

14 GREEN INFRASTRUCTURE

INTRODUCTION

- 14.1 In the new NPPF Green Infrastructure is defined as:

‘A network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities’.

Although sometimes referred to as Blue Infrastructure, Green Infrastructure also encompasses river systems and environs. The NPPF places a strong emphasis upon strategic policies in plans focusing upon the conservation and enhancement of the natural, built and historic environment including landscapes and green infrastructure (para 20d). Green infrastructure is also seen as part of essential place-making to enable and support healthy lifestyles (para 91c), tackle air pollution (para 181) and managing the impacts of climate change particularly in vulnerable areas (para 150a). It is important for local plans to take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure (para 171).

- 14.2 As part of the evidence base to support the development of the Local Plan, the Council commissioned Groundwork in 2015 to produce a Green Infrastructure (GI) Strategy. This strategy suggests that in the Brentwood Borough, GI could be practically defined as including parks; open spaces; recreational sports facilities such as golf courses, cricket, rugby and football pitches; woodlands; wetlands; grasslands; rivers and canal corridors; allotments; cemeteries; and private gardens.

- 14.3 The GI strategy also highlights the importance of planning for Green Infrastructure at all spatial scales, nationally, regionally, locally and at a neighbourhood level and across a number of timescales (short, medium and long term). GI is considered important socially, economically and environmentally with a role in providing:

- a sense of local distinctiveness and beauty;
- space for eco-systems to develop and habitats for wildlife;
- an accessible and integrated network of green travel routes;
- places for outdoor sport, recreation, education and relaxation;
- areas for local food production – allotments, gardens and through agriculture
- natural spaces for accommodating climate change, including areas for flood alleviation and cooling urban heat islands.

- 14.4 The new Local Plan highlights the need to improve the linkages between formal and informal open spaces in the Borough and ensure that strategic green corridors are protected and where opportunities arise (for example through new development) that green infrastructure provision is enhanced.
- 14.5 Figure 14.1, sets out a working GI typology for this section of the IDP which is based upon the GI Strategy, Open Spaces, Sport and Recreation Study¹, Natural England's Green Infrastructure Guidance² and the council's policy position set out in the new Local Plan.

Figure 14.1 – Brentwood Green Infrastructure Typology

	Type of GI	Key Policy Elements
i)	Parks and Gardens	County Parks, Borough Parks and Recreation Grounds, Historic Parks and Gardens.
ii)	Ecological assets and Natural and Semi-Natural Greenspaces (urban / rural)	Special Sites of Scientific Interest (SSSI), Local Nature Reserves (LNR), Local Wildlife Sites (LoWS), Woodlands, Geological Assets, Grasslands, Other Assets.
iii)	Green and Blue Corridors	Main Rivers, Large Ordinary / Non-Main River Watercourses, Major Tributaries, Wetland, Hedgerows, Major Road Corridors, Major Rail Corridors, Cycling Routes / Network, Pedestrian Paths and Rights of Way, Protected Lanes.
iv)	Outdoor sports facilities and provision for children and teenagers	Natural green surfaces – tennis courts, bowling greens, sports pitches, golf courses, school and other institutional playing fields, and other outdoor sports areas. Green formal / informal recreation areas for children / teenagers.
v)	Amenity Greenspace	Amenity greenspace, Village Greens, Commons, other Informal Greenspace, Locally Designated Greenspace.
vi)	Allotments	Parish and borough council owned / managed.
vii)	Cemeteries and churchyards	Public and privately owned facilities.

- 14.6 Detailed specific issues relating to sport and recreational facilities (green surfaces primarily) are covered under the relevant chapter, although they are considered and listed as part of the wider Green Infrastructure framework. Technical information on Brentwood's GI sites has been obtained from a number of sources including:

¹ Details to be confirmed

² Natural England's Green Infrastructure Guidance (NE176), Natural England, 2009

- Special sites of Scientific Interest (SSSI) – Natural England Designated Sites
- Local Wildlife Sites (LoWS) – Brentwood Borough Local Wildlife Site Review December 2012 and LoWS Update 2016 – Essex Ecology Services Ltd
- Open Space Assessment - Ploszajski Lynch Consulting Ltd (2016)
- Historic Parks and Gardens – Historic England Listings
- Local Geological Sites – GeoEssex

PARKS AND GARDENS

OVERVIEW

14.7 According to the Parks Alliance¹, parks deliver value in many ways, including:

- Improved physical and mental health for users;
- Environmental benefits and contribution to sustainability, and
- Economic impact: through commercial activities, supporting tourism and property values.

Statistics suggest that £1bn of yearly savings in averted NHS health costs could be made if every household had equitable access to green space. Eight in 10 people with children under 10 visit parks at least once a month. In East England, 54% of children visit local urban parks in an average month.²

14.8 Within the current economic climate there are significant challenges to maintaining high quality parks and greenspaces. The Parks Alliance highlights three areas of critical concern:

a) Funding and innovation – dwindling resources for green spaces with the Fabian Society predicting a reduction in spending on parks by 60 per cent by 2020³.

b) Environment and sustainability - concerned about the general impact of climate change and working to mitigate its effects, and also the specific protection of UK species, regimes to prevent diseases, and the use of environmental management techniques to mitigate the impact of flooding and to conserve water.

c) Parks for health - in addition to being places of leisure and relaxation, for many, parks act as free gyms. Parks are open to and well used by the whole community, increasingly with additional facilities to support physical fitness. Parks and open spaces are a cost-effective means of maintaining physical and psychological wellbeing. They will play an increasing role in tackling problems of public health, including obesity, and the impact of social isolation.

14.9 Within the urban context, the seminal work on public parks and social renewal – ‘Park Life’ by Comedia and Demos indicates how important public parks are as an integral part of the public realm.⁴ Of the 20 recommendations within the

¹ The Parks Alliance is a not for profit membership body with representation from across the professional sectors with an interest in parks and greenspaces.

² Figures from <https://www.theparksalliance.org/stats/> - accessed 21st March 2017

³ The Fabian Society – Places to Be

⁴ Park Life – Urban Parks and Social Renewal – A Report by Comedia in association with Demos.

Comedia report, a number remain relevant today in terms of infrastructure planning, including:

- Clearly defining the purpose of each park and open space.
- Developing planning policies for local space which is flexible and responsive to local needs.
- Investing in different forms of park management – direct provision, partnerships, voluntary management and trusts.
- Establishing ‘experimental funds’ for local park initiatives.
- Integrating sustainability and health agendas.

BRENTWOOD’S PARKS AND GARDENS

14.10 Brentwood is fortunate is having a wide range of parks and gardens, including two country parks (Thorndon and Weald), large Borough parks (Hatch Road Park, Bishop Hall Park, Merrymeade Park, Warley Park, St. Faiths Park and Hutton Park), and registered historic parks and gardens (at Thorndon and Weald Country Parks plus Warley Place). These parks and gardens are detailed below in Figure 14.2 below.

Figure 14.2 Park and Gardens

Types of Park and Gardens	Size (ha)	Description	Formal Policy Designations	Broad GI Classifications
Country Parks				
Thorndon Country Park	222.48	Formal Country Park split into Thorndon North – woodlands and Childerditch Pond and Thorndon South with its open parkland and wide ranging views. Ownership is split between the Woodland Trust and Essex County Council.	Green Belt, Country Park, Historic Park and Gardens, SSSI, LoWS, Ancient Woodlands, Important Site for Geology, Ancient Monument,	Strategic Green Infrastructure - Large Country Park with Informal and Natural Open Spaces, Grassland, Woodland and large Pond. Very significant GI asset.
South Weald Country Park	187.55	Formal County Park with woodland, lakes, hay and wildflower meadows, deer park, open grassland and spectacular views. The park is famous for its wildlife, including fallow deer, cattle, herons, mallard ducks and other water birds.	Green Belt, Country Park, Historic Park and Gardens, LoWS, Ancient Woodlands, Important Local Site for Geology,	Strategic Green Infrastructure - Large Country Park with Informal and Natural Open Spaces, Grassland, Woodland, Lakes and Meadows. Very significant GI asset.
Medium to Large Borough Parks				

Types of Park and Gardens	Size (ha)	Description	Formal Policy Designations	Broad GI Classifications
Hatch Road Country Park	3.8	Located on the site of a former British Telecom depot, the site was designated a LoWS due to its value as a grassland site with botanical interest.	Green Belt, Borough Park, LoWS	Medium sized park with Informal and Natural Open Spaces, Primarily Grassland with tree and hedge features.
Bishop's Hall Park	4.4	Park provides open green space for general recreation alongside senior and junior play facilities and hard courts. It is surrounded by trees and hedges. The park is also located close to the Brentwood Centre.	Green Belt, Borough Park, Recreation Facilities	Medium sized park with informal and formal recreational features
Merrymeade Park	14.33	Merrymeade Country Park is managed by Brentwood Borough Council. The site is split into a number of fields, two of these being owned by Essex County Council and leased the Brentwood Borough Council and the other being owned by Brentwood Borough Council. The site is an oasis for wildlife close to the town centre and it is therefore managed primarily for nature conservation. This 34 ha site consists of four grassland fields, scrub, a small area of woodland and wetland habitats including a pond and stream.	Green Belt, Borough Park, LoWS	Large park with Informal and Natural Open Spaces, Predominately unimproved Grassland, with ponds, streams, hedgerow and scrub features.
Warley Country Park	21	Warley Country Park covers 21 hectares of open space for quiet informal recreation. The open space, which has been developed on former farmland, includes sizeable areas of naturally colonising secondary woodland, hedgerows, a stream and a pond.	Green Belt, LoWS, Borough Park	Large park with Informal and Natural Open Spaces, Primarily Grassland but with Woodland, Hedgerows, Pond and Stream features.
St. Faiths County Park	16	St Faith's has been managed by Brentwood Borough Council since 1999. Before this, it formed part of the grounds of St Faith's Hospital. The site is managed to benefit wildlife and biodiversity whilst still allowing informal public access. The park covers 16 hectares of attractive open	Green Belt, LoWS, Borough Park,	Large park with Informal and Natural Open Spaces, Primarily Grassland, but with Pond, Stream, Hedgerow and Woodland features.

Types of Park and Gardens	Size (ha)	Description	Formal Policy Designations	Broad GI Classifications
		grassland fields bounded by mature hedgerows. There is also small areas of scrub and wet woodland, watercourses and ponds.		
Hutton Country Park	37	The park covers 36 hectares, containing a large area of natural grassland, an area of ancient woodland, ponds, wetland and the River Wid, which forms the northerly border. Supporting a vast array of native flora and fauna and is thus managed as an area of conservation value in what is otherwise an area of vast intensive arable land and urban expansion.	Greenbelt, Local Nature Reserve (LNR), LoWS, Ancient Woodland, Borough Park,	Large park with Informal and Natural Open Spaces, made up primarily of grassland, woodland, ponds, and wetlands. The River Wid forms the northern boundary of the park.
Historic Parks and Gardens				
Weald Park	187.55	A late C17 and early C18 park and woodland, developed in the mid C20 as a country park. (list entry 1000747)	Green Belt, Country Park, Historic Park and Gardens, LoWS, Ancient Woodlands, Important Local Site for Geology,	Historic features and horticultural value.
Warley Place	11	Remains of the wild and natural garden created by the horticulturalist Ellen Willmott between the 1890s and her death in 1935. (List entry – 1000746)	Historic Park and Gardens, LoWS	Historic features and horticultural value.
Thorndon Country Park (Thorndon Hall)		The site of an early C18 park and woodland by Lord Petre, with mid C18 developments to park and pleasure grounds by Lancelot Brown and subsequent minor additions in the 1790s probably by Richard Woods, now a C20 country park and golf course. (List entry – 1000314)	Green Belt, Country Park, Historic Park and Gardens, SSSI, LoWS, Ancient Woodlands, Important Site for Geology, Ancient Monument	Historic features and horticultural values.

Thorndon Country Park - Overview

- 14.11 Thorndon Country Park is the largest park in the Borough at 222.48 ha. Formally the park is split into Thorndon North – woodlands and Childerditch Pond and Thorndon South with its open parkland and wide-ranging views. Ownership is split between the Woodland Trust and Essex County Council. The park has a number of facilities and features, including:
- **Thorndon North** – Countryside Centre (managed in conjunction with Essex Wildlife Trust), shop and tearoom and children's Gruffalo trail. There are also walking routes, organised orienteering courses / routes and bike hire.
 - **Thorndon South** – Pavilion Cafe and barbecue area. Other activities / features include a dog activity trail and fishing at Old Hall Pond.
- 14.12 The Country Park is generally used for informal recreation. There is public access to all parts of the site, with four designated public footpaths and a designated public bridleway.
- 14.13 Thorndon Country Park is covered (in full or in part), by formal planning policy designations including Green Belt, Historic Parks and Gardens, SSSIs, Local Wildlife Sites, Ancient Woodland, Important Local Site for Geology and an Ancient Monument. Thorndon Country Park is a strategic important area of green infrastructure for the Borough.

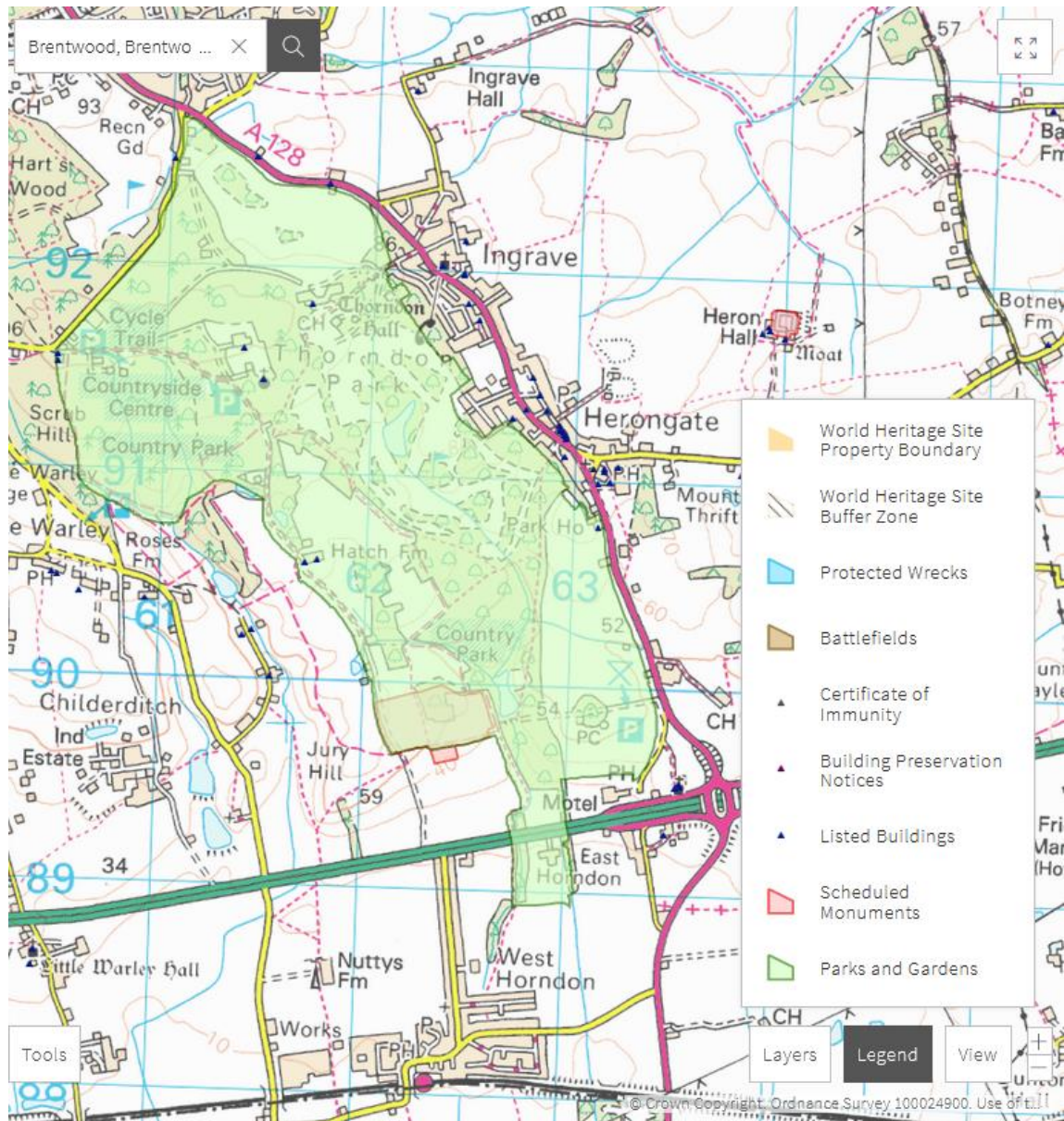
Thorndon Country Park – Historic Context

- 14.14 The country park is part of the original Thorndon estate and has a number of important heritage assets as detailed below in Figure 14.3.⁵ The first park of 300 acres was created in 1414 and based around the old Thorndon Hall. This was a deer park used for hunting. By the 18th Century the meaning of the term 'park' changed to an emphasis on landscape rather than hunting. The 8th Lord Petre, an eminent horticulturist, designed a landscape plan for Thorndon, which was drawn up by Bourginion in 1733. Some of this plan was carried out before the 8th baron died at a young age. It included very formal areas alongside natural ones and had agriculture as an integral part (Old Thorndon Pastures). He cultivated many exotic plants and trees.
- 14.15 The 9th Lord Petre built a new Hall to the north of the estate (now privately-owned flats) and commissioned his own plan by Capability Brown to re-landscape this area - now used as a golf course. Such extravagancies bankrupted the family until the 12th baron turned their fortunes in the third quarter of the 19th Century. Agriculture became the focus of the estate. The agricultural depression of the late 1870s, followed by the destruction by fire of Thorndon Hall in 1878 led to the family relocating permanently to Ingatestone. When the 16th baron was killed in the First World War, the estate was broken

⁵ Information reproduced from Historic England mapping service,

up and sold off. The land in the current Country Park was acquired in 1939, 1951 and 1992.

Figure 14.3 Thorndon Country Park and Heritage Assets

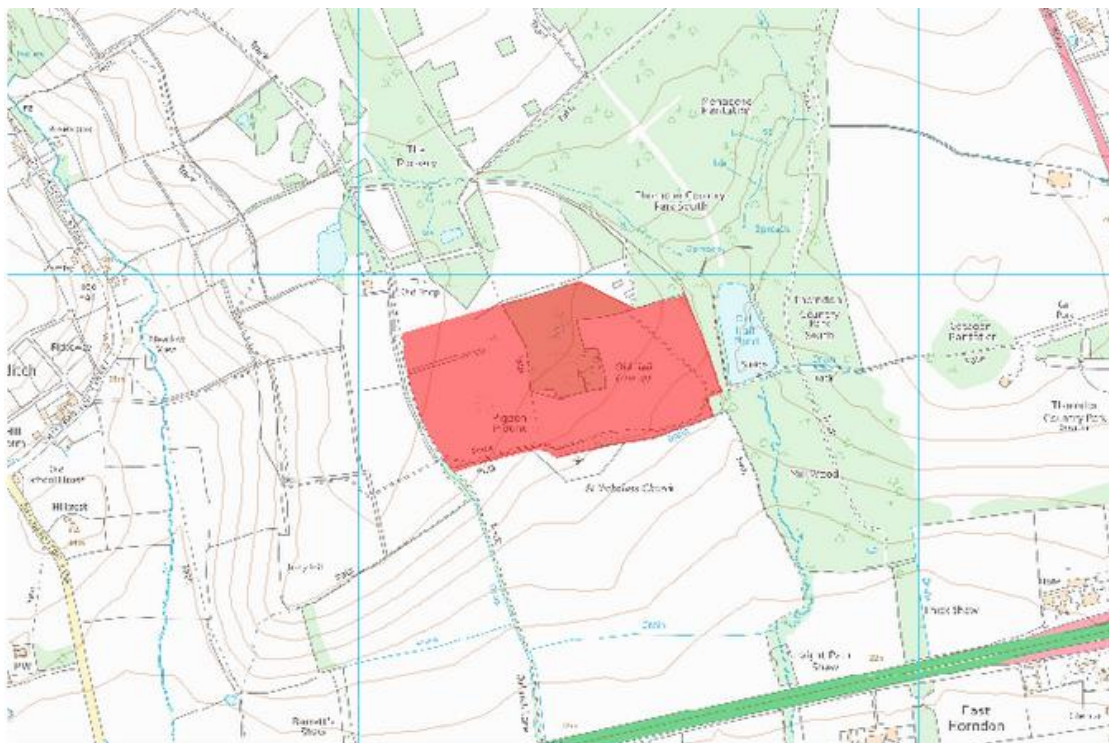


- 14.16 The Register of Historic Parks and Gardens provides a Grade II* listing for Thorndon Hall historic park and gardens and indicates that the gardens associated with Thorndon Hall lie to the south and are laid to lawn set with a small circular stone basin. Within the woodlands which lie beyond the east and west fronts are two mounds which appear on the eighth Lord Petre's 1733 plan of the landscape. The park surrounding Thorndon Hall, which sits in the north-

east corner of the site, is extensive and contains remnants of the early C18 layout, together with features of Lancelot Brown's work, all partly overlaid by C20 developments (including golf course). Below the new woodland and the golf course lie some of the oldest features of the Thorndon landscape. Located centrally in this southern section are Menagerie Plantation within which lies Old Hall Pond, and below it Mill Wood. The woodlands were developed from the mid C18 onwards although Old Hall Pond was retained from the early C18 formal scheme. The walled kitchen garden lies c 350m to the south-west of Thorndon Hall. It was built in this position when the Hall was erected in 1763 and remained in use as a kitchen garden until the C20. It was retained by the sixteenth Lord Petre when the rest of Thorndon Park was sold. The ground is laid to lawn and planted with a variety of specimen trees and shrubs.

- 14.17 According to the Historic England listings, the monument includes the above and below ground remains of Old Thorndon Hall and its associated gardens, including remains of the moated medieval manor and Old Hall and the area of gardens around the house which formed the original landscaped gardens of the 16th century, partially redesigned in the 18th century. Figure 14.4 below provides information of the location of the ancient monument listing.

Figure 14.4 Old Thorndon Hall and Gardens – Ancient Monument



- 14.18 Listed structures at the Country Park include Thorndon Hall (Grade 1) and the Chantry Chapel and Mausoleum (Grade II*).

Thorndon Country Park - Woodlands and Grasslands

- 14.19 According to the Essex Woodland Project, Thorndon Country Park has several blocks of ancient woodland, parkland and plantations. Ancient trees are an outstanding feature. Giant oak and hornbeam pollards indicate that the area was once a deer park. Parts of park were historically covered by heathland, now a scarce habitat in Essex, with projects now progressing to restore the heathland habitats and also returning areas of the park to grassland and broadleaved woodland.⁶ The grasslands are managed for wildlife, landscape and recreation value. Short grass areas are suitable for organised events. Standard trees and wood clumps are maintained primarily for landscape value. Old Thorndon Pastures are managed under Countryside Stewardship as grazing units. Grazing has recently been reintroduced to the wood pasture in a bid to restore it to favourable condition.
- 14.20 The Forestry Commission England Woodland Management Plan for the park,⁷ outlines that the woodlands are managed for amenity, wildlife value and timber production (both coppice and high forest). Alien species (self-seeding sycamore, Turkey oak and cherry laurel) are routinely removed during felling operations. Structural diversity is maintained and natural regeneration is encouraged, along with planting as required.
- 14.21 Childerditch Wood is situated within Thorndon Country Park, west of Little Warley to the south of Brentwood. The wood is on a slope with a south-west facing aspect and covers an area of 9.5 Hectares. It is a notified SSSI. The wood has a mix of standard types but is largely Common oak high forest. Areas of the wood have been subject to replanting. Along the woods south-west facing edge are two substantial ponds. Upper Pond to the north-east of the area and Childerditch Pond to the south.

Thorndon Country Park - Geology⁸

- 14.22 The woodland has a complex geology consisting largely of London Clay with a band of Claygate Beds along the northeast east edge. An area of alluvial deposits lies to the north-west of the larger Childerditch Pond in the valley with a small area of Head between the alluvial deposits and the smaller pond. There is a small area of head to the north of the smaller pond and also a band of Head

⁶ Information reproduced from <http://www.essexwoodlandproject.org/woodlands/thorndon/> - accessed 20th March 2017.

⁷ Forestry Commission England Thorndon Country Park Woodland Management Plan 1st April 2012 to 31st March 2032

⁸ Majority of geology information from <http://www.geoessex.org.uk/brentwood.html>

to the east of the larger pond to the edge of the wood. There is a slither of glacio-alluvial sand and gravel on the north-east edge of the wood towards the sand and gravel pits.

- 14.23 Thorndon Country Park North and Little Warley Common have a varied geology, the underlying rocks providing evidence of two periods of our distant past. The oldest surface rocks date back to the Eocene period and consist of London Clay, Claygate Beds and Bagshot Sands, three types of sediment laid down in a sub-tropical sea some 50 million years ago. There are no permanent exposures of these rocks although Bagshot Sand is frequently visible in the roots of fallen trees at the northern end of the country park.
- 14.24 To the south of the park and on Little Warley Common are large spreads of glacial gravel which date back to the middle of the Ice Age. This gravel was deposited some 450 000 years ago by colossal torrents of melt water issuing from the Anglian ice sheet, the edge of which was then situated only a short distance north of here. At that time ice covered almost all of Britain to a maximum thickness of over one kilometre. The gravel therefore provides evidence of an exceptionally cold period of the ice age, a time when Essex was barren of virtually all life – in contrast to the flora and fauna that can be seen at Thorndon today.

Thorndon Country Park - Ecology and Biodiversity

- 14.25 The park attracts a large number of woodland birds and sees more than its fair share of passage migrants and winter visitors. For example, large flocks of siskins and redpolls often gather in the birches, and bramblings can be seen near to the centre feeding on beech mast. It also hosts an unusually wide variety of butterflies, including the uncommon purple and white-letter hairstreaks.
- 14.26 The park features two official Local Wildlife Site (LoWS) designations:
- Bre92 – Thorndon Country Park North – generally managing as high forest. When harvesting mature Beech and Pine, favour replacement by a greater proportion of native broadleaved species, although retaining some Beech and Pine is beneficial to bird life. Key management issues include visitor number and also the management of Great Crested Newts which are known to inhabit several ponds.
 - Bre106 – Thorndon Country Park South – desirable management - consider grazing (ideally sheep) on Jury Hill and adjacent

grasslands. Maintain restoration of old parkland landscape. Management issues include high visitor numbers.⁹

South Weald Country Park

- 14.27 Measuring 187.55 ha, South Weald has woodland, lakes, hay and wildflower meadows, deer park, open grassland and spectacular views. The park is famous for its wildlife, including fallow deer, cattle, herons, mallard ducks and other water birds.
- 14.28 The park has four main car parks, toilet facilities and a newly refurbished visitor centre with shop and café. Visitors can also borrow 4/4 all-terrain mobility scooters to access various parts of the park on a free basis if registered with shop mobility. The park is also a popular destination for educational visits and social events such as weddings and birthday parties, for which there is supporting services available. Popular park activities include the Stick Man trail, picnics, cycling and walking along numerous trails, horseriding and birdwatching.
- 14.29 Weald County Park is covered (in full or in part), by a number of formal planning policy designations, including Green Belt, Historic Parks and Gardens, LoWS, Ancient Woodlands, and an Important Local Site for Geology. In terms of its broad Green Infrastructure classification the park would be considered a strategic green infrastructure asset with informal and natural open spaces, grassland, woodland, lakes and meadows.

Medium to Large Borough Parks

- 14.30 Key medium to large Borough parks include:

Hatch Road 3.8ha – habitats include grassland, hedgerow, scrub and woodland. LoWS. Management plan in place since 2014.

Bishop's Hall 4.4ha – four grass fields separated by mature trees and hedges, play equipment and car park, adjacent to Hatch Road Park. Management plan since 2014.

Merrymeade Park 14.33ha – consists of four grassland fields, scrub, a small area of woodland and wetland habitats including a pond and stream. Significant wildlife interest and close to Town Centre

⁹ Information reproduced from Brentwood Borough Local Wildlife Site Review 2012 Final December 2012 – Essex Ecology Services Ltd

Warley Country Park 21ha – large area of open space used for informal recreation -developed on former farmland, includes sizeable areas of naturally colonising secondary woodland, hedgerows, a stream and a pond.

St. Faiths Country Park 16ha – St Faith's has been managed by Brentwood Borough Council since 1999. Before this, it formed part of the grounds of St Faith's Hospital. The site is managed to benefit wildlife and biodiversity whilst still allowing informal public access. The park covers 16 hectares of attractive open grassland fields bounded by mature hedgerows. There is also small areas of scrub and wet woodland, watercourses and ponds.

Hutton Country Park 37ha – habitats include woodland, hedgerow, scrub, grassland, ponds, rivers and streams. currently Brentwood's only LNR. LNR's are areas of local importance that may contain species or features that are locally rare or declining. These areas are protected and managed to provide accessible natural green space and opportunities for the public to learn about and study nature.

Further information is available in Figure 14.2 above.

Historic Parks and Gardens

- 14.31 Information on Thorndon Country Park is discussed in detail under para 14.16.
- 14.32 Weald Park is a Grade II historic park and garden originating from the late C17 and early C18 park and woodland, developed in the mid C20 as a country park. The garden and pleasure grounds lay to the east of the site of the hall and survive today (2000) as earthworks and one set of brick steps, representing the C19 terraced formal garden located between the hall and the Belvedere Mount which lies c 100m to the east, edged by a ha-ha wall on its eastern boundary. The C19 formal gardens used the walled enclosures from the C16 and C17 garden as their basis (CL 1897). The raised mount was created in the early C18 by Samuel Smith at which time it was surmounted by a Belvedere tower. The mount at that time was laid out in a complex series of paths and planting; this was softened into a wilderness during the C19. Some of the planting from the late C19 survives although only the base of the tower remains.¹⁰
- 14.33 Warley Place is a Grade II historic park and garden which contains the remains of the wild and natural garden created by the horticulturalist Ellen Willmott between the 1890s and her death in 1935. One of Brentwood's hidden assets, the site is maintained as a nature reserve by Essex Wildlife Trust.

¹⁰ Information from <https://historicengland.org.uk/listing/the-list/list-entry/1000747>

Infrastructure Challenges

- 14.34 Figure 14.5 below provides a list of the main maintenance, development or infrastructure issues connected to each park site. The majority of information was obtained from the open spaces audit completed in 2016.

Figure 14.5: Current Park Issues

Types of Park and Gardens	Infrastructure Issues
Country Parks	
South Weald Country Park	Open spaces audit would seem to indicate that some improvements could be made to paths and roads.
Thorndon Country Park	Open spaces audit would seem to indicate that some improvements could be made to paths and roads.
Medium to Large Borough Parks	
Hatch Road Country Park	In the Open Spaces Study this park scored particularly low for the quality of its entrance, paths and roads, grassed areas, general tidiness, safety and security and parking and accessibility.
Bishop's Hall Park	Improvements to amenities and park features.
Merrymeade Park	Site scores low for general tidiness on the Open Spaces Audit. LoWS review indicates halting further expansion of scrub into grassland and manage hedgerows to maintain thick network of scrub habitat
Warley Country Park	LoWS review indicates a need to maintain the balance of scrub blocks within rough grassland, preventing excessive spread of scrub. Park scores low for parking and access, general tidiness and the quality of the entrance.
St. Faiths County Park	Poor scorings for the quality of the entrance, footpaths, boundaries, general tidiness, security and accessibility. LoWS assessment suggests a need to maintain and, if possible, extend network of thick hedgerows. Manage grasslands to maximise diversity of grassland sward types.
Hutton Country Park	LoWS audit indicates a need to manage grasslands to maintain a mosaic of grassland types; maintain thick hedgerows
Historic Parks and Gardens	
Weald Park	Continuing to support the work of Essex WT in wildlife preservation and enhancement.
Warley Place	The LoWS places a strong emphasis upon maintaining the historic environment and landscape.
Thorndon Country Park (Thorndon Hall)	Need minimize impact on important heritage assets, while supporting visitor interest.

IMPLICATIONS OF GROWTH AND RESOURCES

- 14.35 Population growth through new housing is likely to place additional visitor pressures on local parks. It is too early to quantify the full impact of this growth, but it would be advisable to monitor usage levels and establish a range of prioritised improvements / interventions as part of the development of the Council's Leisure Strategy. There are also clear opportunities to build new strategic green infrastructure connections across the Borough. One of the most important being the connection through Dunton Hills Garden Village to strategic green infrastructure to the north and south. There are also other opportunities across the Borough subject to individual site plans.

ECOLOGICAL ASSETS

OVERVIEW AND HEADLINES

- 14.36 As with a number of sections within the Green Infrastructure chapter there are a cross-over of locations and classifications. For the purposes of this section, ecological assets are classified as Special Sites of Scientific Interest (SSSI), Local Nature Reserves (LNR), Local Wildlife Sites (LoWS), Ancient Woodlands and Geological Assets. These are some of the Borough's most important places for scientific interest, wildlife, geology and environmental diversity.

Sites of Special Scientific Interest (SSSI)

- 14.37 In terms of definitions a Site of Special Scientific Interest (SSSI) is the land notified as an SSSI under the Wildlife and Countryside Act (1981), as amended. SSSI are the finest sites for wildlife and natural features in England, supporting many characteristic, rare and endangered species, habitats and natural features. Within the Brentwood Borough there are three SSSI which are detailed below in Figure 14.6¹.

Figure 14.6: Sites of Special Scientific Interest (SSSI)

SPECIAL SITES OF SCIENTIFIC INTEREST (SSSI)	Size (ha)	Description	Issues
The Coppice, Kelvedon Hatch	9.30	The Coppice, Kelvedon Hatch, is an ancient semi-natural broad-leaved wood, developed over a complex geology of Claygate Beds, Bagshot Beds and Head, in the small valley of a tributary of the River Roding. Two main woodland types are present, base-rich springline Alder Woodland and Oak-Hornbeam Woodland. The base-rich springline Alder Woodland is uncommon, both nationally and in Essex, and the Coppice contains a more diverse flora than other local examples of this stand type.	

¹ Information obtained from <https://designatedsites.naturalengland.org>

SPECIAL SITES OF SCIENTIFIC INTEREST (SSSI)	Size (ha)	Description	Issues
Curtismill Green, Navestock	47.8	Curtismill Green is an area of unimproved grassland and scrub about five miles west of Brentwood on soils derived from London Clay and Chalky Boulder Clay. There are patches of valley gravel and alluvium locally. It is a small, separate relic of the ancient Forest of Waltham, of which Epping Forest is the largest surviving fragment. The varying soil conditions give rise to both damp and dry grassland containing several species which are uncommon, decreasing or unusual in the county.	Parts of the SSSI has been described as unfavourable declining - AGRICULTURE - INAPPROPRIATE CUTTING/MOWING, LACK OF CORRECTIVE WORKS - INAPPROPRIATE SCRUB CONTROL, PUBLIC ACCESS/DISTURBANCE - PUBLIC ACCESS/DISTURBANCE, VEHICLES - VEHICLES - OTHER,
Thorndon Park	148.52	Thorndon Park is an area of semi-natural broad-leaved woodland and ancient parkland supporting a range of habitat types developed over Claygate and Bagshot Beds and gravels to the south of Brentwood. The woodland includes the Lowland Birch-Sessile Oak and Pedunculate Oak- Hornbeam types and the site supports an outstanding assemblage of Beetles (Coleoptera) including one species which is rare and vulnerable in Britain.	
Total	205.62		

Local Nature Reserves

- 14.38 Local authorities can create Local Nature Reserves (LNR) if they control the land and intend for the site to be open (at least in part) to the public. A site can be chosen as locally important for wildlife, geology, education and general enjoyment (without disturbing wildlife). A wide variety of types of land can make suitable LNRs. Brentwood has one formally designated LNR – Hutton Country Park – which has been owned by Brentwood Borough Council since 1997. The 36ha park supports a large range of native flora and fauna and contains a large area of natural grassland, an area of ancient woodland, ponds, wetland and the River Wid, which forms the northerly border of the site.

Local Wildlife Site (LoWS)

- 14.39 Local Wildlife Sites are areas of land that are especially important for their wildlife. They are some of our most valuable wildlife areas. Local Wildlife Sites are identified and selected locally using scientifically-determined robust criteria and surveys. Brentwood is very fortunate in having a wide range and number of LoWS (147 in total). A number of LoWS sites are within close proximity to development sites or contained within large site allocations. These LoWS will need to be afforded strong protection as part of any development proposals. A wide range of maintenance and enhancement works has also been identified for a number of LoWS sites.
- 14.40 There are also a number of Potential LoWS identified in the 2012 study. These are detailed below in Figure 14.7. It can be noted that two sites in particular (highlighted in blue) – Brentwood Community Hospital and Green Meadows are within close proximity to development sites and further analysis is required to potentially support full LoWS designation.

Figure 14.7: Potential Local Wildlife Sites

Potential LWS	Name	Detail
BrePLoWS1	Stawberry Wood	This may well be an old, possibly ancient, piece of woodland. However, it has been almost totally coniferised, removing the semi-natural canopy, understorey and ground flora to the extent that it is now a poor ecological unit. However, it lies within an important cluster of old woodland sites and restoration of a semi-natural broadleaved canopy could see relatively quick improvements in its wildlife value, provided that the woodland soil profile is adequately protected, and could easily see it promoted to the full LoWS register.
BrePLoWS2	Beredon's Common (Coombe Green)	At first sight this wood of Pedunculate Oak (<i>Quercus robur</i>), birch (<i>Betula</i> spp.) and Sycamore (<i>Acer pseudoplatanus</i>) might appear to comprise a developing ecological link between Foxburrow Wood and Coombe Wood LoWS. However, the origin of this site lies in open, rough grassland as an ancient village green. The land is still a Registered Common (CL 103) and Ordnance Survey maps of 1881 show it to be open, rough ground which, knowing the sandy nature of the underlying soils, might have been heathy in nature. Given the scarcity of old heathland in Essex, it is suggested that the value of this site lies in recreating open, heathy vegetation, perhaps with scattered trees, rather than promoting it as a woodland link between the two adjacent LoWS.
BrePLoWS3	School Road Wood East	This Site comprises a strip of old woodland running along the southern side of a former country lane, now blocked off to prevent access by traffic. It follows the parish boundary and is, to some extent, a continuation of the Reading Springs LoWS to the west, although it is less clearly ancient in origin. It is suggested that this site has great potential as a woodland access site for less able persons, including wheelchair users, using the still present tarmac path of the old road as a means of passing along the woodland strip. This could allow good opportunities for this section of the public to experience and enjoy

Potential LWS	Name	Detail
		woodland ecology in a safe and easily accessible environment. In order to fulfil this potential, some work on clearing the tarmac track would be needed, along with improved parking arrangements at either end.
BrePLoWS4	Hook End	<p>These two fields comprise a mosaic of dry, acid grassland, taller rough vegetation on more neutral soils, Bramble (<i>Rubus fruticosus</i> agg.) scrub and some wet woodland associated with a small spring feature in the southern section. This site might represent old grassland habitat, although it is seemingly lacking in plants indicative of such conditions. However, further research into the site's history may reveal evidence of this. The habitats look ideal for reptiles and good populations of these BAP species could be sufficient to promote the site to full LoWS status. The invertebrate populations may well also repay closer inspection.</p> <p>The Site is in a location that would make it attractive to housing developers and these outstanding ecological queries should be addressed in any associated ecological appraisal of the Site.</p>
BrePLoWS5	Hampden Wood	<p>This small wood, being promoted as an urban nature reserve by Brentwood Council, is undoubtedly of some nature conservation value in the local context, but it is felt that its qualities do not merit the level of county importance, which is implied by full LoWS status.</p> <p>The canopy comprises rather badly storm-damaged Sweet Chestnut (<i>Castanea sativa</i>), with some London Plane (<i>Platanus x hispanica</i>) and planted but maturing Pedunculate Oak (<i>Quercus robur</i>) and Beech (<i>Fagus sylvatica</i>), whilst Rhododendron (<i>Rhododendron ponticum</i>) and Laurel (<i>Prunus laurocerasus</i>) occur in the understorey. Bamboo plants in the ground vegetation further enhance the idea that this is a heavily landscaped wood. Reference to old Ordnance Survey maps suggests that this is a remnant of ornamental woodland associated with a large property called Hampton House, which stood where the houses of Hamilton Crescent now stand. Management to increase the quantity of native tree and shrub species, with the removal of invasive exotics such as Rhododendron, Laurel and Bamboo would increase the ecological value of the site, although it is appreciated that this may be resisted by local residents who use the wood and value its more ornamental qualities.</p>

Potential LWS	Name	Detail
BrePLoWS6	Shenfield Common	<p>The common (actually no longer a piece of registered Common Land) is clearly popular as a place for local informal recreation, experiencing woodland wildlife and popular activities such as feeding the ducks on the large pond. However, there are several other woods nearby (e.g. Thorndon Country Park) that better fulfil the role of accessible natural woodland greenspace and so this criterion has not been applied to Shenfield Common.</p> <p>The true potential value of Shenfield Common lies in its origin as a large tract of rough, open and probably heathy grassland. As recently as 1920, the common was largely open, with a scattering of trees at the southern end but since then it has tumbled down to species-poor oak woodland. In places within the ground flora, traces of the acid grassland vegetation can still be seen. Public opinion would probably resist the complete clearance of this recent woodland cover to restore heathland. However, this is an Essex and England BAP habitat and the restoration of a more open canopy, to create a parkland habitat under which acid grassland and heathland can flourish once more ought to be achievable.</p>
BrePLoWS7	Brentwood Community Hospital Wood	<p>The majority of this wood has its origins as recent woodland and plantation associated with the parkland estate of Middleton Hall, now a school lying to the west of the wood. By the 1950s, housing was starting to encroach on the previously open countryside and the first signs of woodland growth are apparent (from old Ordnance Survey maps). The ornamental origins of the wood probably account for the abundance of Laurel (<i>Prunus laurocerasus</i>) in the understorey, whilst the canopy is dominated by Pedunculate Oak (<i>Quercus robur</i>). Other ornamental introductions include Sycamore (<i>Acer pseudoplatanus</i>), Beech (<i>Fagus sylvatica</i>), Yew (<i>Taxus baccata</i>) and Spotted Laurel (<i>Aucuba japonica</i>).</p> <p>The status of this wood is similar to Hampden Wood (BrePLoWS5) – it is a useful and no doubt locally valued pocket of urban woodland but is not of a sufficient standard to currently merit full LoWS status. If its use as an educational or recreational resource is enhanced, along with improvements to the composition (shifting the balance away from exotics such as Laurel) then this site might qualify for full LoWS status under the accessible natural greenspace criterion. Protection and enhancement of woodland.</p>
BrePLoWS8	Button Common	<p>This Site forms part of a Registered Common (CL 82) and effectively comprises part of the ancient village green complex for Herongate. Such pieces of land were typically spared agricultural improvement during their communal use but in recent decades nutrient enrichment has brought about a change in the floral composition of this Site. This may be associated with hay cropping, although it appears the site is still occasionally used for public events, echoing its traditional use. Realising the potential of this ancient grassland site may depend on the viability of the residual seed bank in allowing the recreation of species-rich grassland and also control over management practices to promote a flower-rich sward once more.</p>

Potential LWS	Name	Detail
BrePLoWS9	Hutton Hall Meadow	This is thought to be a piece of old grassland, once used as a venue for village social events and a former Rabbit warren associated with the adjacent Hutton Hall. However, it now lies unmanaged, with a rough grassland sward and an ever-increasing amount of scrub growth. In order to get this grassland back into good condition, management needs to address soil nutrient enrichment, the need to cut or sympathetically graze the site and the control of scrub. However, the presence of reptiles and important invertebrate populations may also be an issue, which should be subjected to appropriate survey work prior to establishing a new management regime.
BrePLoWS10	New Bladen's Wood	The 1839 parish tithe map for Ingrave shows this strip to be wooded, raising the possibility that this woodland site is a lot older than it currently appears. Today, the canopy comprises relatively young planted broadleaved standards, with no trees of any great age present. Regardless of its past history, as the current woodland canopy matures, along with diversification of the understorey/scrub layer, this Site should develop into a useful link between Bladen's Wood, Primstock and Little Bladen's Wood, all of which are thought to be ancient.
BrePLoWS11	Green Meadows	This rough grassland site appears to have lain fallow for well over 20 years and is now succumbing to scrub invasion. Sites such as this can develop significant reptile and invertebrate populations and appropriate survey work would be desirable to help quantify this potential interest. Significant Protection and Enhancement

Ancient Woodlands

- 14.41 Ancient woods are considered our richest land-based habitat for wildlife. They are home to more threatened species than any other. Because they have matured and slowly changed over such long timescales, ancient woods have unique and special features. Their soils remain relatively undisturbed by human activities, keeping layers laid down over centuries of falling leaves and providing a home for hidden communities of fungi, invertebrates and dormant seeds. A closely-knit network of plants and animals, some of which are rare and vulnerable, also depend on the stable conditions ancient woodland provides².
- 14.42 The Woodland Trust has identified a number of proposed Local Plan development sites which may have an impact on ancient woodland and will require substantial protection. These include:
- Arnold's Wood Complex
 - Barrack Wood / Donkey Lane Plantation
 - Hobbs Hole
 - Clement's Wood

² Information reproduced from the Woodland Trust.

- Codham Hall Woods

These sites are also LoWS.

Geological Assets

- 14.43 Brentwood has a small range of local geological assets which are detailed below in Figure 14.8. This information has been reproduced from GeoEssex.org. There are no Local Geological Sites or geological SSSIs.

Figure 14.8 – Other Geological Sites

BRENTWOOD. Former pit of Brentwood Brickworks (TQ 586 932)

Classic site in the London Clay/Claygate Beds that has produced a large number of fossils since the 1920s, many of which are now in London's Natural History Museum. It has been cited in numerous scientific papers. It ceased working and became overgrown in the 1980s and is now occupied by an industrial estate. The steep sides of the pit can still be seen but no access is available. An historical site only.

BRENTWOOD. Harts Wood (TQ 603 923)

Potential exposures of Warley Gravel and Bagshot Sand. Exposures may be available in ravines or stream banks.

BRENTWOOD. Thorndon Country Park (includes Little Warley Common) (TQ 604 915)

Thorndon Country Park has some interesting landforms which enable the geology to be appreciated. To the south a spread of glacial gravel is dissected by several streams, which have cut through the Claygate Beds exposing the underlying London Clay. Glacial gravel is well exposed in a gravel cliff at the east end of the park with a signboard explaining the geology. A smaller exposure of glacial gravel exists in a gravel pit at Scrub Hill on Little Warley Common to the west. A geological trail guide is being drafted.

GREAT WARLEY. Coombe Green Sand Pit (TQ 576 904)

In a triangular wood bounded by three lanes is a former sand pit with minor exposures of Bagshot Sand. The pit was visited by the Geologists' Association in 1915 and the director noted that it was very fine sand with a great abundance of the minerals epidote and blue tourmaline.

INGATESTONE. Ingatestone Boulders (TQ 6511 9967 and TQ 6511 9959)

Two well known sarsen stones are at the junction of the High Street and Fryerning Lane (TQ 6511 9967), the largest one standing one metre (3'3") above ground. Another stone is situated a short distance away adjacent to the south door of St. Edmund and St. Mary Parish Church in the High Street (TQ 6511 9959). The latter stone stands 90 centimetres (3 feet) above the ground and the church guidebook states that it was originally buried beneath the north wall. Local legend claims that these three stones were once part of a single large boulder but sarsens are extremely tough rocks and there is no sign of freshly broken surfaces. They were undoubtedly separate finds; glacial erratic boulders ploughed up from local fields or more likely excavated from the local gravel pits around Fryerning and brought to the town centre for practical or religious reasons.

KELVEDON HATCH. The Coppice (TQ 573 991)

This public woodland has minor exposures of Warley Gravel and Bagshot Sand in the valley sides.

NAVESTOCK. Millennium Stone (TQ 5460 9613)

A giant boulder of ferricrete sits on a concrete plinth by the road. It is 2.1 metres by 1.5 metres (7 feet by 5 feet) in size and was placed here in 2000 to mark the Millennium. It was excavated from a nearby field.

SOUTH WEALD. Langtons Gravel Pit (part of Weald Country Park) (TQ 577 947)

The former gravel pit at Langtons is a classic geological site that has been cited in numerous scientific papers for over a century because of the former exposures of the 'Bagshot Pebble Bed', the origin of which is controversial. The Bagshot Pebble Beds is at the junction of the Bagshot Sand and the overlying Warley Gravel (also known as Stanmore Gravel or 'pebble Gravel'). No gravel is currently visible and this is an historical site only. The former pit is occupied by Langtons Pond.

KEY ISSUES

- 14.44 Summary of key resultant issues for Green Infrastructure planning:

- Consider measures to protect and positively support degraded SSSI.
- Important to protect and enhance LoWS – maintenance issues to be included within GI cost programming.
- Consider designation of potential wildlife sites – particularly sites within close proximity to Local Plan allocations.

- Introduce additional protective measures for ancient woodland to ensure development sites do not adversely impact on sensitive environments and introduce appropriate mitigation measures.

GREEN AND BLUE CORRIDORS

OPPORTUNITIES

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- 14.45 This part of the chapter focused briefly upon the opportunities of green and blue corridors. Within the context of the Brentwood Borough this relates to:
- Road and rail corridors where there is opportunity to promote wildlife and habitat connectivity to the wide green grid;
 - Watercourses – established and new
- 14.46 Brentwood is well served by rail lines and connectivity. Organisations such as Network Rail have been working in partnership with Highways England, Natural England and The Wildlife Trusts through the Green Transport Corridors project to forge new approaches to managing the transport ‘soft estate’, to improve safety and performance on the network and benefit wildlife. Working towards net positive biodiversity is one part of this.
- 14.47 The Green Transport Corridors project feeds into the work of the Linear Infrastructure Network, which has set out how incorporating green infrastructure into linear infrastructure.¹
- 14.48 There are clear opportunities to make better use of Brentwood’s rail and road infrastructure to support wildlife and link to the wider infrastructure network.
- 14.49 It is recognised that rivers, streams, ditches and wetland support a diverse range of plants and animals. This includes marginal and bankside vegetation as well as instream features. Rivers and streams often provide a wildlife corridor link between fragmented habitats.
- 14.50 The Borough forms the headwaters of four key watercourses which drain the area: the River Wid, the River Ingrebounre, the River Roding and the River Mardyke. There are opportunities to enhance these blue infrastructure features as part of a wider Green Infrastructure strategy.
- 14.51 The proposed Dunton Hills Garden Village site includes water features (natural and man-made) as well as a natural stream. This is a key opportunity site to maximise linear blue and green infrastructure opportunities.

Revision Schedule – Chapter 14	
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¹ Section Information obtained from <https://www.networkrail.co.uk/communities/environment/sharing-railway-wildlife/managing-habitats-railway/>