernel <i>Anagallis foemina</i> and white mullein <i>Verbascum lychnitis</i>.</p>	<p>331m</p>

Designated site	Cited interest features	Approximate distance from Order Limits
	<p>Wood spurge <i>Euphorbia amygdaloides</i> and lily-of-the-valley <i>Convallaria majalis</i> on Thanet Sands, sanicle <i>Sanicula europaea</i> and enchanter's-nightshade <i>Circaea lutetiana</i> on Chalk.</p> <p><u>Breeding Birds:</u></p> <p>Good variety of typical woodland species including three species of woodpecker <i>Picidae</i>, nuthatch <i>Sitta europaea</i>, treecreeper <i>Certhia familiaris</i>, hawfinch <i>Coccothraustes coccothraustes</i>, and marsh tit <i>Poecile palustris</i> with some occurring at high density.</p> <p>This site encompasses Great Wood ASNW.</p>	
<p>Shorne and Ashenbank Woods SSSI (Natural England, 1988a)</p>	<p>Shorne and Ashenbank Woods form a complex of ancient and plantation woodland and include a variety of stand-types associated with Tertiary gravels, clays and sands.</p> <p><u>Plants and Habitats:</u></p> <p>Ancient woodland with typical indicator species such as wood spurge wood sedge <i>Carex sylvatica</i>, and wood anemone <i>Anemone nemorosa</i>.</p> <p><u>Invertebrates:</u></p> <p>Beetles and true bugs <i>Hemiptera</i> are well-represented.</p> <p>Rare species include beetles <i>Mordella holomelaena</i> and <i>Peltodytes caesus</i> as well as the ruddy darter dragonfly <i>Sypetrum sanguineum</i> and satin lutestring moth <i>Tetheela fluctuosa</i>.</p> <p>This site encompasses Shorne Woods County Park, Ashenbank Trust Reserve, Ashenbank ASNW and Shorne/Brewers Woods ASNW.</p>	<p>0m</p>
<p>Great Crabbles Wood SSSI (Natural England, 1984c)</p>	<p>This site is representative of woods on North West Kent Tertiary sediments; these comprise a succession of strata over Upper Chalk ranging from Blackheath gravels to Woolwich loams and Thanet sands, which give rise to a range of soil types. Most of the woodland is mixed coppice under oak standards, with sweet chestnut <i>Castanea sativa</i> as the dominant species.</p> <p><u>Plants and habitats:</u></p>	<p>0m</p>

Designated site	Cited interest features	Approximate distance from Order Limits
	<p>Ancient woodland</p> <p>Scarce plants including lady orchid, man orchid <i>Orchis anthropophora</i>, bird's foot <i>Ornithopus perpusillus</i>, white helleborine <i>Cephalanthera damasonium</i>, bird's nest orchid <i>Neottia nidus-avis</i>, wild liquorice <i>Astragalus glycyphyllos</i> and spurge laurel <i>Daphne laureol</i>.</p> <p>This site encompasses Great Crabbles ASNW.</p>	
<p>South Thames Estuary and Marshes SSSI (Natural England, 1991a)</p>	<p>The South Thames Estuary and Marshes SSSI extends from Gravesend to the eastern end of the Isle of Grain and forms a major component of the Greater Thames Estuary. The site consists of an extensive mosaic of grazing marsh, saltmarsh, mudflats and shingle characteristic of the estuarine habitats of the north Kent marshes. Freshwater pools and some areas of woodland provide additional variety and complement the estuarine habitats.</p> <p><u>Birds:</u></p> <p>Outstanding number of waterfowl with total counts regularly exceeding 20,000 including common redshank <i>Tringa tetanus</i>, knot <i>Calidris canutus</i>, dunlin <i>Calidris alpina</i>, avocet <i>Recurvirostra avosetta</i>, ringed plover <i>Charadrius hiaticula</i>, European white-fronted goose <i>Anser albifrons</i>, teal <i>Anas crecca</i>, pintail <i>Anas acuta</i>, shoveler <i>Spatula clypeata</i>, grey plover, <i>Pluvialis squatarola</i>, curlew <i>Numenius arquata</i>, black-tailed godwit <i>Limosa limosa</i> and greenshank <i>Tringa nebularia</i></p> <p>Breeding birds including rare species such as garganey <i>Spatula querquedula</i>, pintail, avocet and bearded tit <i>Panurus biarmicus</i></p> <p>Specially protected birds found within the site include hen harrier <i>Circus cyaneus</i>, short-eared owl <i>Asio flammeus</i>, ruff <i>Calidris pugnax</i>, common tern <i>Sterna hirundo</i>, avocet and golden plover <i>Pluvialis apricaria</i>.</p> <p><u>Plants and Habitats:</u></p> <p>Grazing marsh, dykes, ditches and fleets with grazing marsh, saltmarsh, mudflats, freshwater pools, shingle, woodland habitats and vascular plant assemblage</p>	<p>0m</p>

Designated site	Cited interest features	Approximate distance from Order Limits
	<p><u>Invertebrates:</u> Diverse invertebrate fauna including Nationally Rare beetles, flies and true bugs Scarce emerald damselfly <i>Lestes dryas</i> listed in British Red Data Book (RDB) (Shirt et al, 1987). 100 Nationally Scarce species Water beetle fauna of particular interest</p>	
<p>Rede Common LNR (Natural England, 2018a)</p>	<p>An area of open acid grasslands surrounded by scrub and trees providing habitat for a host of birds, invertebrates and small mammals.</p>	<p>1,014m</p>
<p>Swanscombe Peninsula SSSI (Natural England, 2021)</p>	<p>Swanscombe Peninsula SSSI is an area of open mosaic habitat on previously developed land and traditional estuarine habitat which connects Ebbsfleet Valley to the southern shore of the River Thames between Dartford and Gravesend. The site includes chalk pits, free draining grassland, scrub, wetlands, grazing marsh and saltmarsh. It is of special interest for its nationally important assemblages of invertebrates and breeding birds, populations of five species of vascular plant, and its geological features.</p> <p><u>Plants and habitats:</u> Swanscombe Peninsular SSSI supports populations of five Nationally Scarce species of vascular plant, the first four of which are also 'Vulnerable' to extinction in Great Britain: divided sedge <i>Carex divisa</i>, yellow vetchling <i>Lathyrus aphaca</i>, slender hare's-ear <i>Bupleurum tenuissimum</i>, Bithynian vetch <i>Vicia bithynica</i> and round-leaved wintergreen <i>Pyrola rotundifolia</i> subsp. <i>maritima</i>.</p> <p><u>Invertebrates:</u> Priority Species (Section 41) within the assemblage include the Critically Endangered distinguished jumping spider <i>Sitticus distinguendus</i>, rare five-banded weevil-wasp <i>Cerceris quinquefasciata</i> and Nationally Scarce brown-banded carder bee <i>Bombus humilis</i>. The wetlands support 84 species of water beetle. This represents over a quarter of the UK water beetle fauna.</p>	<p>670m</p>

Designated site	Cited interest features	Approximate distance from Order Limits
	<p><u>Breeding birds:</u> The wetland areas of the site support an assemblage of breeding birds of lowland damp grassland, lowland open waters and their margins and lowland fen. Species associated include bearded tit <i>Panurus biarmicus</i>, marsh harrier <i>Circus aeruginosus</i> and nightingale.</p>	
River Thames Crossing		
<p>Thames Estuary and Marshes SPA (JNCC, 2015a)</p>	<p>Designated under article 4(1) of the European Commission (EC) Birds Directive (79/409/EEC) because over winter the area regularly supports: Hen harrier, avocet Designated under article 4(2) of the EC Birds Directive (79/409/EEC) because over winter the area regularly supports: Dunlin, knot, black-tailed godwit, grey plover and common redshank. And on passage regularly supports: Ringed plover Designated under article 4(2) of the EC Birds Directive (79/409/EEC) because over winter the area regularly supports an internationally important assemblage of birds: 75,019 waterfowl including: avocet, grey plover, knot, dunlin, black-tailed godwit and common redshank.</p>	<p>59m</p>

Designated site	Cited interest features	Approximate distance from Order Limits
Thames Estuary and Marshes Ramsar site (JNCC, 2000)	<p>The site fulfils the following Ramsar criteria as justification for its selection:</p> <p><i>Ramsar criterion 2</i></p> <p>The site supports one Endangered plant species and at least 14 Nationally Scarce plants of wetland habitats. The site also supports more than 20 RDB invertebrates.</p> <p><i>Ramsar criterion 5</i></p> <p>Assemblages of international importance. Species with peak counts in winter: 45,118 waterfowl.</p> <p><i>Ramsar criterion 6</i></p> <p>Species/populations occurring at levels of international importance.</p> <p>Species with peak counts in spring/autumn: ringed plover, black-tailed godwit.</p> <p>Species with peak counts in winter: grey plover, knot, dunlin, common redshank.</p>	0m
North of the River Thames		
Mucking Flats and Marshes SSSI (Natural England, 1991b)	<p>Mucking Flats and Marshes comprise an extensive stretch of Thames mudflats and saltmarsh, together with sea wall grassland.</p> <p><u>Plants and Habitats:</u></p> <p>Mudflats, saltmarshes and grassland</p> <p><u>Birds:</u></p> <p>Nationally and internationally important numbers of wintering wildfowl and waders</p> <p><u>Invertebrates:</u></p> <p>High invertebrate interest, including rare spider <i>Baryphyma duffeyi</i>, as well as many notable and local species</p>	0m
Hangman's Wood and Deneholes SSSI (Natural England, 1991c)	Hangman's Wood and Deneholes, the remains of medieval chalk mines, provide the most important underground hibernation site for bats in Essex.	307m

Designated site	Cited interest features	Approximate distance from Order Limits
	<p><u>Plants and Habitats:</u> Ancient and semi-natural woodland</p> <p><u>Bats:</u> Underground hibernation for brown long-eared bat <i>Plecotus auritus</i>, Natterer's bat <i>Myotis nattereri</i> and Daubenton's bat <i>Myotis daubentonii</i></p> <p>The site is also designated as an ASNW</p>	
<p>Grays Thurrock Chalk Pit SSSI (Natural England, 1993a)</p>	<p>Former chalk quarry now hosting a range of woodlands, scrub and calcareous grassland habitats with an area of open water in the north east corner of the pit.</p> <p><u>Plants and Habitats:</u> Largest population of round-leaved wintergreen <i>Pyrola rotundifolia</i> and man orchid in Essex. Principal components of scrub area are birch <i>Betula pendula</i> and <i>B. Pubescens</i>, ash, sycamore <i>Acer pseudoplatanus</i>, oaks <i>Quercus petraea</i> and <i>Q. robur</i>, hawthorn, spindle <i>Euomyus europaeus</i>, dogwood <i>Cornus sanguinea</i> and ivy <i>Hedera helix</i>.</p> <p><u>Invertebrates:</u> RDB beetle species <i>Mordellistena humeralis</i>, <i>M. neuwaldeggiana</i> and <i>Cryptocephalus sexounctatus</i> plus another 20 notable beetle species. RDB moth species including <i>Dahlica triquetralia</i> and 27 other notable species. RDB true flies including <i>Dicranoptycha fuscisceus</i> so far only recorded in this country in Kent and Essex and another 11 notable true flies. Notable spider <i>Centromeros serratos</i> and locally important spider <i>Entelecora flavipes</i> are found nowhere else in Essex. Best concentration and diversity of calcareous invertebrate fauna in Essex.</p>	<p>1,011m</p>

Designated site	Cited interest features	Approximate distance from Order Limits
Grove House Wood LNR (Natural England, 1993b)	Reedbeds, a pond and brook as well as the woods. It is an important haven for wildlife in an area where no similar large habitats can be found. Even the area of dead elms in the wood provides nesting sites for woodpeckers.	1,351m
Linford Wood LNR (Natural England, 1993c)	Woodland consisting of a hedgebank, mixed woodland willow plantation and open area surrounded by farmland. The woods provide a habitat for wildlife including tawny owls <i>Strix aluco</i> , great spotted woodpeckers <i>Dendrocopos major</i> and green woodpeckers <i>Picus viridis</i> and is an oasis for migrant birds in spring and autumn.	107m
Cranham Marsh LNR (Natural England, 2008a)	<u>Plants and Habitats:</u> Marshland, sedge fen and ancient woodland	260m
Cranham Brickfields LNR (Natural England, 2008b)	Former brickfield with large areas of grassland and scrub supporting rare plants such as Dyer's greenweed <i>Genista tinctoria</i> and pepper saxifrage <i>Silaum silaus</i> as well as: <u>Reptiles:</u> Slow-worm <i>Anguis fragilis</i> and common lizard <i>Zootoca vivipara</i> <u>Invertebrates:</u> Stag beetle <i>Lucanus cervus</i> and butterflies <u>GCN:</u> Designation for supporting GCN	226m
Thorndon Park SSSI (Natural England 1986a)	Thorndon Park is an area of semi-natural broad-leaved woodland and ancient parkland supporting a range of habitat types. <u>Plants and habitats</u> Ancient woodland, parkland, acidic dwarf-shrub heath, fen, ponds <u>Invertebrates</u> The woodland supports an outstanding assemblage of Beetles (Coleoptera) including one species which is rare and vulnerable in Britain.	1640m

Designated site	Cited interest features	Approximate distance from Order Limits
The Manor LNR (Natural England, 2005a)	A wide and diverse range of habitats including acid and neutral grassland along secondary woodland, ancient coppice woodland, hedgerows, ponds and lakes. Species include GCN, harvest mouse <i>Micromys minutus</i> , bumblebees <i>Bombus</i> sp., stag beetle, green woodpecker, house martin <i>Delichon urbicum</i> , skylark <i>Alauda arvensis</i> and song thrush <i>Turdus philomelos</i> .	1,138m

Table 2.2 Non-statutory designated sites present within the Zol

Designated site	Cited interest features	Approximate distance from the Order Limits
South of the River Thames		
Jeskyns LWS	A newly planted area of woodland and meadow.	302m
Great Wood ASNW	Ancient woodland, replanted with sweet chestnut. Part of Cobham Woods SSSI (Natural England, 1984b).	23m
Ashenbank Woodland Trust Reserve LWS and Ashenbank Woods ASNW	Ancient woodland and important and diverse invertebrate fauna. Part of Shorne and Ashenbank Wood SSSI (Natural England, 1988b).	0m
Area of ancient woodland around A2/M2 junction	Ancient woodland.	0m
Brummelhill Wood ASNW	Ancient woodland.	55m
Shorne Wood Country Park and Shorne/Brewers Wood ASNW	Ancient woodland and important and diverse invertebrate fauna. Part of the Shorne and Ashenbank Woods SSSI (Natural England, 1988b).	0m
Claylane Wood ASNW	Area of ancient woodland.	0m
Shorne Pasture LWS (KWT, 1993)	Area of rough unimproved pasture supporting a herb-rich flora including an array of uncommon or rare small clovers. Abundant butterflies, moths and grasshoppers.	258m
Great Crabbles Wood ASNW	Ancient woodland. Part of the Great Crabbles Wood SSSI (Natural England, 1984c).	0m
Court Wood LWS (KWT, 2001), Starmore Wood ASNW and Peartree Wood ASNW	Ancient and ancient replanted woodland.	0m
Telegraph Hill LWS (KWT, 2007a)	Species rich unimproved acid grassland including uncommon species such as field mouse-ear <i>Cerastium arvense</i> . in a matrix of scrub and woodland. Turtle dove <i>Streptopelia turtur</i> recorded in 2006.	348m
Chilton Hills Wood ASNW	Ancient replanted woodland.	388m

Designated site	Cited interest features	Approximate distance from the Order Limits
Ebbsfleet Marshes LWS (KWT, 2018)	Reedbed and matrix of adjacent habitats including the calcareous Ebbsfleet stream, a lake, damp scrub woodland plus calcareous and more neutral grassland areas which support a good range of species including GCN, all four reptile species, bats and a good bird and invertebrate fauna.	499m
A226 Gravesend RNR (KWT, 2014a)	Grassland on chalky soils with a good assemblage of typical chalk plants.	0m
A227/A20 London Road RNR (KWT, 1997a)	Verge with a range of chalk grassland species.	428m
Canal and Grazing Marsh Higham LWS (KWT, 2009a)	The site includes managed and unmanaged grazing marsh, dykes, sea wall, salt marsh and a long stretch of the Thames and Medway Canal, with common reed <i>Phragmites australis</i> on some of the banks. Supports reptiles, nesting birds and a rich invertebrate fauna.	0m
Cole Wood ASNW	Ancient woodland.	38m
Blue Bell Hill Banks and Verges LWS (KWT, 1995)	Species rich chalk grassland and scrub woodland.	105m
Walderslade woods LWS (KWT 2007d)	Ancient woodland.	216m
Frith Woods ASNW, Kits Coty LWS (KWT 2007d)	Ancient woodland.	0m
Frith/Impton Woods ASNW	Ancient woodland.	0m
B2015 Branbridges Road RNR (1997c)	Grassland on Wealden clay and ditch with a good assemblage of plants. Supports invertebrates including notable moths.	495m
Impton/Podkin Wood ASNW	Ancient woodland.	0m
Warren Road RNR (KWT, 1997b)	Shady woodland bank on chalk soils, which supports two species of orchid and a range of ancient woodland indicator species.	254m
Westfield Wood ASNW	Ancient woodland.	0m
M26/A20 London Road Roundabout RNR (KWT, 2014b)	Verge with a range of chalk and neutral grassland species.	451m
Burham Down ASNW	Ancient woodland.	357m

Designated site	Cited interest features	Approximate distance from the Order Limits
North of the River Thames		
Tilbury Marshes LWS (Thurrock Council, 2007)	Relict grazing marsh, saltmarsh, brackish ditches and the grassland of Tilbury Fort as well as saltmarsh habitat and invertebrate assemblage.	0m
Goshems Farm LWS (Thurrock Council, 2007)	Old landfill brownfield area that supports two important species populations: the Nationally Rare RDB plant stinking goosefoot <i>Chenopodium vulvaria</i> and the hornet robberfly <i>Asilus crabroniformis</i> .	0m
Tilbury Centre LWS (Thurrock Council, 2007)	Mosaic of grassland, ditches, a reedbed and a pond. Supports a colony of stonewort <i>Chara</i> sp. and the Nationally Rare great silver water beetle <i>Hydrophilus piceus</i> as well as other rare invertebrates.	0m
Lyttag Brownfield LWS (Thurrock Council, 2007)	Four reptile species; adder, grass snake, common lizard and slow-worm, a developing acid grassland and an important invertebrate community.	0m
Low Street Pit LWS (Thurrock Council, 2007)	Underlain by gravels supporting Thames Terrace Grassland, significant numbers of Essex Red Data List (ERDL) vascular plants and a diverse invertebrate fauna including the national Biodiversity Action Plan (UKBAP) species hornet robberfly.	0m
Broom Hill LWS (Thurrock Council, 2007)	Ancient acid grassland flora and diverse invertebrate community.	135m
West Tilbury Hall LWS (Thurrock Council, 2007)	River terrace with acidic grassland and a diverse invertebrate fauna.	5m
West Tilbury Church LWS (Thurrock Council, 2007)	Ancient grassland and botanical interest.	120m
Rainbow Shaw LWS (Thurrock Council, 2007)	Small woodland fragment, not on the ancient woodland inventory, but characteristic of ancient woodland from recent survey work, hence assessed as such.	0m
Gobions Lake LWS (Thurrock Council, 2007)	Mosaic of habitats including willow scrub, reed beds and water bodies.	312m

Designated site	Cited interest features	Approximate distance from the Order Limits
Linford Wood LWS (Thurrock Council, 2007)	This wood represents one of the few woods within the low-lying plain between West Tilbury and the estuary. It comprises a mix of hawthorn scrub, elm <i>Ulmus sp</i> scrub woodland (a priority scrub type within the Thames Basin Natural Area), an old willow plantation and a small area of maturing pedunculate oak wood to the south. This Site also includes a small amount of scrub encroachment into grassland along the western side of the wood. Within the wood are a small pond and a small but interesting tall herb “fen” with much great horsetail <i>Equisetum telmateia</i> , with angelica <i>Angelica sylvestris</i> . The mosaic habitat supports a wide array of wildlife, in particular woodland and migrant birds	106m
Linford Pit LWS (Thurrock Council, 2007)	Brownfield site supporting important invertebrate fauna.	0m
Orsett Camp Quarry LWS (Thurrock Council, 2007)	Important acid grassland flora including extremely rare plants in Essex like field mouse-ear and several Nationally Scarce plants. Important invertebrate populations, notably the Hymenoptera within which group there are a least six Nationally Rare RDB and 16 Nationally Scarce species including UKBAP species.	3m
Buckingham Hill LWS (Thurrock Council, 2007)	Selected in recognition of the large extent of unimproved acid grassland that is developing here and a significant population of ERDL plant clustered clover <i>Trifolium glomeratum</i> .	11m
Mucking Heath LWS (Thurrock Council, 2007)	Ancient heathlands and acid grassland and invertebrate fauna of interest.	0m
Blackshots Nature Area LWS (Thurrock Council, 2007)	Rough grassland supporting an important invertebrate population and nesting habitat for ground nesting birds such as skylark.	0m
Terrels Heath LWS (Thurrock Council, 2007) and Chadwell ASNW	Terrels Heath has a high forest structure dominated by pedunculate oak, with some hawthorn, blackthorn, broom <i>Cytisus scoparius</i> and gorse <i>Ulex europaeus</i> scrub with some invading elm <i>Ulmus sp</i> . Despite its ancient status, the ground flora is poor in indicator species and is generally grassy. The wood is used as a recreational area, which has resulted in a network of many paths and consequent disturbance to the flora. Includes ancient woodland known locally as Chadwell Wood.	18m

Designated site	Cited interest features	Approximate distance from the Order Limits
Hangman's Wood ASNW	Ancient woodland. Forms part of Hangman's Wood and Deneholes SSSI (Natural England, 1991c)	333m
Cats Mede LWS (Thurrock Council, 2007) and Sheepfold Wood ASNW	Ancient wood remnant, containing a wide variety of tree species including field maple <i>Acer campestre</i> , ash, pedunculate oak, alder <i>Alnus glutinosa</i> , hawthorn and blackthorn. Partially re-planted with black poplars <i>Populus</i> sp.	0m
Palmer's Shaws LWS (Thurrock Council, 2007) and Great Palmer's Shaw ASNW	Ancient woodland and lowland mixed deciduous woodland on non-ancient site.	476m
Mar Dyke LWS (Thurrock Council, 2007)	Important wildlife corridor formed by extensive grassland area including acid and flood-plain grassland. Notable reptile populations with all four Essex species.	373m
Millards Gardens/Brannetts Wood LWS (Thurrock Council, 2007)	Ancient woodland and lowland mixed deciduous woodland.	1,641m (hydrological link to Order Limits)
Brickbarn Wood and Coombe Wood LWS (Thurrock Council, 2007) and Brickbarn ASNW	Small area of ancient woodland surrounded by secondary wood with an important open grassland/scrub supporting characteristic acid grassland species zone along the boundaries. Localised abundance of broad-leaved Cudweed <i>Filago pyramidata</i> , a national RDB plant.	1,573m (hydrological link to Order Limits)
Oak Wood LWS (Thurrock Council, 2007) and ASNW	Ancient woodland dominated by hornbeam <i>Carpinus betulus</i> as overgrown coppice and single standards. Wild service-tree <i>Sorbus torminalis</i> is also present, along with some downy birch <i>Betula pubescens</i> , holly <i>Ilex aquifolium</i> , elder <i>Sambucus nigra</i> , aspen <i>Populus tremula</i> and hazel <i>Corylus avellana</i> . Parts of the wood have been managed as high-cut coppice.	1,004m (hydrological link to Order Limits, air quality)
Belhus Park East LWS (Thurrock Council, 2007)	Acid grassland with neutral soil meadow flora including rare plant species, some of which included in the ERDL.	1,023m (hydrological link to Order Limits, air quality)
Whitehall Wood ASNW	Ancient woodland.	1,098m (hydrological link to Order Limits)

Designated site	Cited interest features	Approximate distance from the Order Limits
Belhus Wood Country Park and Brickkiln Wood ASNW	Ancient woodland.	1,230m (hydrological link to Order Limits, air quality)
Belhus Lakes, Belhus Wood Country Park LWS (Thurrock Council, 2007)	Wet woodland and breeding birds including little ringed plover <i>Charadrius dubius</i> .	465m
Warwick Wood LWS (Thurrock Council, 2007) and ASNW.	Ancient woodland with a coppice-with-standards structure of pedunculate oak, sweet chestnut, hazel and ash. Diverse ground flora including abundant bluebell <i>Hyacinthoides non-scripta</i> , wood spurge, remote sedge <i>Carex remota</i> , wood millet <i>Milium effusum</i> and three-veined sandwort <i>Moehringia trinervia</i> . Habitats present are seemingly suitable for dormouse.	1,974m (hydrological link to Order Limits)
West of Arisdale Avenue LWS (Thurrock Council, 2007)	Brownfield site supporting significant populations of EDRL invertebrate species and breeding assemblages of invertebrates with rough, weedy and flower-rich grassland and a small reed-filled hollow.	9m
St Nicholas Church LWS (Thurrock Council, 2007)	Ancient church cited as South Ockendon Church surrounded by equally ancient grassland supporting subterranean clover <i>Trifolium subterraneum</i> , a rare Essex RDL plant and Nationally Scarce bee.	325m
Stubber's Outdoor Pursuits Centre Site of Importance for Nature Conservation (SINC) (Greenspace Information for Greater London CIC (GiGL) 2020)	Acid grassland supporting locally scarce plant species, breeding skylarks and meadow pipits, secondary woodland and veteran trees. Open water areas supporting wintering wildfowl, dragonflies and potentially amphibians. Large and important bat roost and important bat foraging area in this part of the borough.	0m
Ockendon Railsides SINC (GiGL 2020)	Network of valuable undisturbed habitat acting as corridors to facilitate the movement of wildlife, consisting of ancient woodland, scrub, rough grassland and secondary woodland.	0m
Thames Chase Forest Centre SINC (GiGL 2020)	A demonstration project for the Thames Chase Community Forest, with recently planted woodland, old hedges and ponds.	0m
Cranham Marsh SINC (GiGL 2022)	A combination of wet ancient woodland, wet meadow and marsh. The invertebrate fauna includes the nationally scarce bee <i>Macropis europaea</i> . The site is also important for protected reptiles and the great crested newt.	259m

Designated site	Cited interest features	Approximate distance from the Order Limits
Fields South of Cranham Marsh SINC (GiGL 2020)	A series of arable fields, hedges and drains containing rare arable weeds, possibly supporting invertebrate populations and water vole.	0m
North Ockendon Pit SINC (GiGL 2020)	Neutral grassland and secondary woodland providing habitat for a variety of birds. This site has been identified as containing GWDTE habitats (see Section 14.4 of Chapter 14: Road Drainage and the Water Environment (Application Document 6:1)).	0m
Hall Farm Moat, Paddock and St Mary Magdalene Churchyard, North Ockendon SINC (GiGL 2020)	Waterbodies forming part of an old moat and species rich grassland supporting locally rare plant species. Old grotto and church potential bat roosts.	0m
Fairplay Farm SINC (GiGL 2020)	A farm with fine old hedges around, supporting traditional farmland birds and mammals, around fields with rare arable weeds.	69m
Cranham Hall Shaws and Pasture SINC (GiGL 2020)	Mosaic of habitats with botanical interest, of value to a variety of birds and invertebrates, possibly amphibians.	386m
Puddle Dock Angling Centre SINC (GiGL 2020)	Grassland, hedgerows and open water areas of potential interest for nesting birds, bats and invertebrates. Area may support water voles.	0m
Clay Tye Wood ASNW and SINC	Ancient woodland	238m
Franks Wood ASNW (Thames Chase, Undated-a)	Ancient and semi-natural woodland dominated by hornbeam coppice.	0m
Franks Wood and Cranham Brickfields SINC (GiGL 2022)	Ancient woodland with a variety of fungal species. Areas of unmanaged grassland which contain invertebrates. Pond with value to amphibians.	0m
Hobbs Hole Wood LWS (Brentwood Borough Council, 2012) and ASNW	Ancient woodland, lowland mixed deciduous woodland.	0m
Pot Kiln Wood and Sickle Wood SINC (GiGL 2020)	Pot Kiln Wood is a mosaic of scrub and grassland providing habitat for nesting birds. Sickle Wood is an area of scrub with a partial woodland canopy providing suitable habitat for foraging and breeding birds and a variety of invertebrates.	117m

Designated site	Cited interest features	Approximate distance from the Order Limits
Codham Hall Wood LWS (Brentwood Borough Council, 2012) and ASNW	Ancient woodland dominated by hornbeam coppice, including pedunculate oak, sweet chestnut, sycamore and silver birch <i>Betula pendula</i> .	0m
Ancient woodland west of M25 junction 29 and Codham Hall Wood West SINC	Ancient woodland.	0m
Warley Hall Wood LWS (Brentwood Borough Council, 2012) and ASNW	Ancient woodland dominated by hornbeam coppice and some ash coppice. Rich ground flora with many ancient woodland indicator species, including wood anemone, yellow archangel <i>Lamiastrum galeobdolon</i> and wood melick <i>Melica uniflora</i> .	345m
Hillview SINC (GiGL 2020)	Ancient woodland and neutral grassland	105m
Woodlands School Meadow LWS (Brentwood Borough Council, 2012)	Meadow site comprising dry grassland but also marshy grassland components.	219m
Tomkyns East Pastures SINC (GiGL 2020)	Species rich grassland likely supporting a diverse invertebrate community, ancient hedge and treelines.	166m
Tylers Common SINC (GiGL 2020)	A large common with a good range of wildlife habitats with some uncommon plants.	274m
Tylers Wood SINC	Lowland deciduous woodland and neutral grassland	0m
Folkes Lane Woodland SINC	Lowland deciduous woodland and neutral grassland	0m
Coombe Wood LWS (Brentwood Borough Council, 2012), Foxburrow Wood LWS (Brentwood Borough Council, 2012) and Coombegreen ASNW	Ancient and semi-natural woodland, lowland mixed deciduous woodland on non-ancient site.	0m
Jackson's Wood/Tylers Shaw LWS (Brentwood Borough Council, 2012) and Jacksons Wood ASNW	Ancient woodland.	21m
Jermains Wood SINC (GiGL 2020)	Ancient woodland providing habitat for invertebrates and breeding birds.	0m
Tylers Hall Pond SINC (GiGL 2020)	Large pond with a range of aquatic vegetation.	441m

Designated site	Cited interest features	Approximate distance from the Order Limits
Ingrebourne Valley SINC (GiGL 2020)	An important wetlands at the lower end and ancient alder woods further upstream. Important habitat for invertebrates, breeding birds, water vole and bats.	286m
Parker’s Shaw LWS (Brentwood Borough Council, 2012)	Woodland with areas of sweet chestnut plantation and hornbeam coppice.	0m
Holden’s Wood LWS (Brentwood Borough Council, 2012)	A large woodland with associated understory. Some wet areas along the western side of the site.	385m
Warley Place LWS (Brentwood Borough Council, 2012)	Woodland reserve on the site of an old garden. Notable for a number of fern species.	345m

2.4 European site conservation objectives

2.4.1 For each European site, Natural England produces a set of conservation objectives. These are required to assist public bodies in complying with the legislative requirements and are also designed to help with the protection and improvement of these sites.

Thames Estuary and Marshes SPA and Ramsar site

2.4.2 The Conservation Objectives for the Thames Estuary and Marshes SPA (Natural England, 2014a) and Ramsar site (JNCC, 2000) are as follows.

‘Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- a. *The extent and distribution of the habitats of the qualifying features*
- b. *The structure and function of the habitats of the qualifying features*
- c. *The supporting processes on which the habitats of the qualifying features rely*
- d. *The population of each of the qualifying features, and*
- e. *The distribution of the qualifying features within the site.’*

2.5 Site sensitivities and condition

2.5.1 This section outlines the vulnerabilities, sensitivities and, where information is available, the current ecological condition for each of the sites.

2.5.2 A condition assessment was undertaken for all ecological sites where appropriate information was available.

Thames Estuary and Marshes SPA and Ramsar site

- 2.5.3 The Thames Estuary and Marshes SPA and Ramsar site is a site proactively managed by a number of organisations including Natural England and the Royal Society for the Protection of Birds. The Natura 2000 data form (JNCC, 205a) and Ramsar Information Sheets (JNCC, 2005) highlights that the site is vulnerable to coastal squeeze¹, erosion of intertidal habitat, dredging, eutrophication (particularly with nitrogen and phosphorus), disturbance from water borne recreation, lack of appropriate grazing and water management as well as development pressure including direct land take, indirect disturbance and hydrological effects.
- 2.5.4 The Site Improvement Plan for the site for the SPA (Natural England, 2014b) further raises a number of issues, including:
- a. Coastal squeeze
 - b. Public access/disturbance within the SPA
 - c. Changes in species distributions (decline in SPA birds)
 - d. Vehicles (illicit vehicle use)
 - e. Air pollution: risk of atmospheric nitrogen deposition
- 2.5.5 The BTO WeBS Alerts for the site have raised a ‘high alert’ for white-fronted goose, grey plover and knot, suggesting a rapid decline in these interest features. A ‘medium alert’ exists for shoveler, ringed plover and lapwing *Vanellus vanellus*, suggesting a moderate decline in the numbers of these interest features. In all cases, the declines are thought to reflect local or site-specific factors rather than broad-scale trends (BTO, 2018b).
- 2.5.6 The Thames Estuary and Marshes SSSI and Mucking Flats and Marshes SSSI both underpin the Thames Estuary and Marshes SPA and Ramsar site. The Natural England condition assessment divides Thames Estuary and Marshes SSSI into 58 separate management units. It indicates that most of the site is in favourable condition, with 95.28% of units being ‘favourable’ and 2.35% being ‘unfavourable but recovering’. Of the relatively small area that is not in favourable condition, 0.59% is ‘unfavourable –no change’, and 1.79% is ‘unfavourable – declining’. These units were last reviewed between 12 February 2009 and 26 October 2010 (Natural England, Undated-b). The condition assessment of the Mucking Flats and Marshes SSSI finds 94.13% in ‘favourable’ and 5.87% in ‘unfavourable but recovering’ condition. None of the four units were found to be ‘unfavourable – no change’ or ‘unfavourable – declining’. These units were last reviewed between 03 September 2015 and 03 March 2016 (Natural England, Undated-c).

¹ Coastal squeeze refers to the situation where the coastal margin and habitats, such as mudflats and saltmarsh, are squeezed between the fixed landward boundary (the sea wall) and the rising sea level and cannot therefore migrate landward in response to rising sea levels.

- 2.5.7 The reasons given for Thames Estuary and Marshes SSSI management units not being in favourable condition include coastal squeeze and agricultural disturbance.

North Downs Woodlands SAC

- 2.5.8 North Downs Woodland SAC site is a site proactively managed by Natural England. The Natura 2000 data form (JNCC 2015b) and Information Sheets (JNCC, 2014) highlight that the site is vulnerable to off-road vehicles as well as all-terrain bikes impacting parts of the woodland and eroding soil around the roots of Yews. Beech regeneration is insufficient to retain canopy cover in the long term. In addition, Beech saplings are susceptible to squirrel damage. Invasive Sycamore has the potential to regenerate in woodland gaps reducing overall extent of SAC feature. This is more of an issue in Beech stands than in Yew woodland where Yew tends to eventually succeed in dominating the canopy. Nitrogen deposition exceeds site relevant critical loads.
- 2.5.9 The Site Improvement Plan for the site for the SAC (Natural England, 2014b) further raises a number of issues, including:
- a. Eroding
 - b. Public access/disturbance within the SAC
 - c. Changes in species distributions (decline in Beech regeneration)
 - d. Vehicles (illicit vehicle use)
 - e. Air pollution: risk of atmospheric nitrogen deposition
- 2.5.10 Wouldham and Delting Escarpment SSSI and Boxley Warren LNR both underpin North Downs Woodland SAC. The Natural England condition assessment divides North Downs Woodland into 13 separate management units. It indicates that most of the site is in favourable condition, 10 of the units being 'favourable' and 3 of them being 'unfavourable but recovering'. These units were last reviewed between 18 October 2018 and 16 April 2021 (Natural England, Undated-h).
- 2.5.11 The reasons given for North Downs Woodland units not being in favourable condition include scrub and bramble encroachment.

Peter's Pit SAC

- 2.5.12 Peter's Pit SAC site is a site proactively managed by a Natural England. The Natura 2000 data form (JNCC, 2015c) highlights no areas of concern.
- 2.5.13 The Site Improvement Plan for the SAC (Natural England, 2014c) states that no current issues affecting the Natura 2000 feature(s) have been identified on this site.
- 2.5.14 Peter's Pit SSSI underpin the SAC. The Natural England condition assessment divides Peter's Pit SAC into 4 separate management units. All indicates that all four of these units are in favourable condition. These units were last reviewed in October 2010 (Natural England, Undated-a).

2.6 Individual SSSIs (not underpinning a European site designation) and LNRs

2.6.1 The condition assessments for those individual SSSI not underpinning a European site designation and LNRs are discussed below in Table 2.3.

Table 2.3 Condition assessment of SSSIs not underpinning a European site and LNRs

SSSI/LNR	Condition assessment summary
South of the River Thames	
Boxley Warren LNR	Boxley Warren LNR is within the North Down Woodland SAC and Wouldham to Detling Escarpment SSSI. As the majority of both SAC and SSSI are assessed as 'favourable' (Natural England, Undated-f), it is assumed that Boxley Warren is in good ecological condition.
North Down Woodland SAC	Semi-natural dry grasslands and scrubland facies: on calcareous substrates. Condition assessment indicates that the majority of the sites is in "favourable" condition. The units were last reviewed in 2021 (Natural England, Undated-h).
Wouldham to Detling Escarpment SSSI	Condition assessment indicates that the majority of sites is in 'favourable' or 'unfavourable but recovering' ecological condition. A small area is in 'unfavourable – no change' or 'unfavourable – declining' condition due to lack of grassland management and scrub extend. The units were last reviewed between 2005 and 2019 (Natural England, Undated-h).
Holborough to Burnham Marshes SSSI	Condition assessment indicates that all of the site is in 'favourable' condition. The units were last reviewed in 2009 (Natural England, Undated-i).
Halling to Trottscliffe Escarpment SSSI	Condition assessment indicates that the majority of sites are in 'favourable' ecological condition. Some units are in 'unfavourable – recovering' and 'unfavourable – declining' conditions mainly due to scrub extend. The units were last reviewed between 2007 and 2018 (Natural England, Undated-d).
Cobham Woods SSSI	Condition assessment indicates that the entire site is in 'favourable' or 'unfavourable but recovering' ecological condition. The units were last reviewed between 2007 and 2015 (Natural England, Undated-e). This site encompasses Great Wood ASNW.
Shorne and Ashenbank Woods SSSI	Condition assessment indicates that the majority of the site is in 'favourable' ecological condition. A small area is categorized as 'unfavourable – no change' due to neglected coppice lacking open space. The units were last reviewed between 2008 and 2016 (Natural England, Undated-f) Shorne and Ashenbank Woods SSSI includes Shorne Woods County Park, Ashenbank Trust Reserve, Ashenbank ASNW and Shorne/Brewers Woods ASNW.
Great Crabbles Wood SSSI	Condition assessment indicates that the entire site is in 'unfavourable but recovering' ecological condition. The units were last reviewed in 2012 (Natural England, 2012). This site encompasses Great Wood ASNW.
Rede Common LNR	The main habitats of Rede Common are grassland, scrub areas and woodland areas (the latter both mature woodland and developing woodland

SSSI/LNR	Condition assessment summary
	<p>which has developed from scrub). Neither the habitats or species are rare, but there is great wildlife value in the mosaic of habitats and the semi-natural aspect of the site within the surrounding urban area.</p> <p>The semi-natural secondary scrub woodland has low diversity in canopy, understorey and ground flora which can be improved through selective thinning and underplanting management.</p> <p>Grassland present is invaluable for wildlife including insects and small mammals, requiring management to prevent further spread of scrub and continued hay cutting regime.</p> <p>The management plan indicates the site was in unfavourable condition in 2017 due to high levels of dog fouling, disturbance caused by 'desire line' paths, low levels of vandalism and at times severe fly tipping and rubbish dumping (Medway Council, 2017).</p>
Swanscombe Peninsular SSSI	Condition assessment indicates that the entire site is in 'favourable condition' ecological condition. (Natural England, 2021).
North of the River Thames	
Hangman's Wood and Deneholes SSSI	Condition assessment indicates that the entire site is in 'favourable' ecological condition. The units were last reviewed 2017 (Natural England, 2017).
Grays Thurrock Chalk Pit SSSI	Condition assessment indicates that the entire site is categorized as 'unfavourable – recovering'. The units were last reviewed in 2010 and 2012 (Natural England, Undated-g).
Thorndon Park SSSI	Condition assessment indicates that the majority of sites is in 'favourable' or 'unfavourable but recovering' ecological condition. A small area is in 'unfavourable – no change' or 'unfavourable – declining' condition due to a lack of open space and scrub encroachment. The units were last reviewed between 2009 and 2022 (Natural England, Undated-j).
Grove House Wood LNR	No information available to review current ecological condition.
Linford Wood LNR	No information was available to review to determine the current ecological condition for Linford Wood LNR. However, the majority of this LNR is also designated as Linford Wood LWS (Thurrock Council, 2007). From a review of the citation to the LWS and the limited information for the LNR, this site is considered to be in good ecological condition.
Cranham Marsh LNR and SINC	Cranham Marsh is all that remains of a marshland habitat that once covered many square miles of southern Essex and contains a variety of habitats including marsh, sedge fen and ancient woodland. This nature reserve is managed by EWT with a separate wood that is not open to public access. The woods consist mainly of hazel coppice which some species indicating ancient woodland, such as spindle and midland hawthorn <i>Crataegus laevigata</i> . The grassland is bisected by old reed-filled drainage ditches and contains large concentrations of rare plant species such as yellow loosestrife <i>Lysimachia vulgaris</i> and southern marsh orchids <i>Dactylorhiza praetermissa</i> . The reserve attracts marshland and woodland birds and has an abundant reptile and invertebrate life (Thames Chase, Undated-b). It is therefore assumed to be in good ecological condition.
Cranham Brickfields LNR	Former Brickfield with an array of different habitats supporting GCN, reptiles, migrant birds, invertebrates and rare plants such as pepper

SSSI/LNR	Condition assessment summary
	saxifrage. Designated by the Greater London Authority as a Grade I Site of Borough Importance for Nature Conservation (Thames Chase, Undated-c). Cranham Brickfields LNR is therefore considered to be in good ecological condition.
The Manor LNR	The site includes species rich grasslands, coppiced ancient woodland, ponds, scrub and veteran trees. It supports GCN and other protected species and is designated as a Site of Metropolitan Importance for Nature Conservation (London Borough of Havering, Undated). It is therefore considered to be in good ecological condition.

2.7 Non-statutory designated sites

2.7.1 The condition assessment and rationale for non-statutory designated sites are presented below in Table 2.4.

Table 2.4 Condition assessment and rationale of non-statutory designated sites

Non-statutory designated site name	Condition assessment and rationale
South of the River Thames	
Great Wood ASNW	As the entirety of Cobham Woods SSSI is assessed as 'favourable' or 'unfavourable but recovering' (Natural England, Undated-e), it is assumed that Great Wood ASNW is in good ecological condition.
Jeskyns LWS	The site is a mix of newly planted woodland and grassland areas managed by the Forestry Commission. As such the site is assumed to be in good condition.
Ashenbank Woodland Trust Reserve LWS and Ashenbank Woods ASNW	As the majority of Shorne and Ashenbank Woods SSSI is assessed as 'favourable' (Natural England, Undated-f), it is assumed that Ashenbank ASNW is in good ecological condition. Baseline surveys have confirmed ancient woodland indicators as well as a well-represented invertebrate fauna including rare species.
Area of ancient woodland around M2 junction 1	Baseline surveys have confirmed several ancient indicator species and a diverse flora. The site is however heavily disturbed due to traffic noise and extensive littering and is very fragmented due to infrastructure and is therefore assumed to be in unfavourable condition.
Brummelhill Wood ASNW	Within Shorne Country Park SSSI. As the majority of Shorne and Ashenbank Woods SSSI is assessed as 'favourable' (Natural England, Undated-f), it is assumed that Brummelhill Wood ASNW is in good ecological condition. Baseline surveys have confirmed ancient woodland indicators as well as a well-represented invertebrate fauna including rare species.

Non-statutory designated site name	Condition assessment and rationale
Shorne Wood Country Park and Shorne/Brewers Wood ASNW	As the majority of Shorne and Ashenbank Woods SSSI is assessed as 'favourable' (Natural England, Undated-f), it is assumed that Shorne/Brewers Wood ASNW are in good ecological condition. Baseline surveys have confirmed ancient woodland indicators as well as a well-represented invertebrate fauna including rare species.
Claylane Wood ASNW	Area of ancient woodland. Baseline surveys have found that this area is now mainly dominated by sweet chestnut, is lacking an understory and faces pressure from recreational disturbance, fly tipping and intense felling so this site is therefore assumed to be in moderate to unfavourable condition.
Shorne Pasture LWS	An area of rough unimproved acid grassland which is subject to horse and rabbit grazing. The lower slopes are dominated by coarser grasses with patches of rank vegetation and scattered scrub encroachment. The site is therefore assumed to be in moderate condition.
Great Crabbles Wood ASNW	As the entirety of Great Crabbles Wood SSSI is assessed as 'unfavourable-recovering' (Natural England, 2012), it is assumed that Great Crabbles Wood ASNW is in moderate ecological condition. Baseline surveys have confirmed a good coverage of native tree, scrub and ground flora species including ancient woodland indicator species.
Court Wood LWS, Starmore Wood ASNW and Peartree Wood ASNW	Semi-natural broadleaved woodland much of which has been converted to sweet chestnut, but still retains a good diversity of ancient woodland indicator species. The site is actively managed chestnut coppice with only occasional sessile oak standards. It is also used for informal recreation. It is therefore considered to be in moderate ecological condition.
Telegraph Hill LWS	A small area of species-rich acidic and more neutral grassland subject to rabbit grazing. Hawthorn and bramble scrub are reported encroaching on the grassland. It is therefore considered to be in moderate condition.
Chilton Hills Wood ASNW	No information available to review current ecological condition.
Ebbsfleet Marshes LWS	Reedbed and matrix of adjacent habitats including the calcareous Ebbsfleet stream, a lake, damp scrub woodland plus calcareous and more neutral grassland areas which support a good range of species including GCN, all four reptile species, bats and a good bird and invertebrate fauna including uncommon plants and invertebrate species such as narrow-leaved everlasting pea <i>Lathyrus aphaca</i> and Roesel's bush cricket <i>Metrioptera roeselii</i> . The site is therefore considered to be in good ecological condition.
A226 Gravesend RNR	No information available to review current ecological condition.

Non-statutory designated site name	Condition assessment and rationale
Canal and Grazing Marsh Higham LWS	Managed and unmanages grazing marsh, salt marsh and a long stretch of the Thames and Medway Canal which is managed with a mosaic of open water and reed bed. Site is adjacent to the South Thames Estuary and Marshes SSSI and adds to the overall importance of this stretch of North-West Kent Marshes. Site supports reptiles, hare and bats as well as a good assemblage of bird and invertebrate species, including rare moths. It is therefore assumed to be in good ecological condition.
Cole Wood ASNW	No information available to review current ecological condition.
A227/A20 London Road RNR	Within Wouldham to Detling Escarpment SSSI. The majority of Wouldham to Detling Escarpment SSSI is assessed as 'favourable' (Natural England, Undated-f), however this area has been deemed "unfavourable".
Blue Bell Hill Banks and Verges LWS	No information available to review current ecological condition.
Walderslade Woods LWS	Walderslade Woods is withing Frith Woods etc., Kit's Coty LWS and Frith / Impton Woods ASNW. The site is considered to be semi-natural ancient woodland. The site is therefore considered to be in good ecological condition.
Frith Woods etc., Kit's Coty ASNW and LWS and Frith / Impton Woods ASNW	The site consists of over 18 hectares of ancient woodland which is on the ancient woodland inventory, plus an area of adjacent unimproved but horse grazed pasture land. The site is therefore considered to be in good ecological condition.
B2015 Branbridges Road RNR	No information available to review current ecological condition.
Impton/Podkin Wood ASNW	No information available to review current ecological condition.
Warren Road RNR	No information available to review current ecological condition.
Westfield Wood ASNW	Within Wouldham to Detling Escarpment SSSI. The majority of Wouldham to Detling Escarpment SSSI is assessed as 'favourable' (Natural England, Undated-f), The site is therefore considered to be in good ecological condition.
M26/A20 London Road Roundabout RNR	No information available to review current ecological condition.
Burham Down ASNW	No information available to review current ecological condition.
North of the River Thames	
Tilbury Marshes LWS	Relict grazing marsh, saltmarsh, brackish ditches and the grassland of Tilbury Fort as well as an invertebrate assemblage. Baseline surveys have confirmed this. The site is however under pressure from disturbance due to dog walkers, travellers and fly tipping. Under threat of development from the 'Tilbury2' project (Port of Tilbury London Limited, 2017). Tilbury Marshes LWS is therefore assumed to be in moderate ecological condition.

Non-statutory designated site name	Condition assessment and rationale
Goshems Farm LWS	Old landfill area that supports two important species populations: the Nationally Rare RDB plant Stinking Goosefoot and the hornet robberfly. Neither of those two species have been found during survey work although the hornet robberfly has been seen in the southeast and northeast of the LWS. The area has generally degraded due to restoration work, land raising and scrubbing over of the central area. Some parts of it however are still in good condition and provide great habitat for invertebrates. The LWS is therefore considered to be in moderate condition.
Tilbury Centre LWS	This Site comprises the grounds surrounding the Tilbury Energy and Environment centre. The habitats present are a complex mosaic of grassland, flower-rich early successional/pioneer vegetation, ditches, a small reedbed and a pond, notable for its colony of Stonewort and the Nationally Rare (RDB) great silver water beetle. The pioneer vegetation includes abundant bird's-foot trefoil <i>Lotus corniculatus</i> , on which the national UKBAP brown-banded carder bee <i>Bombus humilis</i> forages. Other important invertebrates have also been recorded here (Thurrock Council, 2007). Under threat of development from the 'Tilbury2' project (Port of Tilbury London Limited, 2017). Considered to be in moderate ecological condition.
Lytag Brownfield LWS	Four reptile species, a developing acid grassland and an important invertebrate community, confirmed by baseline surveys. Under threat of development from the 'Tilbury2' project (Port of Tilbury London Limited, 2017). It is therefore assumed that Lytag Brownfield LWS is in moderate ecological condition.
Low Street Pit LWS	Underlain by gravels supporting Thames Terrace Grassland and a national UKBAP invertebrate species. Baseline surveys have confirmed this. However, the site is currently not grazed and scrubbing over and considered to decline over time. Low Street Pit LWS is therefore considered to be in moderate ecological condition.
Broom Hill LWS	No information available to review current ecological condition.
West Tilbury Hall LWS	This river terrace slope site has an interesting acidic grassland flora that includes meadow saxifrage <i>Saxifraga granulata</i> , wild clary <i>Salvia verbenaca</i> and lesser calamint <i>Clinopodium calamintha</i> , with the latter two species being included within the ERDL. A diverse invertebrate fauna includes the Nationally Rare bee <i>Andrena florea</i> , which is strongly associated with the flowers of white bryony <i>Bryonia dioica</i> and the Nationally Scarce bee <i>Osmia bicolor</i> , which nests in empty snail shells and is therefore generally associated with chalky areas where these molluscs are most abundant. It is a rare species in Essex and is included on the ERDL (Thurrock Council, 2007). Baseline surveys have confirmed a diverse invertebrate fauna on acidic grassland and West Tilbury Hall LWS is therefore assumed to be in good ecological condition.

Non-statutory designated site name	Condition assessment and rationale
West Tilbury Church LWS	This site comprises the yard beyond the now-privately owned church and is of interest as a piece of ancient grassland and for the presence of meadow saxifrage, wild clary and lesser calamint, the latter two species being nationally restricted species locally frequent in Essex and both included in the ERDL of plants. This yard is in the unusual position of surrounding a private dwelling and it is likely that at some time in the future the site would effectively become a private garden, which would be beyond the normal remit of the Local Wildlife Sites project (Thurrock Council, 2007). The site is assumed to be in good ecological condition.
Rainbow Shaw LWS	Rainbow Shaw is thought to be a small ancient woodland fragment. It is an overgrown coppice of sweet chestnut, with some hazel, field and a canopy of pedunculate oak and some ash. The springtime flora is dominated by a carpet of bluebell. The insect fauna includes Glow-worm <i>Lampyrus noctiluca</i> – a very localised beetle in Essex that requires good numbers of snails as prey items for its larvae. The wood has been badly damaged by previous gale events, but it should be realised that this is a natural phenomenon that does create new habitat opportunities within the wood, including dead wood ecosystems (Thurrock Council, 2007). The site is considered to be in good ecological condition.
Gobions Lake LWS	This former gravel pit is now developing into a rich mosaic of habitats with a correspondingly diverse flora and fauna. The lake itself is fringed by bulrush <i>Typha latifolia</i> and common reed, whilst wet grassland areas support grass vetchling <i>Lathyrus nissolia</i> , common spotted orchid and common spike-rush <i>Eleocharis palustris</i> . The peripheral woodland contains a rookery. Areas of willow scrub form part of the overall habitat mosaic. An increase in the extent of reed would be desirable but is dependent upon management of the local water table. The key management issues are freedom from pollution, including silt-laden run-off from surrounding land, and disturbance (Thurrock Council, 2007). The site is considered to be in good ecological condition.
Linford Wood LWS	See Linford Wood LNR above.
Linford Pit LWS	This brownfield site supports an important invertebrate fauna and lies within a very significant cluster of such sites. The invertebrate fauna includes several Nationally Rare (RDB) species, including the bees <i>Andrena florea</i> and <i>Nomada fulvicornis</i> , and the wasps <i>Cerceris quinquefasciata</i> and <i>Hedychrum niemelai</i> , as well as several Nationally Scarce spiders and the Nationally Rare fly <i>Myopa polystigma</i> . The Site is suffering from extremes of management pressure. In some areas the land is completely undisturbed and scrub woodland is developing, which will shade out the areas of interest for invertebrates. In other places, very heavy use by motorbike scramblers is causing too much disturbance. The site is therefore considered to be in poor ecological condition.

Non-statutory designated site name	Condition assessment and rationale
Orsett Camp Quarry LWS	No information available to review current ecological condition.
Buckingham Hill LWS	<p>This Site comprises most of the Tarmac sand pit to the east of Buckingham Hill plus a section of grassland to the north in the adjacent golf course. It has been selected in recognition of the large extent of unimproved acid grassland that is developing here, which should be seen as a contribution towards the Essex Heathland BAP project. The best areas of acid grassland are characterised by the presence of common bent-grass <i>Agrostis capillaris</i>, parsley-piert <i>Aphanes arvensis</i> agg., bird's-foot, early forget-me-not <i>Myosotis ramosissima</i>, sheep's sorrel <i>Rumex acetosella</i>, hare's-foot clover <i>Trifolium arvense</i> and clustered clover <i>Trifolium glomeratum</i>, this last species being Nationally Scarce and an ERDL plant, found within the golf course section of the site. The UKBAP bumblebee <i>Bombus humilis</i> was also recorded from within the golf course section and is likely to be foraging extensively on the clovers that are locally abundant within the Tarmac pit. There is a tendency for the acid grassland within the golf course to become infested with false oat-grass <i>Arrhenatherum elatius</i>, an indication of increased soil nutrient levels and lack of management or environmental pressure (e. g. drought). It is recognised that the Tarmac Pit may be extended in the future by further quarrying. However, it is also recognised that this industrial activity has inadvertently helped to create the features of interest in the first place and that this future quarrying has the capacity to further enhance this interest in the long term (Thurrock Council, 2007). The site is considered to be in moderate ecological condition.</p>
Mucking Heath LWS	<p>The rough areas of this course, constructed on relict acidic grassland/heath, are of both floristic and invertebrate interest. Of particular note amongst the flora are green-winged Orchid <i>Anacamptis morio</i> and autumn squill <i>Scilla autumnalis</i>, both ERDL species, amongst sweet vernal-grass <i>Anthoxanthum odoratum</i>, red fescue <i>Festuca rubra</i>, Lady's bedstraw <i>Galium verum</i>, Heath Bedstraw <i>Galium saxatile</i>, Hoary Cinquefoil <i>Potentilla argentea</i>, field scabious <i>Knautia arvensis</i>, knotted clover <i>Trifolium striatum</i> and field wood-rush <i>Luzula campestris</i> (Thurrock Council, 2007). The insect fauna includes 4 Nationally Rare, 50 Nationally Scarce and over 100 Local species. Baseline surveys have confirmed ancient heathlands and acid grassland with scarce plants and many rare and scarce invertebrates and the site is therefore considered to be in good ecological condition.</p>
Blackshots Nature Area LWS	<p>This large area of rough grassland supports an important invertebrate population, as well as providing potential nesting habitat for birds such as skylark. The invertebrate fauna includes seven ERDL species, as well as the UKBAP fly <i>Dorycera graminum</i> (Thurrock Council, 2007). At just over 18 hectares, this is the largest grassland LWS in Thurrock away from the coastal grazing marshes and the Mar Dyke river corridor and is considered to be in good ecological condition.</p>

Non-statutory designated site name	Condition assessment and rationale
Terrels Heath LWS and Chadwell ASNW	Terrels Heath has a high forest structure dominated by pedunculate oak, with some hawthorn, blackthorn, broom and gorse scrub with some invading Elm. Despite its ancient status, the ground flora is poor in indicator species and is generally grassy. The wood is used as a recreational area, which has resulted in a network of many paths and consequent disturbance to the flora which is particularly poor, possibly due to decades of heavy recreational pressure and the previous management to the south that has left a very sparse, open canopy (Thurrock Council, 2007). The site is therefore considered to be in poor ecological condition.
Hangmans Wood ASNW	As the majority of Hangmans Wood and Deneholes SSSI is assessed as 'favourable' (Natural England, 2017), it is assumed that Hangmans Wood ASNW is in good ecological condition.
Cats Mede LWS and Sheepfold Wood ASNW	Poor ground flora, large amounts of invasive species like snowberry <i>Symphoricarpos albus</i> and partially replanted with exotic species (Thurrock Council, 2007). The site is considered to be in poor condition.
Palmer's Shaws LWS and Great Palmer's Shaw ASNW	Great Palmer's Shaw is a partially neglected ancient wood of which a significant proportion has been replanted. The area of semi-natural woodland has hazel coppice, ash, pedunculate oak and elder whilst the plantation is of beech and pine <i>Pinus</i> sp. Heavy shading, particularly in the planted area, has resulted in a currently sparse ground flora typified by ground-ivy <i>Glechoma hederacea</i> , bramble <i>Rubus fruticosus agg.</i> and common nettle <i>Urtica dioica</i> . Little Palmer's Shaw is an ancient wood remnant consisting of hazel coppice with ash and pedunculate oak standards is suffering from neglect, with the ground flora impoverished by the dense, shading tree canopy and the impact of children's recreation. The ground flora is rich in bryophytes, but vascular plants are sparse, with typical species being bluebell, ground-ivy and bramble. This site also includes a small amount of recent secondary woodland growth that forms a bridge connecting these two areas of woodland. These two ancient woodland remnants are in a poor condition, with heavy recreational pressure and re-stocking with exotic species detracting from the original semi-natural vegetation (Thurrock Council, 2007).
Mar Dyke LWS	A complex of grassland areas forming a wildlife corridor whose extent is rare in Essex. Some areas are unmanaged and becoming subject to scrub invasion whilst other areas are horse-grazed and over-stocked with trampling becoming a problem. The site is therefore considered to be in moderate ecological condition.
Millards Gardens/Brannetts Wood LWS	Many ancient woodland indicator species such as pignut <i>Conopodium majus</i> , bluebell, remote sedge <i>Carex remota</i> and Goldilocks buttercup <i>Ranunculus auricomus</i> . However, the site faces pressure from fly tipping and is therefore assumed to be in moderate ecological condition.

Non-statutory designated site name	Condition assessment and rationale
Brickbarn Wood and Coombe Wood LWS and Brickbarn Wood ASNW	No information available to review current ecological condition.
Oak Wood LWS and ASNW	Oak Wood is dominated by mature sycamore, with a variety of other planted trees such as horse chestnut <i>Aesculus hippocastanum</i> , common lime <i>Tilia vulgaris</i> and black poplar. Pedunculate oak, ash, alder and elm also occur in this ancient wood. The ground flora is poor, highly disturbed and subject to much dumping of garden rubbish. Bluebell is locally frequent, whilst wood millet and remote sedge occur in modest quantities (Thurrock Council, 2007). The Thurrock Biodiversity Study 2006-2012 suggests managing the exotic canopy and understory to improve the currently poor shrub and field layers. The site is considered in moderate ecological condition.
Belhus Park East LWS	This strip of grassland is part of the former Belhus Park grounds, now separated from the main body of the site by the M25. It presents an interesting range of grassland types that includes several species of note. The southern strip is managed as rough amenity grassland and comprises a neutral soil “meadow” flora in which meadow foxtail <i>Alopecurus pratensis</i> , sweet vernal-grass, red fescue <i>Festuca rubra</i> and smooth meadow-grass <i>Poa pratensis</i> are the most prominent grasses. Of interest amongst the herbage are patches of an acid grassland sward, where sheep’s sorrel, bird’s-foot, field wood-rush, lady’s bedstraw and, most notably, subterranean clover <i>Trifolium subterraneum</i> are of interest. The last species is rare in Essex and is included in the ERDL of plants. The central and northern sections of the site comprise rougher grassland with scattered trees, areas of planted trees and natural scrub growth. Of note amongst the flora here is harebell, another ERDL plant and one that supports the rare Essex bee <i>Melitta haemorrhoidalis</i> . The important acid grassland sward is threatened by nutrient enrichment of the soil if the sward is cut and left to rot down in situ and shading from the along the boundary of the M25 which may lead to the loss of the species of interest. The central and northern parts are being threatened by excessive scrub growth and tree-planting schemes (Thurrock Council, 2007). The site is considered in moderate ecological condition.
Whitehall Wood ASNW	No information available to review current ecological condition.
Belhus Wood Country Park and Brickkiln Wood ASNW	Brickkiln Wood comprises old hazel coppice under mainly ash with some pedunculate oak standards and stream-side alder. Towards the west is a stand of apparently healthy elm-wood. The shaded ground flora includes spindle, three-veined sandwort, wood millet, lesser celandine <i>Ficaria verna</i> and bluebell. Of note amongst the streamside ferns is soft shield-fern <i>Polystichum setiferum</i> , an ERDL plant that has declined dramatically in recent years (Thurrock Council, 2007). Although situated within a busy country park the wood does not suffer much from visitor pressure and is considered in good ecological condition.

Non-statutory designated site name	Condition assessment and rationale
Belhus Lakes, Belhus Wood Country Park LWS	This site comprises a complex of lakes formed from old gravel pits that lie within Belhus Woods Country Park, plus a cluster of smaller lakes to the north that are outside the park boundary. The main, roughly triangular, lake is zoned as a conservation area in which fishing is not permitted. The lakes have good developing reedbeds and a marginal vegetation, which includes reedmace, fool's watercress <i>Helosciadium nodiflorum</i> , branched bur-reed <i>Sparganium erectum</i> , lesser pond-sedge <i>Carex acutiformis</i> and water mint <i>Mentha aquatica</i> . They are fringed by bands of wet willow <i>Salix</i> spp. and alder, which form a more coherent wet woodland habitat around the smaller northern lakes. The open water includes much fringed water-lily <i>Nymphoides peltata</i> . Of particular interest here is the small but seemingly stable breeding population of little ringed plover <i>Charadrius dubius</i> , a rare breeding bird in Essex and therefore included on the ERDL (Thurrock Council, 2007). The Thurrock Biodiversity Study 2006-2012 suggests that the site would benefit from willow coppicing but is otherwise assumed in good ecological condition.
Warwick Wood LWS and ASNW	Threatened by the spread of sycamore, particularly in recently coppiced areas. Despite this, the wood is considered to be in good ecological condition but would benefit from hazel coppicing to improve the habitat diversification (Thurrock Council, 2007).
West of Arisdale Avenue LWS	This brownfield site comprises rough, weedy and flower-rich grassland and a small reed-filled hollow. It is of value for its invertebrate assemblage, amongst which the small mining bee <i>Andrena alfkenella</i> is of particular interest amongst a list of 15 ERDL species. Also present is the long-winged cone-head bush-cricket <i>Conocephalus discolor</i> and the UKBAP bumblebee <i>Bombus humilis</i> . This latter species requires large areas of flower-rich grassland in which to forage and rough grassland for nest construction. The long-winged cone-head bush-cricket requires areas of tall, unintensively managed grassland and, although expanding its range nationally, remains relatively uncommon in Essex (Thurrock Council, 2007). The site is assumed to be in good ecological condition.
St Nicholas Church (South Ockenden Church) LWS	The grassland has been adversely affected by the mowing regime in recent years with the sward being cut in high summer and cuttings being left in situ, which has impacted the Subterranean Clover and could potentially increase soil nutrient levels. The site is therefore considered to be in moderate ecological condition.
Stubber's Outdoor Pursuits Centre SINC	This former gravel pit site contains lakes, hedges, grassland and scattered trees/woodland. Of particular note are the wildflowers that are characteristic of disturbed areas, such as coltsfoot <i>Tussilago farfare</i> and creeping cinquefoil <i>Potentilla reptans</i> . Additionally, the broadleaved woodland planting on the slopes of the landscape mounds will continue to grow to be of value for breeding birds. This site is assumed to be in good ecological condition.

Non-statutory designated site name	Condition assessment and rationale
Fields South of Cranham Marsh SINC	This site is of value for its arable fields with associated hedges and ditches. It is assumed to be in good ecological condition.
North Ockendon Pit SINC	This site is an area of capped land that includes planted scrub and trees. It is assumed that this site is in good ecological condition.
Hall Farm Moat, Paddock and St Mary Magdalene Churchyard, North Ockendon SINC	This site is of value for its grassland habitats, along with the old moat, which are valuable wetland habitats. These areas are maintained to allow for a mix of habitat types to be present, including short, mown grassland and paddock grazed flower rich grassland. This site is assumed to be in good ecological condition.
Ockendon Railsides Ancient Woodland and SINC	This site comprises a woodland and habitat on the railsides with a good variety of associated wildlife. This site is assumed to be in good ecological condition.
Thames Chase Forest Centre SINC	The site is a mix of newly planted woodland and grassland areas managed by the Forestry Commission. As such the site is assumed to be in good condition.
Fairplay Farm SINC	This site comprises a series of arable fields and hedges with a good variety of associated wildlife. This site is assumed to be in good ecological condition.
Cranham Hall Shaws and Pasture SINC	This is a mosaic of habitats, consisting of a sizeable horse field with rich hedges and a pond, and two small areas of woodland. Together these habits are of value to a variety of birds and invertebrates and possibly amphibians, as well as having botanical interest. This site is assumed to be in good ecological condition.
Puddle Dock Angling Centre SINC	A variety of wetland habitats with a large area of neutral grassland with agricultural hedges. This site is assumed to be in good ecological condition.
Clay Tye Wood SINC and ASNW	No information available to review current ecological condition.
Franks Wood ASNW	Ancient and semi-natural woodland dominated by hornbeam coppice. This site is adjacent to Cranham Brickfields Nature Reserve. Unfortunately, the site faces pressures due to recreational activities, fly tipping and illegal dumping and is therefore assumed to be in moderate ecological condition.
Franks Wood and Cranham Brickfields SINC	No information available to review current ecological condition.

Non-statutory designated site name	Condition assessment and rationale
Hobbs Hole Wood LWS and ASNW	Hobbs Hole comprises woodland and scrub habitat. The southern part of the site has tall ash coppice and standards in the high canopy. Much of the remainder is dense blackthorn scrub with a ground flora dominated by common nettle <i>Urtica dioica</i> and red campion <i>Silene dioica</i> . The ground flora includes ancient woodland indicators including wood anemone, bluebell and moschatel <i>Adoxa moschatellina</i> . The majority of this woodland is of recent origin; however, the species indicative of ancient woodland suggest that a remnant of far older woodland does survive within this site and it is considered to be in good ecological condition (Brentwood Borough Council, 2012).
Pot Kiln Wood and Sickle Wood SINC	The site consists of two small woods, one of which has recently been planted as part of the Thames Chase Community Forest. This site is assumed to be in good ecological condition.
Codham Hall Wood LWS and ASNW	Ancient woodland/lowland deciduous woodland dominated by hornbeam coppice. Baseline surveys have confirmed this and Codham Hall Wood LWS is therefore considered to be in good ecological condition.
Ancient woodland west of M25 junction 29 and Codham Hall West SINC	No information available to review current ecological condition.
Warley Hall Wood LWS and ASNW	The wood is said to have a typical ancient woodland structure and retains a rich and diverse ground flora. It is therefore assumed to be in good ecological condition.
Hillview SINC	A flower rich grassland and a tiny pocket of ancient woodland beside the busy A127. The location of the site immediately adjacent to the A127 means it is considered that the site is in moderate ecological condition.
Woodlands School Meadow LWS	No information available to review current ecological condition.
Folkes Lane Wood SINC	No information available to review current ecological condition.
Coombe Wood LWS, Foxburrow Wood SINC and Coombegreen ASNW	Area of ancient and semi-natural woodland. Coombe Wood and Foxburrow Wood both mentioned as ancient woodlands in the Thames Chase Statement of Significance. The site is therefore assumed to be in good ecological condition. (Brentwood Borough Council, 2012).

Non-statutory designated site name	Condition assessment and rationale
Jackson's Wood/Tylers Shaw LWS and Jackson Wood ASNW	Hornbeam coppice dominates along with scattered Ash and Pedunculate Oak standards. The shrub canopy within the woodland is sparse but includes hawthorn and elder, whilst spindle is confined to the margin of the wood. Patches of bramble are found beneath the densely shading canopy. Species of interest in the ground flora include bluebell and wood anemone. Several other ancient woodland indicator species are recorded from this woodland site, including yellow archangel, wood melick, primrose <i>Primula vulgaris</i> and three-veined sandwort (Brentwood Borough Council, 2012). This woodland clearly exhibits the structure and flora characteristic of ancient woodland and is considered to be in good ecological condition.
Tomkyns East Pastures SINC	This site comprises an area of traditional countryside with flower rich pastures divided by ancient hedgerows. This site is assumed to be in good ecological condition.
Tylers Common SINC	A large common with a good range of wildlife habitats, with some uncommon plants. The site is dominated by coarse grasses, but there are some areas of herb-rich grassland. The site is considered to be in good ecological condition.
Tylers Wood SINC	No information available to review current ecological condition.
Jermains Wood SINC	This site is an area of probable ancient woodland dominated by ash, much of which is suffering from ash dieback. In addition to the ash there are areas of hornbeam coppice, oak and hazel. The site is subject to regular felling. Due to the majority of the site consisting of ash woodland, and the presence of dieback, the site is considered to be in moderate ecological condition.
Tylers Hall Pond SINC	The site consists of a large pond with a good range of aquatic plants. The pond is surrounded on three sides by willows, and there is an abundance of marginal vegetation on the shallow poached banks. It is assumed the site is in good ecological condition.
Ingrebourne Valley SINC	The site consists of a large area of important wetland habitat, along with ancient woodland and grassland. The site is assumed to be in good ecological condition.
Parker's Shaw LWS	No information available to review current ecological condition.
Holden's Wood LWS	No information available to review current ecological condition.
Warley Place LWS	A 25-acre reserve that was restored from Edwardian gardens. Currently under active management and has been restored with suitbale habitat for bats and other species. The site is assumed to be in good ecological condition.

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