



**CLEARSTONE
ENERGY**

WARLEY ENERGY HUB

Landscape and Visual Appraisal

Prepared by Clearstone Energy and Weddles |
October 2024 | Document Reference: R006

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LANDSCAPE AND VISUAL APPRAISAL

October 2024

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1 SUMMARY

The battery storage facility is considered to be sited suitably within the landscape and in the long-term would have a limited impact on the character of the surrounding landscape. Due to the relatively flat topography of the site and surrounding area, retained tree belts, combined with additional boundary planting and the low level nature of the battery storage proposal, the small number of adverse effects are very localised. Adverse visual effects would only be experienced from the PRow (179) adjoining the site and from PRow (194) to the south of the site beyond the boundary vegetation and St Mary's Lane.

There would be very limited and localised adverse effects on the visual aspect of openness of the Green Belt as development proposals are largely hidden from the wider public viewpoints. This limited adverse effect would need to be weighed against the very special circumstances provided elsewhere that justify development within the Green Belt for the specific purposes of energy storage.

The slight harm arising on the immediate landscape and visual character of the Thurrock Reclaimed Fen Landscape Character Area would need to be balanced against the benefits of the proposed energy storage.

The proposed development is considered to be appropriate to the landscape context and is well suited to prevent any significant adverse visual effects. Although there would be a small number of moderate or negligible adverse effects initially due to slight increase in visible built form, these are predicted to reduce in time as the proposed planting of the landscape framework will sufficiently screen the majority of the development by year 15. As a result, any negative long-term effect on landscape features, character and visual receptors will at worst be negligible.

Through the proposed landscape framework the site's high value landscape features will be protected, and there is also scope to improve upon existing features of the site (such as the trees) bringing about some predicted beneficial effects.

2 INTRODUCTION

2.1 Background

Clearstone Energy have asked Weddles to prepare a Landscape and Visual Appraisal (LVA) to support a full planning application for a proposed battery storage facility on land between Warley Street and St Mary's Lane, Warley. An initial review was undertaken prior to any design works in order to identify the most suitable area where a BESS development could be accommodated appropriately while minimising the potential for adverse landscape impacts.

The objectives of the LVA are to assess the landscape character of the site and its surroundings and to consider the landscape and visual qualities of the site, its function in the landscape and its contribution to the wider landscape. The work undertaken includes an assessment of the existing landscape features, together with a visual appraisal of the site and its context.

The LVA is used to inform the continued design development of the proposed intervention and to explain the likely landscape and visual effects that may arise as a result of this. Therefore, providing sufficient information for decision makers to determine the landscape and visual impact of the proposals.

2.2 Landscape and Visual Appraisal

This document assesses the potential landscape and visual impacts arising from the proposed development. This LVA is split into the following sub-sections:

- Site Context and Baseline
- Legislation and Policy
- Landscape Character
- Site Appraisal
- Impact Assessment of the development proposals
- Baseline Landscape and Visual Condition
- Development Proposals
- Landscape and Visual Effects
- Limitations and Assumptions
- Conclusion

Paragraph 1.1 of the 3rd Edition of the Guidelines for Landscape and Visual Impact Assessment ("GLVIA3"), published by Landscape Institute and Institute of Environmental Management and Assessment (hereafter referred to as "GLVIA 3")¹. Paragraph 1.1 states that *"Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity"*.

Paragraph 5.1 of the GLVIA3 describes how landscape effects are concerned with *"how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character"*.

Paragraph 6.1 of the GLVIA3 describes how visual effects are concerned with *"assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements"*. Therefore, this assessment deals separately with each of these effects,

¹ Guidelines for Landscape and Visual Impact Assessment ("GLVIA3"). 3rd Edition. Landscape Institute and Institute of Environmental Management and Assessment. 2013

although where relevant and appropriate, cross references may be made to the same features or elements where they are relevant to both assessments. An LVA is a more concise version of an LVIA, proportional to the level of potential impact.

This report has been produced by Robert Royston BSc (Hons) MA CMLI Chartered Landscape Architect and Neil Northrop BA DipLD MCiHort CMLI Director of Weddles, a Chartered Landscape Architect with over 16 years' experience of landscape and visual assessment.

2.3 Limitations and Assumptions

Whilst assessment of sensitivity and magnitude of change are subjective, the assessment has been carried out by professional, qualified, and experienced landscape architects, making judgements following a prescribed methodology based on GLVIA3.

3 SITE CONTEXT AND BASELINE

The site is situated within the administrative area of the London Borough of Havering. The site development area of the whole scheme excluding the cable route is approximately 6 hectares and sits within a field comprising 17.92 hectares overall and is located 3.8km east of Havering centre between the villages of North Ockendon and West Horndon at Ordnance Survey grid reference TQ 59877 87107.

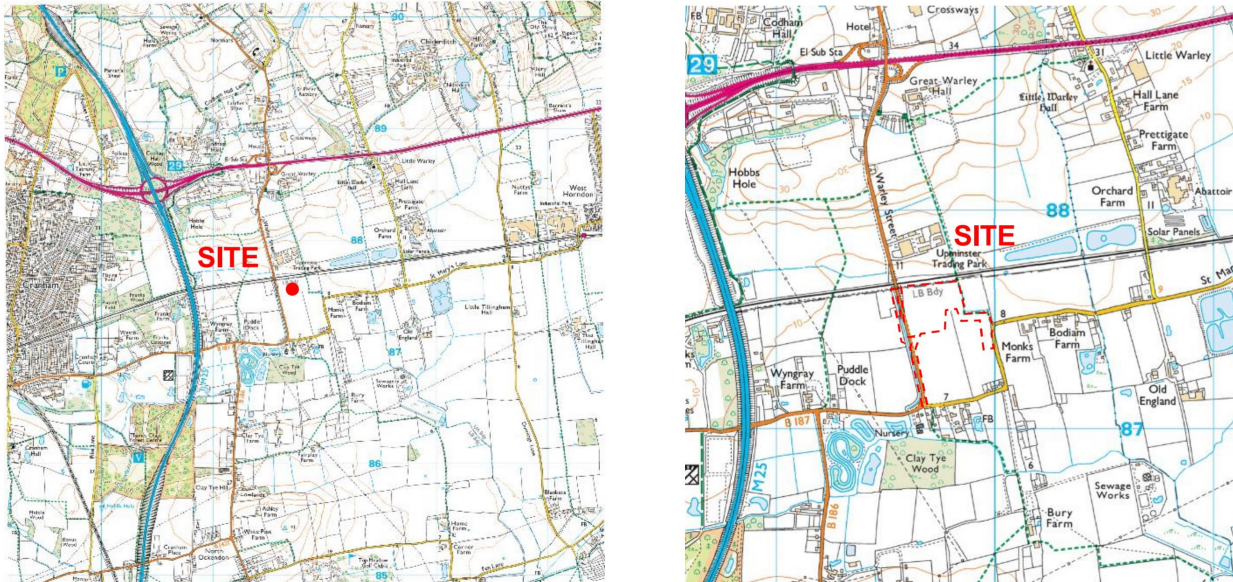


Figure 1: OS Mapping, with site location

Located east of the M25 motorway (junction 29 – 30), the field in which the site is located is a relatively rectangular shaped flat field, bound to the north by a mainline railway line, to the west by Warley Street and to the south by St Mary's Lane. The railway between Havering and Basildon passes directly north of the site. There is a single public footpath passing to the north eastern boundary of the proposed site. The land is generally flat with gentle undulations but no major features. There is a drainage ditch passing from north to south through the field.

Whilst at a distance, the residential properties to the south have a view across the field to the proposed site. The M25, adjacent railway line, large electricity pylons and busy traffic on Warley Street and St Mary's Lane influence the site's character.



Figure 2: Site Location – Aerial photograph and site boundary

3.1 Landscape Setting

3.1.1 Topography and Hydrology

The landform in the immediate vicinity of the site is flat with the site located at around 8-10m AOD. Small localised hills rise to approximately 40m AOD with the closest being Clay Tye Hill to the south west. The land is generally flat with gentle undulations but no major features.

There is a drainage ditch, the Mary Brook, which passes from north to south within the wider field to the south of the site. To the south west near Clay Tye Wood are a number of artificial fishing lakes. There are no significant hydrological features in the surrounding area.

3.1.2 Vegetation

The main vegetation patterns in the surrounding landscape are arable farmland, with hedgerows, intermittent trees, tree belts or copses which divide the fields. There is an area of Ancient woodland and Sites of Importance for Nature Conservation 250m south west of the site, Clay Tye Wood, and larger woodlands to the west at Thames Chase Forest Centre.

3.1.3 Settlement and Land Use

Local settlements include the town of Upminster approximately 4km to the west, and the villages of North Ockendon to the south west and Horndon and Bulphan further to the east and north east respectively. The villages take on a linear settlement pattern. The surrounding area includes a number of dispersed individual farmsteads and residential hamlets. The predominant building material is white painted render or brick walls with clay tile roofs. Many of the farms include modern large agricultural buildings of steel and concrete block construction.

Approximately 750m west of the site is the M25 motorway, running north-south. Warley Street (B186) runs north-south to the west of the site.

Fields are typically medium to large in size and irregular in shape. They are predominantly used for crops and occasionally pasture. Immediately to the south of the site is the existing Warley Electricity Substation and its associated hardstanding and infrastructure, with significant transmission pylons heading north, east, south and west. Cranham golf course solar farm is approximately 1km west of the site.

3.2 Designations

This section describes landscape designations that are of relevance to this landscape and visual impact assessment.

3.2.1 Statutory Landscape Designations

The site itself has no designations. The nearest other designation is a Local Nature Reserve (LNR) 'Cranham Brickfields', approximately 1.2km to the north-west of the site. 'Cranham Marsh' is located 3km south west of the site and Thorndon Park Site of Special Scientific Interest is 3km north east of the site.

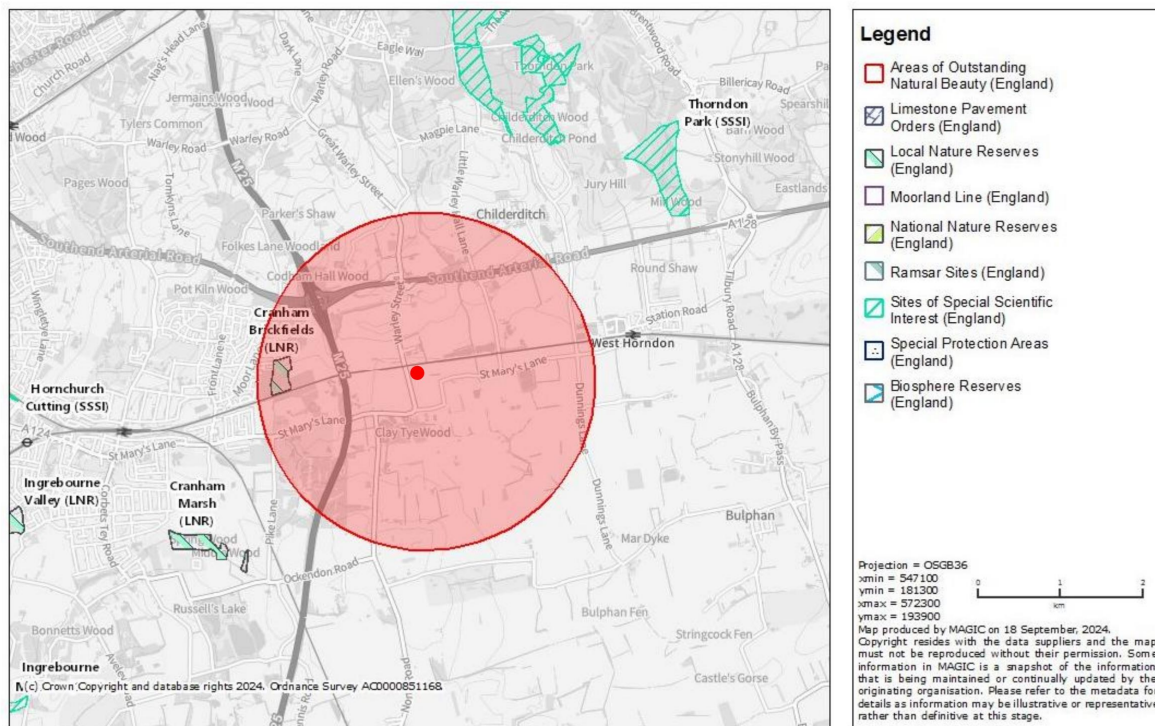


Figure 3: Statutory Designated Sites and Habitats (Magic Map) 2km zone

3.2.2 Non-Statutory Landscape Designations

Within the 2km search area there are 3 non-statutory 'Sites of Importance for Nature Conservation' (SINC's). These are sites of borough importance and include 'Fairplay Farm', approx. 1.5km to the south, 'Clay Tye Wood', approx. 500m to the south west and 'Puddle Dock Angling Centre', approx. 675m to the south west.

3.2.3 Historic Designations

The site does not contain any Listed Buildings, Scheduled Monuments, nor is it within a Conservation Area. There is one Grade I Listed Building within 2km of the site, St Peter's Church. The Church of St Mary Magdalene is approximately 2.5km north west from the site. There are seven Grade II Listed

Building within 2km of the site, the closest of which is Bury Farm House approximately 1km south east of the site. There are no scheduled monuments within a 2km radius of the site. North Ockendon and Cranham have designated Conservation Areas.

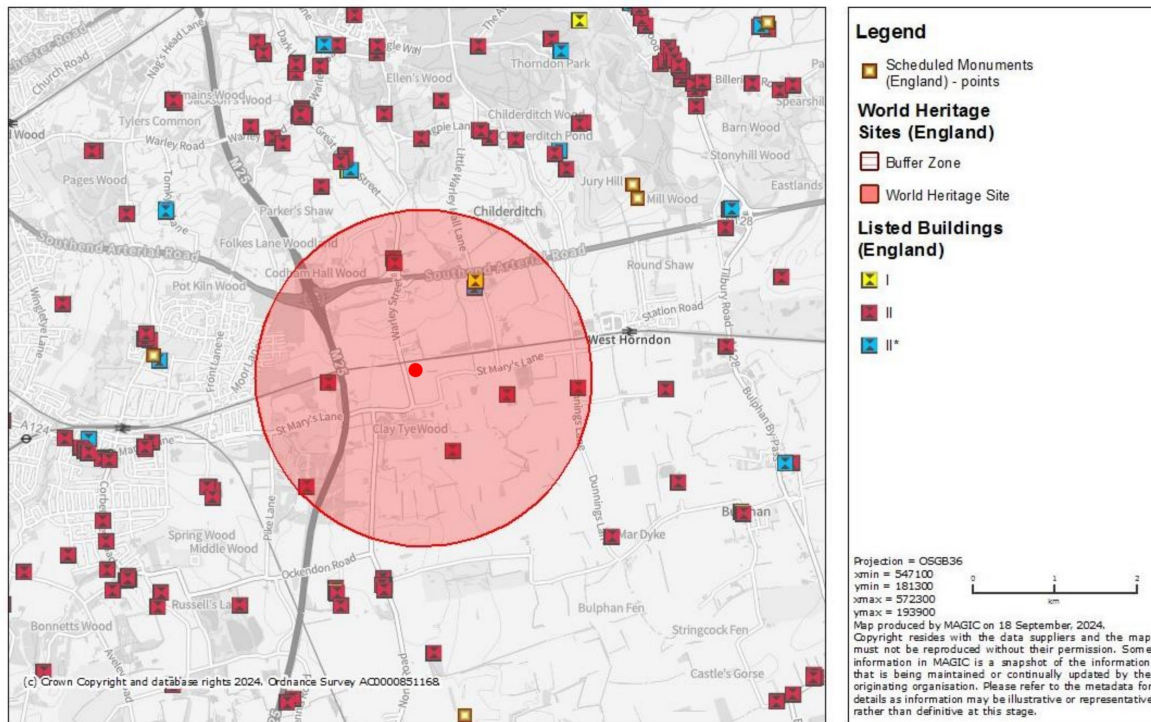


Figure 4: Historic Designations – 2km (Magic Map), with site location

3.2.4 Public Rights of Way

Footpath 179 skirts the north eastern boundary of the site. The landowner has informed Weddles that the local authority (and Network Rail) has discussed closing this footpath in the past. The footpath appears to be very seldom used with overgrown vegetation.

To the south of the site beyond the boundary vegetation and St Mary's Lane is Footpath 194 which runs south to Clay Tye Wood Footpath 232 that is east-west from Clay Tye Road to Bury Farm. However, the footpath is not signed or accessible, or visible on the ground in many places. From Bury Farm, footpath 233 runs east then south to Home Farm, with footpath 232 heading south-west towards Warley Electricity Substation.

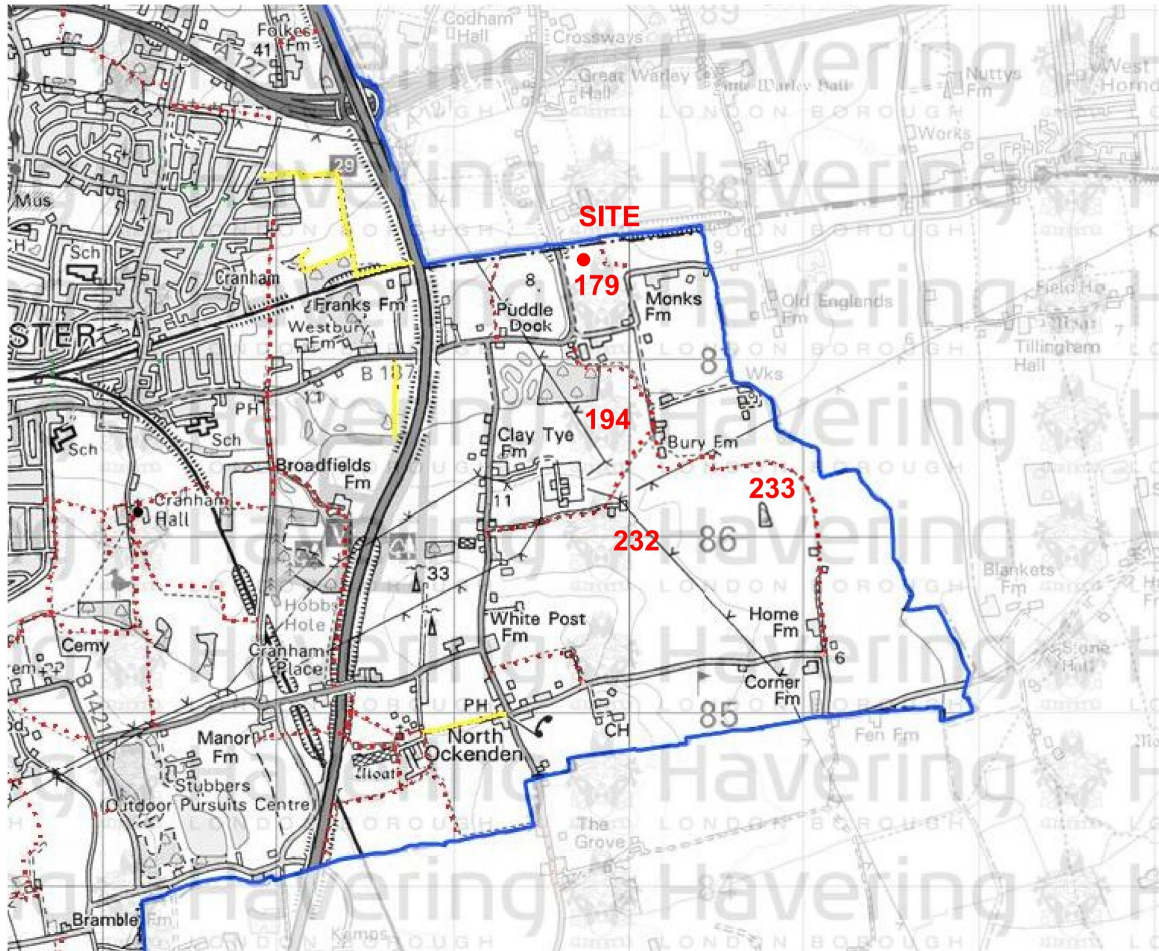


Figure 5: Public Rights of way in the local area (Dotted red line: PROW footpath; Solid yellow line: Bridleway) (Havering Online Mapping)

3.3 Section Summary

The landform in the immediate vicinity of the site is flat with the site located at 10m AOD. Small localised hills rise to approximately 40m AOD with the closest being Clay Tye Hill to the south and south west. There are no significant hydrological features in the surrounding area.

The main vegetation patterns in the surrounding landscape are arable farmland, with hedgerows, intermittent trees, tree belts or copses which divide the fields. There are larger woodlands to the south, Clay Tye Wood, and west, Thames Chase Forest Centre.

The site and surrounding land is designated as London Metropolitan Green Belt. The nearest other designation is a Local Nature Reserve (LNR) 'Cranham Brickfields', approximately 2km to the west of the site. Listed buildings are scattered throughout the area but none are located within 500m of the site.

4 PLANNING POLICY

This section describes landscape policies that are of relevance to this LVA.

There are planning policies in place at all levels that require effects on landscape and landscape quality to be considered as part of planning applications for new development. There is an emphasis in these policies on retaining existing landscape features and undertaking enhancements where appropriate.

4.1 National Legislation and Planning Policy

National Planning Policy is set out in National Planning Policy Framework (NPPF). This is supported by National Planning Practice Guidance (NPPG).

In achieving well-designed places paragraph 135 of the NPPF states that:

“Planning policies and decisions should ensure that developments:

“...are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change...”

In respect to conserving and enhancing the natural environment, paragraph 180 states:

“Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

...f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.”

In respect to the green belt, paragraph 142 of the NPPF states that:

“The Government attaches great importance to Green Belts. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the essential characteristics of Green Belts are their openness and their permanence.”

Paragraph 143 states:

“Green Belt serves five purposes:

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

For proposals affecting the green belt, paragraph 152 states that:

“Inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances.”

Paragraph 153 states that:

“When considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt. ‘Very special circumstances’ will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations.”

Paragraph 156 states that:

“When located in the Green Belt, elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.”

4.2 Regional Planning Policy - The London Plan 2021

The London Plan is the overall strategic plan for London by which boroughs should set their detailed planning policies.

Relevant sections from Policy D1 *London’s form, Character and Capacity for Growth* states:

“Defining an area’s character to understand its capacity for growth

A Boroughs should undertake area assessments to define the characteristics, qualities and value of different places within the plan area to develop an understanding of different areas’ capacity for growth. Area assessments should cover the elements listed below:

- 3) urban form and structure (for example townscape, block pattern, urban grain, extent of frontages, building heights and density)*
- 5) air quality and noise levels*
- 6) open space networks, green infrastructure, and water bodies*
- 7) historical evolution and heritage assets (including an assessment of their significance and contribution to local character)*
- 8) topography and hydrology*
- 9) land availability*
- 10) existing and emerging Development Plan designations*
- 11) land uses*
- 12) views and landmarks.*

Planning for growth

B In preparing Development Plans, boroughs should plan to meet borough-wide growth requirements, including their overall housing targets, by:

- 2) assessing the capacity of existing and planned physical, environmental and social infrastructure to support the required level of growth and, where necessary, improvements to infrastructure capacity should be planned in infrastructure delivery plans or programmes to support growth”*

Policy G2 *London’s Green Belt* states:

“A The Green Belt should be protected from inappropriate development:

1) development proposals that would harm the Green Belt should be refused except where very special circumstances exist,

2) subject to national planning policy tests, the enhancement of the Green Belt to provide appropriate multi-functional beneficial uses for Londoners should be supported.

B Exceptional circumstances are required to justify either the extension or de-designation of the Green Belt through the preparation or review of a Local Plan”

4.3 Local Planning Policy- Havering Local Plan 2021

The site lies within the administrative area of London Borough of Havering. Current planning policy is contained within the Havering Local Plan (adopted November 2021) and show on the Local Plan Policies Map North (Adopted November 2021).

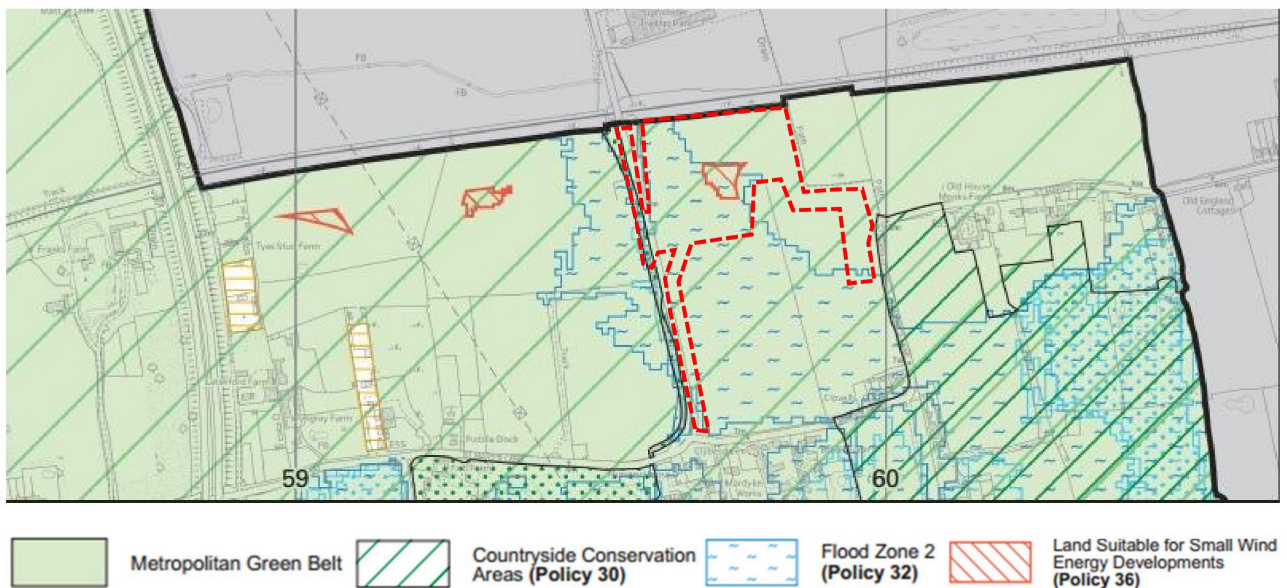


Figure 6: Extract from Local Plan Policies Map North November 2021

The extract above identifies the development site on the Local Plan Policies Map and shows that a number of policies are relevant to the proposed development, and these are summarised below.

Policy 27 Landscaping states:

“The Council will support development proposals that incorporate a detailed and high quality landscape scheme which:

- i. Takes full account of the landscape character of the site and its wider setting;*
- ii. Maximises opportunities for greening, through the planting of trees and other soft landscaping;*
- v. Provides strong boundary treatment that integrates with and is sympathetic to the local landscape character and street scene; and*
- vi. Supports natural habitats and opportunities for enhancing biodiversity.”*

Policy 29 Green Infrastructure states:

“The Council will seek to maintain and expand the network of green spaces and natural features in Havering and optimise the benefits of green infrastructure to the environment, economy and community.”

“Policy 29 seeks to maintain and Enhance Havering's position as one of London's greenest boroughs and ensure that development proposals are realising opportunities to integrate green infrastructure Policy 30 Nature Conservation.”

Policy 36 Low Carbon Design, Decentralised Energy and Renewable Energy states:

“... All stand-alone renewable energy developments should be located and designed to minimise any adverse impacts. Applicants are required to address the following issues in their proposals: impacts on landscape, biodiversity, historic environment, residential amenity, aviation activities, air quality, highway safety and fuel/energy security, including their cumulative and visual impacts.”

Part of the site is also identified under this policy as having capacity for Small Wind Energy Development.

4.4 Green Belt Study 2016 and Site Green Belt Assessment and Sustainability Assessment (2018)

Havering London Borough have produced the Green Belt Study 2016 (LBHLP.26).

This separates Havering's Green Belt into 24 'Strategic Parcels'. The site lies within Strategic Parcel 10 which is defined as being paramount in assisting the safeguarding of the countryside from encroachment (Purpose 3). It is not considered to provide any contribution to restricted sprawl (Purpose 1) and any contribution on separation (Purpose 2).

The 2018 assessment builds on the 2016 study by considering 85 more detailed Green Belt sites. These are predominantly located around urban areas, and do not relate to the site or the majority of Strategic Parcel 10.

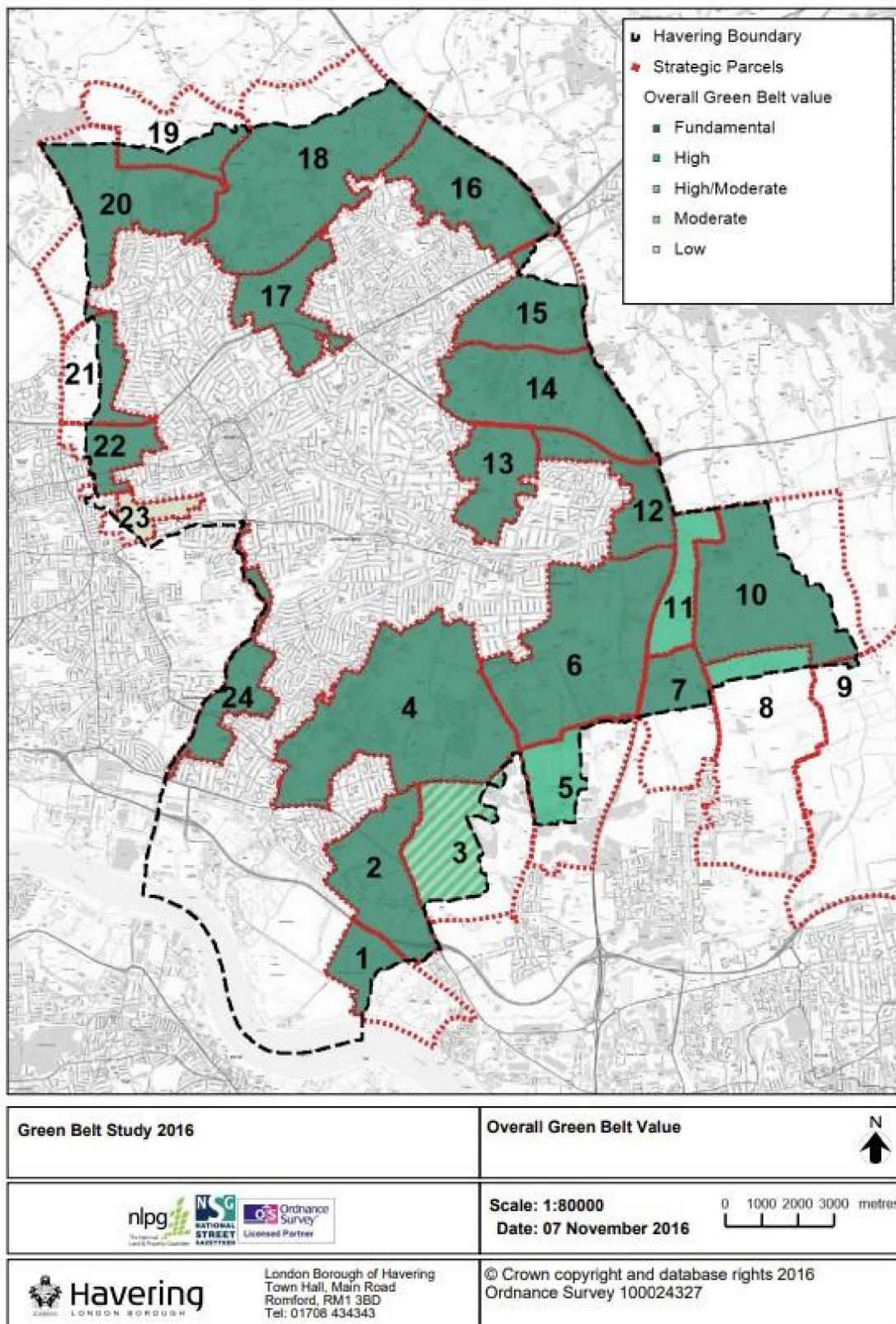


Figure 7: Extract from London Borough of Havering Green Belt Study 2016 showing site within Parcel 10

5 LANDSCAPE CHARACTER

5.1 National Landscape Character

At the National Level, the site is located within National Character Area (NCA) 111: Northern Thames Basin.



Figure 8: National Character Area's (NCA) 40: Holderness & 41: Humber Estuary

National Character Area (NCA) 111: Northern Thames Basin is defined by Natural England, as shown below:

"NCA 111 covers a large area with Hertfordshire in the west through to the Essex coast in the east. The Northern Thames Basin is an area rich in geodiversity, archaeology and history and diverse landscapes ranging from the wooded Hertfordshire plateaux and river valleys, to the open landscape and predominantly arable area of the Essex heathlands, with areas of urbanisation mixed in throughout. Key characteristics of relevance to the site and its local context are:

- The landform is varied with a wide plateau divided by river valleys. The prominent hills and ridges of the 'Bagshot Hills' are notable to the northwest and extensive tracts of flat land are found in the south.
- Characteristic of the area is a layer of thick clay producing heavy, acidic soils, resulting in retention of considerable areas of ancient woodland.
- A diverse landscape with a series of broad valleys containing the major rivers Ver, Colne and Lea, and slightly steeper valleys of the rivers Stour, Colne and Roman. Numerous

springs rise at the base of the Bagshot Beds and several reservoirs are dotted throughout the area.

- The pattern of woodlands is varied across the area and includes considerable ancient semi-natural woodland. Hertfordshire is heavily wooded in some areas as are parts of Essex, while other areas within Essex are more open in character. Significant areas of wood pasture and pollarded veteran trees are also present.*
- The field pattern is very varied across the basin reflecting historical activity. Informal patterns of 18th-century or earlier enclosure reflect medieval colonisation of the heaths. Regular planned enclosures dating from the Romano-British period are a subtle but nationally important feature on the flat land to the south-east of the area. In the Essex heathlands 18th- and 19th-century enclosure of heathlands and commons followed by extensive 20th-century field enlargement is dominant.*
- Mixed farming, with arable land predominating in the Hertfordshire plateaux, parts of the London Clay lowlands and Essex heathlands. Grasslands are characteristic of the river valleys throughout. Horticulture and market gardening are found on the light, sandy soils of former heaths in Essex, particularly around Colchester, along with orchards, meadow pasture and leys following numerous narrow rivers and streams.*
- The diverse range of semi-natural habitats include ancient woodland, lowland heath and floodplain grazing marsh and provide important habitats for a wide range of species including great crested newt, water vole, dormouse and otter.*
- The medieval pattern of small villages and dispersed farming settlement remains central to the character of parts of Hertfordshire and Essex. Market towns have expanded over time as have the London suburbs and commuter settlements, with the creation of new settlements such as the pioneering garden city at Welwyn and the planned town at Basildon.*
- Brick-built dwellings are characteristic from the late 17th century onwards. Prior to this dwellings and farm buildings tended to be timber built with weatherboarding, now mainly painted white but traditionally black or tarred, and whitewashed plaster walls.”*

Statement of Opportunity 3 (SEO 3) relates to the London Green Belt:

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

- Conserving historic features in the landscape with heritage interest and improving the condition of heritage assets through appropriate measures, and seeking to reduce conflicting or unsympathetic management regimes.*
- Conserving and interpreting archaeological earthworks and sub-surface archaeology while recognising the high potential in this landscape for undiscovered remains.*
- Preserving and enhancing current public access sites including nature reserves, common land, country parks and public footpaths and rights of way to attract the wider community.*
- Creating better access to the countryside with an increased number of public footpaths and rights of way so that more of the area is open access. Enhancing current public access paths would also be beneficial to make the experience of the countryside more inviting and enjoyable.*
- Restoring the connectivity of key habitats as well as expanding and creating new habitats which will maintain and enhance their attraction for visitors. Also, working to increase species diversity and density to increase this attraction for the community.*
- Preserving the open landscape, enhancing geodiversity and biodiversity, for example the iconic species and habitats that attract visitors, to preserve their appeal to the wider community.*

- *Maintaining and enhancing the status of Sites of Special Scientific Interest, Special Protection Areas, Special Areas of Conservation, National Nature Reserves and Ramsar sites. This will preserve the character of the landscape, protecting and enhancing the sense of place.*
- *Increasing awareness and raising understanding within the community of the natural environment to improve their appreciation of their landscape so as to help to enhance their experience. This will also help to instil a sense of place.*
- *Planning for future pressure from urban expansion and urban-related development, major roads and other infrastructure as a result of the expansion of Stansted and Luton international airports (impacting from adjacent NCAs) and the impact of strategic growth in and around the NCA, such as at the Thames and Haven Gateways, Chelmsford and Southend, and the regeneration in the Lea Valley. Seeking measures to help to implement the All London Green Grid frameworks in order to ensure that associated design standards are of a high quality and pay due regard to the natural environment for the benefit of people and wildlife.*
- *Planning for a new vision of agricultural landscapes in areas of significant planned growth such as within the Thames Gateway, Haven Gateway and M11 corridor, including, potentially, the exploration of new forms of community food growing and community land ownership, providing a 21st-century interpretation of the plotlands of the 1920s and 1930s that are characteristic of this NCA.*
- *Ensuring positive management of land that may be developed in the future to preserve the character of the area and not adversely affect the rural areas that provide many resources, including food provision, carbon sequestration and recreation for the rural and urban communities.”*

5.2 Local Landscape Character

At a Local level, Havering have not produced their own Landscape Character Assessment. The landscape character of the area is however described within the ‘Land of the Fanns’ Landscape Character Assessment 2016² which covers an area defined by the sinuous path of the Thames in the south and the Brentwood Hills to the north.

The site lies within the Thurrock Reclaimed Fen Landscape Character Area (J).

² Land of the Fanns Landscape Character Assessment, August 2016.

http://www.thameschase.org.uk/uploads/Thames_Chase/Trust_Projects/Land_of_the_Fanns/Landscape_Character_Assessment.pdf

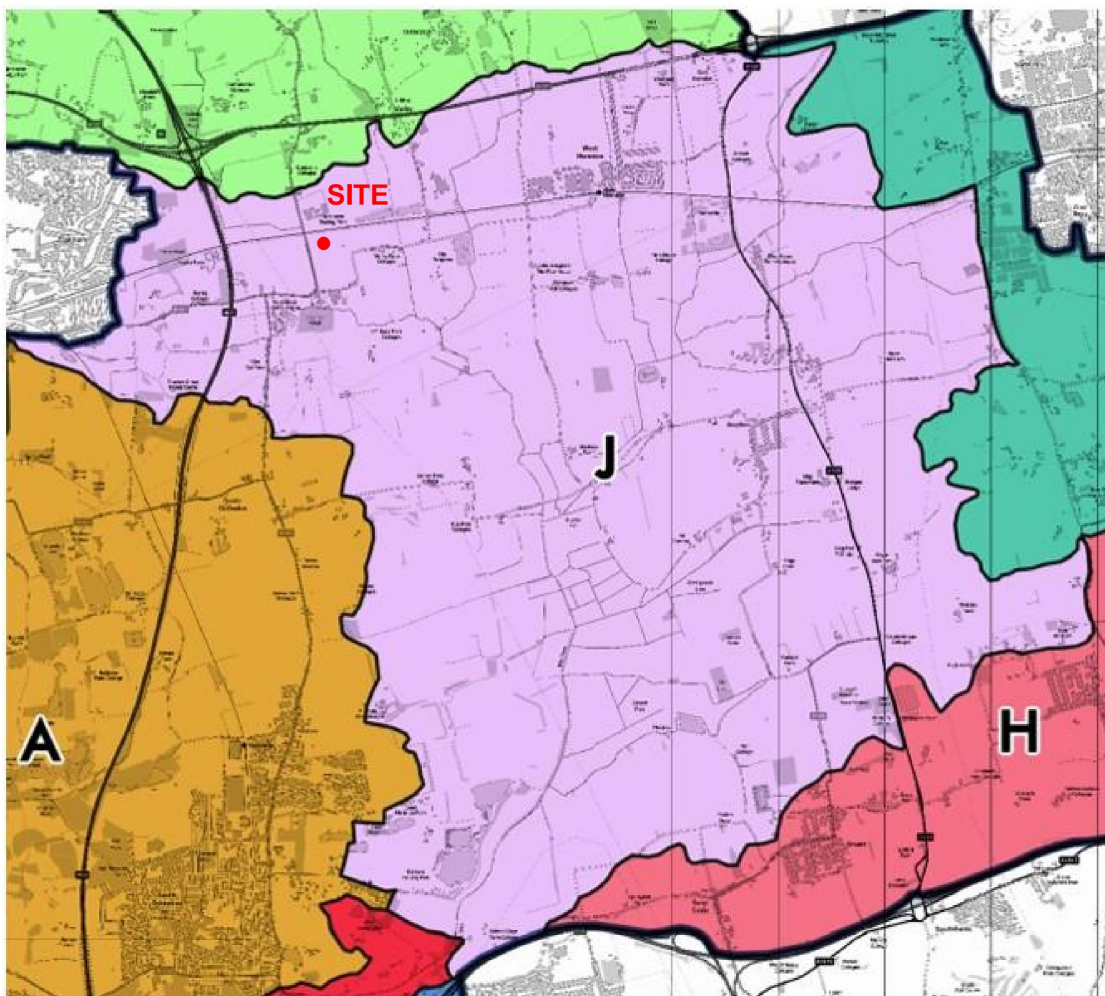


Figure 9: The Landscape Character Areas of the Thurrock Reclaimed Fens

Thurrock Reclaimed Fens is located centrally in the Project Area forming a low lying inland basin which contrasts with the rising land of the Brentwood Wooded Hills to the north, Ockendon Rolling Farmland to the west, Langdon Hills to the east and Orsett Lowland Farmland to the south. These areas of adjacent rising land form an important backdrop and setting to this landscape. This landscape falls within the Greater London Greenbelt and partly within the Thames Chase Community Forest area.

6 SITE APPRAISAL

The land is part of a flat field currently used for agricultural purposes for crops which overall comprises a total area of approximately 17.92 hectares. The northern boundary is defined by a mature hedgerow and tree belt running adjacent to the railway line. The surrounding land is predominantly arable and pastoral fields.

There are a small number of residential properties on St Mary's Lane to the south-east of the site. There is one Grade I Listed Building within 2km of the site, St Peter's Church.

The BESS will connect to the existing 275 kV Warley substation located approximately 1.1 km south-west of the site. The proposed 2.4km cable connection route will run south within the overall field parcel to the junction of St Mary's Lane and Warley Street and then head west along St Mary's Lane before heading south along Clay Tye Road before entering Warley Substation.



Figure 10: Aerial photograph with site boundary.

6.1.1 Topography

The site is flat, being at approximately 9-11m AOD.

6.1.2 Hydrology

There are no water bodies on the site. There is a drainage ditch the Mary Brook (an Ordinary Watercourse), passing from north to south outside of the site within the wider field parcel to the south.

6.1.3 Vegetation

The site is part of an open arable field currently used for cereal crops. Hedgerows form the field boundary including the northern boundary, which is defined by a mature tree belt running adjacent to the railway line. Species include Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Sycamore (*Acer pseudoplatanus*), Bramble (*Rubus fruticosus*) and occasional Ivy (*Hedera helix*) and Hedge Bindweed (*Calystegia sepium*).

Trees of varying quality and maturity are located along the field boundary and a mature Oak (*Quercus robur*) is located along the eastern boundary. The dominant species include Oak (*Quercus robur*) and Hawthorn (*Crataegus monogyna*) and mixed within are Dog Rose (*Rosa canina*) and Blackthorn (*Prunus spinosa*).

These vegetation features are described at the Local Character level.

6.1.4 Settlement and Land Use and Field Pattern

The site is currently part of an arable field used for growing cereal crops. There is a drainage ditch, also known as Mary Brook, passing from north to south within the wider field parcel to the south of the site. There are no buildings or structures on site. The site forms part of a larger rectilinear field.

The open arable field is noted at the local level and conforms with the medium to large sized fields described.

6.1.5 Access and PRow

There is a single public footpath (PROW 179) skirting the boundary of the development area. The landowner has informed Weddles that the local authority (and Network Rail) has discussed closing this footpath in the past. The PROW appears to be very seldom used with overgrown vegetation and is not valued by the local community.

The proposed site has a field opening to the western boundary directly on to the adjacent public highway (Warley Street). The wider field has two other access points.

6.1.6 Inter-visibility

Field boundary hedgerows and the flat landscape means that wider views of the surrounding area are not available. Views north are curtailed by the mature hedgerow and tree belt running adjacent to the railway line. Views south are curtailed by the existing hedgerow except for one small field gate gap. Views west are more open in nature and are influenced by the large transmission pylons although stretches of existing hedgerow are present that partially screen the view of the highway. Views south are possible of the wider field and a small number of residential properties on St Mary's Lane, which curtail any views beyond.

The majority of views are short range and curtailed close to the site by existing vegetation features and therefore intervisibility does not follow the expansive views described at the Local Character level.

6.1.7 The Site

The site lies within the London Metropolitan Green Belt. The site is a flat field used for arable crops.

The tranquillity of the site is adversely effected by the traffic noise of vehicles adjacent on the busy Warley Street and St Mary's Lane, the regular passing of trains on the railway to the north of the site and the distant hum of the M25 motorway.

The site has no rare or unusual landscape features or historical assets and is used for intensive farming on a large-scale. The large transmission pylons leading to the nearby Warley Electricity Substation are prominent from the site and are detractors to the sites quality.

Overall the site is considered to be of **low** value.

In respect to susceptibility, apart from the existing arable use there are no other features on the site which are susceptible to change, and overall the site is likely to be able to accommodate the type of change proposed with little or no effect upon its integrity.

Overall, the site is considered to have a **low** susceptibility.

Landscape sensitivity of the site is derived from a combination of value and susceptibility and is considered to be **low** for the site overall.

6.2 Section Summary

The site is part of a flat arable field used for growing crops of approximately 17.92 hectares. Existing hedgerows are situated around the wider field. There are no water bodies within the area of the proposed development. There is a drainage ditch, also known as Mary Brook, passing from north to south within the wider field parcel to the south of the site. There are no buildings or structures on site.

A very short section of a rarely used public footpath (PROW Footpath 179) adjoins the site along the north eastern boundary. The site has a field gap opening to the western boundary directly on to the adjacent public highway (Warley Street). The wider field has two other access points.

The site is well contained by the existing hedgerows and tree belts, with predominantly short-range views within the field and to properties to the south. There are some longer range views over the existing vegetation to the north and north west.

Analysis of the site as a landscape receptor concludes that it is of **low** sensitivity.

7 BASELINE LANDSCAPE AND VISUAL CONDITION

7.1 Landscape Receptors

The following table summarises the different landscape features and character receptors that may be affected by the proposals. The sensitivity of landscape receptors has been determined by reference to the baseline assessment of the existing landscape resource. Further details of the landscape feature and its sensitivity is set out in Appendix 2 and summarised below:

Landscape Receptor	Value	Susceptibility	Sensitivity
Features			
Trees	Medium	Low	Medium
Hedgerows / Scrub	Medium	Low	Medium
Arable	Low	Medium	Low
Field Pattern	Medium	Low	Medium
Topography	Low	Low	Low
Public Rights of Way	Low	Medium	Low
Character			
National: NCA 111 Northern Thames Basin	Medium	Low	Low
Local: Thurrock Reclaimed Fen LCA	Medium	Medium	Medium
The Site	Low	Low	Low

Figure 11: Table Summary of Landscape Receptors

7.2 Visual Appraisal

A visual appraisal of the site was undertaken in November 2023 to determine the relationship of the site with its surrounds, the visibility of the site within the wider landscape and the suitability of the site for development and the potential effect this would have on the landscape and visual characteristics of the area.

7.2.1 Zone of Theoretical Visibility

The Zone of Theoretical Visibility (ZTV or viewshed) describes the area from which the application site is potentially visible. A desktop study of the site was initially undertaken to determine the ZTV of the site using bare-earth Terrain 5 Data to provide a first pass. This was undertaken using a 10m high receptor and did not take account of built for or vegetation present within the landscape. This was then supplemented by field survey to verify or refine the viewshed in more detail to produce a Zone of Visual Influence (ZVI).

Drawing '1643-001' in Appendix 3 illustrates the ZTV and ZVI of the site.

An assessment of visual influence is focused on locations from which the site is most likely to be viewed, i.e. roads, footpaths and residential areas. Within the ZVI, potential receptors of visual effects of the development have been identified.

Receptors include the public, residents, visitors and any other potential viewers of the development. Twelve Principal Viewpoints were then selected as representative views from receptor locations, with visualisations of the proposed development at Year 1 and Year 15 prepared.

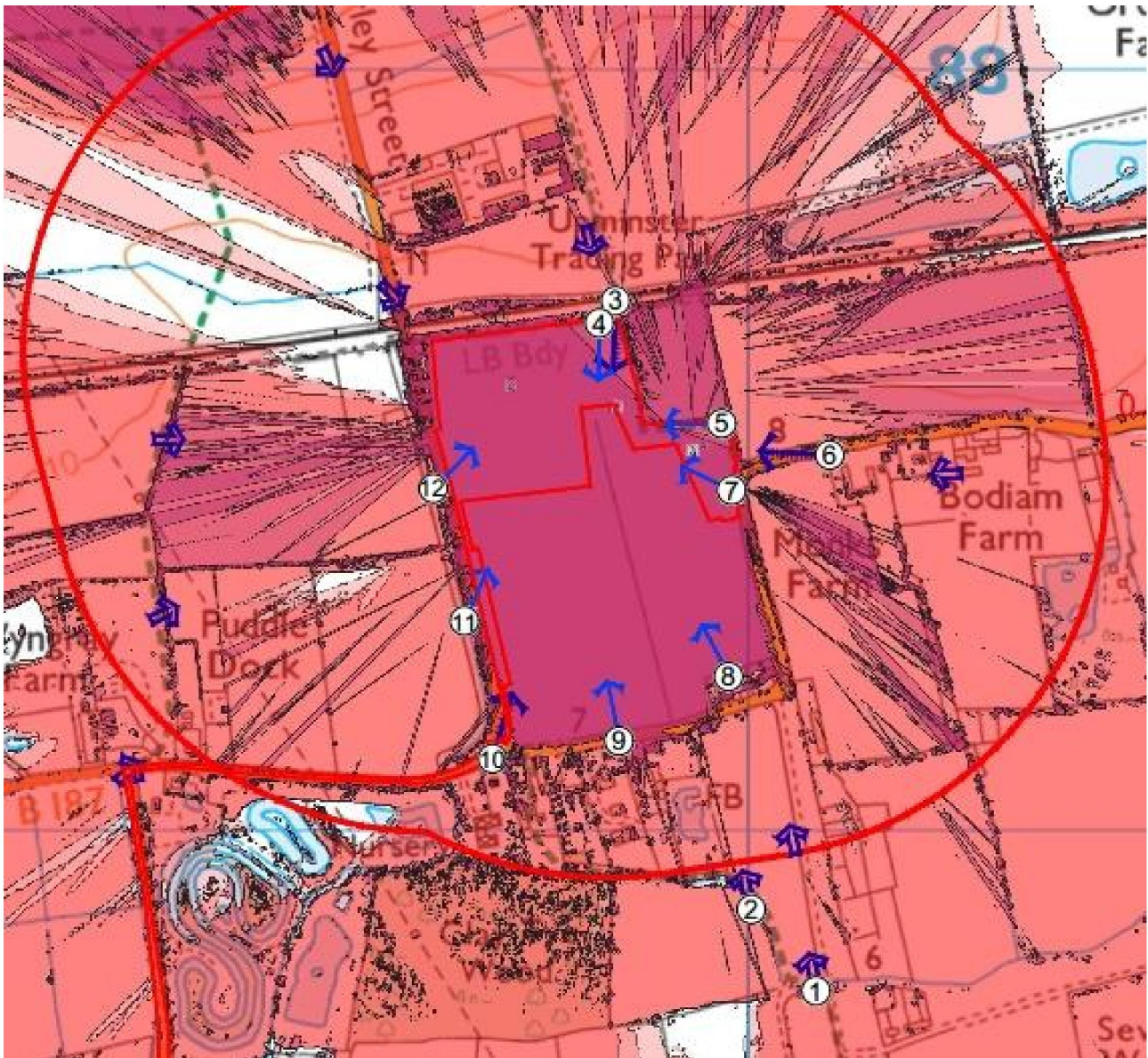


Figure 12: Extract of Zone of Theoretical Visibility and Zone of Visual Influence (Drawing 1643-001)

Beyond the 2km area chosen, the visual impacts of the development are not considered likely to be significant. This is due in part to the scale and height of the built components of the development, effect of the reduced contrast between different landscape textures and colours at increasing distance and the increasing importance of atmospheric conditions in determining the availability of long-distance views. At these distances, the development is likely to be screened by local features, such as landform, buildings, and vegetation.

7.2.2 Visual Baseline of Principal Viewpoints

In order to represent the nature of identified views, a number of Principal Viewpoints (Nos. 1-12 inclusive) were selected. The photographic locations are illustrated on drawing '1643-001'.

Detailed descriptions of the Principal Viewpoints are summarised below.

Near Distance Views (0-200m)

From the railway crossing of PROW 179 (SCP3), there is a transient limited view south towards the site's boundary hedgerows, seen over a field gate. The field boundary hedgerows screen any further views of the internal site, with none of the arable field being visible.

From PROW 179 where it enters the site at the northern boundary (SCP4), after passing through the railway tree belt, there is a transient open view across the whole site for footpath users.

From PROW 179 on the eastern boundary (SCP5) there are open views into the southern half of the site, whilst the existing hedgerow located immediately adjacent to the footpath heavily filters views into the northern half of the site.

From the corner of St Mary's Lane (SCP7) there are transient open views of the site to the west for highway users and rarely pedestrians, with views of the northern corner of the site screened by a field boundary hedgerow.

Middle Distance Views (201m-1.5km)

From an access drive/ PROW 194 to the south of the site (SCP1) there are no views of the site for pedestrian and recreational users, due to intervening mature trees and hedgerow vegetation.

From PROW 194 (SCP2) there are no views of the site. The intervening mature trees and hedgerows as well as residential properties on St Mary's Lane screen views. This footpath did not continue further west beyond this location and was considered inaccessible/ disused.

From St Mary's Lane/ Monk's Farm (SCP6) there are no views of the site, with the intervening roadside hedgerow and tree belt screening views.

From the residential properties located on St Mary's Lane (SCP8) there are fixed, open view towards the site. The site's northern boundary hedgerows are visible, with the brightly contrasting buildings within Upminster Trading Park readily visible beyond.

From St Mary's Lane (SCP9) highway users on have a limited transient open view of the site at a 90 degree angle to the direction of travel. A field gate creates a gap in the roadside hedgerow, with the site's arable field and northern boundary hedgerows visible with the brightly contrasting buildings within Upminster Trading Park readily visible beyond.

From the junction of Warley Street and St Mary's Lane (SCP10) there is a limited, transient partial view of the site for highway and rarely pedestrian users. A gap in the adjacent field boundary hedgerow allows views of the south-east corner of the site and its boundary, with the rest of the site screened by the existing hedgerow and vegetation along Warley Street.

Further north from Warley Street (SCP11) there are transient open views of the site through and above an intermittent roadside hedgerow for highway and rarely pedestrian users. There are views across the site with Monk's Farm to the east visible and further north the brightly contrasting buildings within Upminster Trading Park.

From Warley Street (SCP12) there are transient open views of the site which are lightly-filtered through a strip of light canopied tree saplings for highway and pedestrian users. There are lightly-filtered views across the site and of the eastern boundary hedgerows.

7.3 Section Summary

The Visual Appraisal Plan and Site Context Photos 1 to 12 demonstrates that due to generally flat topography, field and roadside hedgerows and mature trees, the site is mainly visible from the near distance views on sections of road and footpaths, including PROW 179, St Mary's Lane and Warley street, that run adjacent to the northern, southern and western boundaries respectively. There are also mid distance views from residential properties to the south of the site. The majority of these views are limited to gaps within or filtered through field and roadside hedgerows.

The existing tall electricity transmission pylons are considered to be detracting features which are apparent within many views in the locality.

8 DEVELOPMENT PROPOSALS

An explanation of the scheme's design and its evolution is set out elsewhere in documents that support this application.

The proposed development seeks to implement a 200MW Battery Storage facility with associated ancillary structures, vehicle access, fencing and landscaping. The details of the development are based on illustrative drawings provided with the application and parameters setting limits on development within the application site development zone following the Rochdale Envelope principles, as shown on Clearstone Energy's accompanying Proposed Development Zone Plan.

The development will consist of a series of battery storage containers and related infrastructure which will have a maximum height of up to 3000mm. There will also be a single customer substation, to be located in the north east corner of the site which may be up to 9400mm high, although the majority of the equipment will be low-level with only pipes and insulators extending to this height.

The whole development site will be surrounded by a 2.5m high paladin security fence. CCTV will be provided to the full perimeter with infrared for night operation.

For the purposes of this assessment, it is assumed that the development will be predominantly finished in appropriate recessive colours. Access would be improved off Warley Street to the west of the site, with a secondary entrance for emergency purposes only to the east of the site from St Mary's Lane.

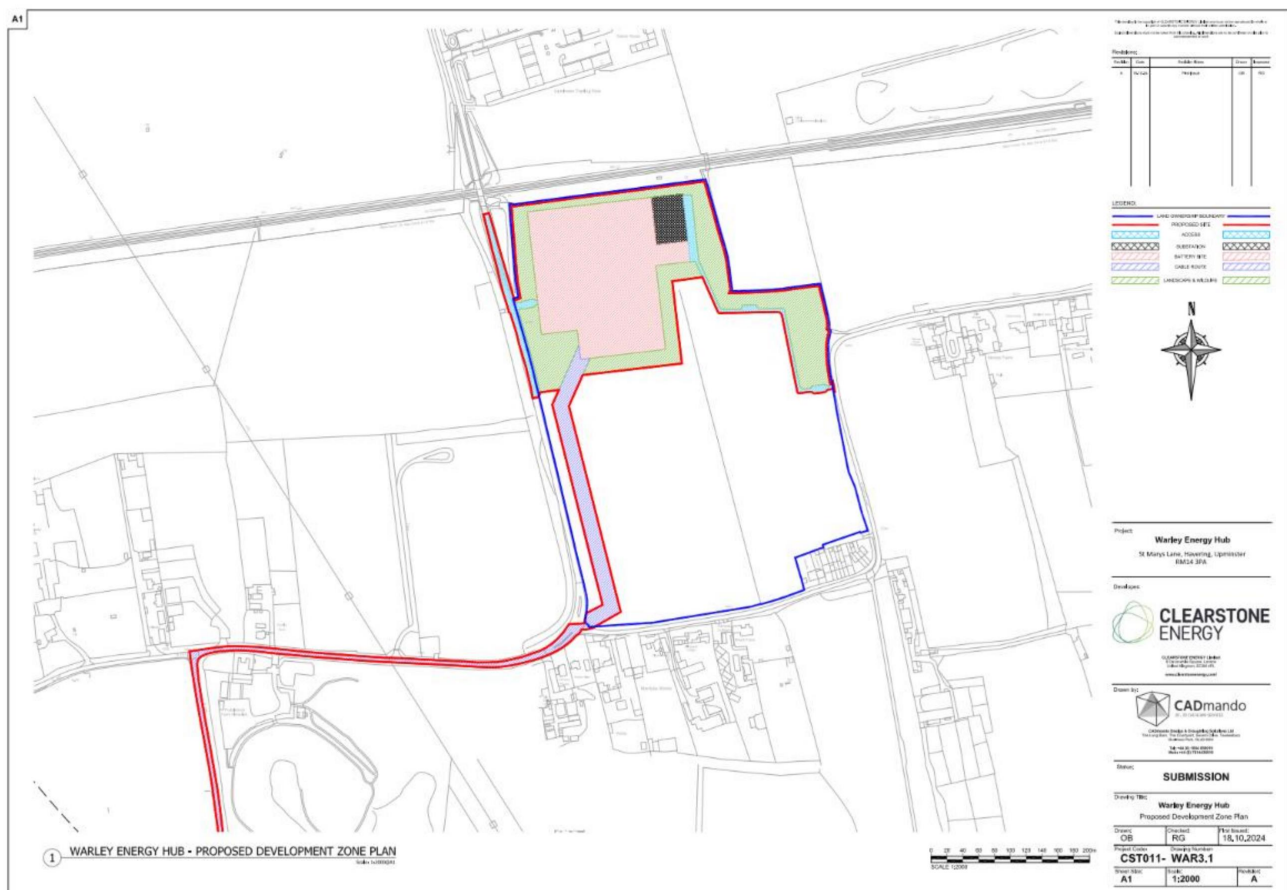


Figure 13: Extract of Clearstone Energy's drawing 'Proposed Development Zone Plan' (CST011-WAR3.1-A).

An indicative layout has also been prepared an extract of which is shown below.



The scheme would be supported by a robust landscape framework, which would incorporate the retention, enhancement and management of the existing hedgerows and trees, additional native tree, hedgerow and scrub planting to the boundaries, and areas of meadow grassland.

The landscape proposal is detailed on Weddles Landscape Strategy drawing 1643-001. Key aspects of the proposal include:

- Retention, enhancement, infilling and long-term management of the existing site boundary hedgerows and trees.
- Native scrub planting, between the site boundaries and the proposed development compound. Tree and scrub planting to provide screening around the proposed development compound.
- Meadow grassland



Figure 15: Extract of 1643-003 Landscape Strategy (see appendix 5)

It is important to note the temporary nature of the proposal, as it is for a 40-year period at which point the site would be decommissioned and the land returned to arable crop.

A Biodiversity Impact Assessment and Biodiversity Net Gain Metric accompanies the application and demonstrates a biodiversity net gain of +40.60% (+6.05 Habitat units).

8.1 Section Summary

The proposed development seeks to implement a 200 MW Battery Storage facility with associated ancillary structures, vehicle access and landscaping. The development will consist of a series of battery storage containers and related infrastructure which will have a maximum height of up to 3000mm. There will also be a single customer substation which may be up to 7200mm high, to be located in the north east corner of the site.

The whole development site will be surrounded by a 2.5m high paladin security fence. CCTV will be provided to the full perimeter with infrared for night operation.

For the purposes of this assessment, it is assumed that the development will be predominantly finished in appropriate recessive colours. Access would be improved off Warley Street to the west of the site, with a secondary entrance for emergency purposes only to the east of the site from St Mary's Lane.

The scheme would be supported by a robust landscape framework, which would incorporate the retention, enhancement and management of the existing hedgerows and trees, additional native tree, hedgerow and scrub planting to the boundaries, and areas of meadow grassland.

The accompanying Biodiversity Impact Assessment and Biodiversity Net Gain Metric demonstrates a biodiversity net gain of 40.60%.

WEDDLES

Warley Energy Hub, Clearstone Energy
Landscape and Visual Appraisal – October 2024

9 CUMULATIVE EFFECTS OF COMMITTED DEVELOPMENTS

This section summarises the likely cumulative effects of the proposed development when considered with other committed developments (cumulative schemes).

The cumulative assessment assumes a worst-case scenario whereby the proposed development and cumulative schemes are all complete at the same time.

The following sites have been identified as committed developments that may alter the landscape and visual context of the site.

1. Proposed energy storage facility to provide energy balancing services to the National Grid - Phase 2 - P0888.18 (Approved)
2. Construction and operation of a battery storage facility, fencing, landscaping and access road on land to the east of the existing substation - P1724.21 (Approved)

The proposed development will introduce additional built form and could be considered to further industrialise the character of the area. However, due to the reduced visibility resulting from the proposed vegetated screening, further effects will not be appreciable from any receptor in the long term. A **negligible adverse** cumulative landscape effect would initially occur but would continue to reduce in the long term.

9.1 Section Summary

The cumulative effects of committed developments alongside the proposed development will have a **neutral** visual effect and a **neutral** landscape effect in the long term due to nature of the development and the increased screening provided by the native scrub planting. as there are no instances of viewpoints from which multiple energy developments are visible from a single viewpoint at the same time.

10 LANDSCAPE AND VISUAL EFFECTS

This section summarises the likely effects of the proposed development on the identified landscape features, published landscape character types, visual receptors and relevant policies.

The assessment is undertaken for the following operational stages of the development:

- Year 1 (this refers to year 1 of the completed scheme) during winter.
- Year 15 (this refers to year 15 of the completed scheme) during summer.

10.1 Effects on Landscape Features

The effects on landscape features are summarised below:

Landscape Receptor	Sensitivity	Year 1		Year 15	
		Magnitude	Significance / Effect	Magnitude	Significance / Effect
Trees	Medium	Small	Negligible beneficial	Small	Minor beneficial
Hedgerows / Scrub	Medium	Small	Neutral	Small	Negligible beneficial
Arable	Low	Very small	Negligible adverse	Very small	Negligible beneficial
Field Pattern	Medium	Very small	Neutral	Very small	Negligible beneficial
Topography	Low	None	Neutral	None	Neutral
Public Rights of Way	Low	Small	Negligible adverse	Small	Negligible beneficial

Figure 16: Landscape receptors effects table summary

- Trees: All surrounding trees are to be retained. As part of the proposal, native trees would be planted along the boundaries, providing a **negligible beneficial** effect at year 1 and a **minor beneficial** effect in year 15.
- Hedgerows/ Scrub: The existing surrounding hedgerows would be retained and will not be effected by the proposed development resulting in **neutral** effect at year 1 and **negligible beneficial** effect at year 15 once the landscape framework matures.
- Arable: A proportion of the poor condition, low-quality arable crop field will be replaced by the proposed low-level built form of the battery storage containers, and associated equipment and compound. However other areas of the site will be improved through native species rich wildflower meadow and tree and scrub planting. The loss of this common landscape feature will not have a significant detrimental effect. A **negligible adverse** effect is considered to arise at Year 1 and this effect will improve to **negligible beneficial** effect at year 15 once the landscape framework matures.
- Field Pattern: The development is contained within the existing field pattern with no effect and a **neutral** effect at year 1. In the long term, at year 15 the proposed planting will mature and reinforce the field pattern with a **negligible beneficial** effect.
- Topography: The development would not impact on site topography resulting in a **neutral** effect at year 1 and 15.

- Public Right of Way (PROW): The PROW has a reduced sensitivity resulting from a low value. However the introduction of the proposed development on the arable field would result in the open characteristics of the PROW becoming more enclosed with the compound being visible initially. This would have a **negligible adverse** effect at year 1. In the long term, at year 15, the proposed landscape framework will mature and screen the development with a **negligible beneficial** effect.

Regarding landscape features, the proposed development would have a long-term **negligible beneficial** effect on the most significant landscape features on and surrounding the site including the woodland, trees, hedgerows, field pattern, and PROW; a **neutral** effect on topography; and a **negligible adverse** effect on the arable field.

10.2 Effects on Landscape Character

The landscape character effects are summarised below:

Landscape Character Receptor	Sensitivity	Year 1		Year 15	
		Magnitude	Significance / Effect	Magnitude	Significance / Effect
National: NCA 111 Northern Thames Basin	Low	None	Neutral	None	Neutral
Local: Thurrock Reclaimed Fen LCA	Medium	Very low	Negligible adverse	None	Negligible beneficial
The Site	Low	Low	Negligible adverse	None	Negligible beneficial

Figure 17: Landscape character effects table summary

- At a National scale (NCA 111: Northern Thames Basin): The site is typical of the characteristics of the NCA. The scale and extent of the proposed development in relation to that of the character area is considered to be very small and the proposed development would have a **neutral** effect on the National Character Area at year 1 and year 15.
- At a local scale (Thurrock Reclaimed Fen LCA): The site is considered to follow the arable field characteristics of the Thurrock Reclaimed Fen. While the proposal would result in a loss of the arable land in year 1, due to a lack of wider intervisibility this would not be perceptible from the majority of the Character Area resulting in a **negligible adverse** effect. By year 15, the proposed landscape framework, including scrub and tree planting will screen the site compound, reinforce the existing characteristic hedgerows and field pattern, therefore responding positively to the LCA. The effect is considered to improve to **negligible beneficial**.
- At a site scale: The existing arable land would be removed, and partially replaced by a landscape framework of native trees, scrub and meadow planting. The built form would low in height (approx. 2.5m) and offset from the site boundary. With retention of the existing boundary vegetation and the introduction of further planting and landscape buffer, the built form would be screened from the surrounding area. Overall, there would be a **negligible adverse** effect at year 1 due to the removal of agricultural land and introduction of built form, reducing to a **negligible beneficial** effect at year 15 once the tree, hedgerow, scrub and meadow planting establishes.

Regarding landscape character effects, the proposed development would not impact on the key characteristics of both NCA 111: Northern Thames Basin and the Thurrock Reclaimed Fens LCA in the long-term. The proposed tree and scrub planting of the landscape framework will reinforce the hedgerow and field pattern characteristics of the LCA. Overall, there would be a **neutral** effect on the NCA, **negligible beneficial** effect on LCA and **negligible beneficial** effect on the site at year 15.

10.3 Visual Effects

The visual effects are summarised below:

Visual Receptor	Sensitivity	Year 1		Year 15	
		Magnitude	Significance / Effect	Magnitude	Significance / Effect
View north from PRow 194 (SCP1): Footpath users	Medium	None	Neutral	None	Neutral
View north from PRow 194 (SCP2): Footpath users	Medium	None	Neutral	None	Neutral
View south from railway crossing off path 179 (SCP3): Footpath users	High	Small	Neutral	Very small	Negligible beneficial
View south from prow 179 at northern boundary of site (SCP4): Footpath users	High	Medium	Major adverse	Small	Negligible adverse
View west from prow 179 on eastern site boundary (SCP5): Footpath users	High	Medium	Major adverse	Small	Negligible adverse
View west from St Mary's Lane/ Monk's Farm (SCP6): Highway users	Low	None	Neutral	None	Neutral
View west from St Mary's Lane (SCP7): Highway users	Low	Medium	Moderate adverse	Small	Neutral
View north from rear of houses off St Mary's Lane (SCP8): Residents	High	Medium	Moderate adverse	Small	Neutral
View north from field gate on St Mary's Lane (SCP9): Highway users	Low	Very Small	Negligible adverse	None	Neutral
View north from junction of Warley Street and St Mary's Lane (SCP10): Highway users	Medium	Very Small	Negligible adverse	None	Neutral
View north east from Warley Street (SCP11): Highway users	Low	Medium	Moderate adverse	Small	Negligible beneficial
View east from Warley Street (SCP12): Highway users	Low	Medium	Major adverse	Small	Negligible beneficial

Figure 18: Visual effects table summary

- Heading north on an access drive/PRoW 194 (SCP1) there would be no views of the proposed development, with the site screened by intervening mature trees and hedgerow vegetation and residential properties on St Mary's Lane. There would be a **neutral** effect at year 1 and 15.
- From the apparently disused PRoW 194 (SCP2) there would be no views of the proposals for footpath users, with the site screened by intervening mature trees and hedgerow vegetation and residential properties on St Mary's Lane. There would be a **neutral** effect at year 1 and 15.
- Looking south from the railway crossing of PROW 179 (SCP3), there would be no views of the proposed development, with the site screened by intervening trees and hedgerows. There is a transient limited view south towards the site's boundary hedgerows, seen over a field gate. The effects on this receptor are considered to be **neutral** at year 1 and improved to **negligible beneficial** at year 15, following the establishment of the proposed hedgerow and tree planting which would soften views of the residential properties further south on St Mary's Lane.
- The view south from PRoW 179 where it enters the site at the northern boundary (SCP4), there is a transient open view across the whole site for footpath users. There would be a **major adverse** effect at year 1 as the low-level battery storage units and compound would be visible. In the long-term at year 15 the open views would become enclosed with the landscape framework having established and screening views of the compound with a **negligible adverse** effect.
- From PRoW 179 on the eastern boundary (SCP5) there are transient open views into the southern half of the site, whilst the existing hedgerow located immediately adjacent to the footpath heavily filters views into the northern half of the site. There would be a **major adverse** effect at year 1 which would improve to a **minor beneficial** effect at year 15, following the establishment of the proposed hedgerow and tree planting which would screen views of the proposals.
- Travelling west on St Mary's Lane/ Monk's Farm (SCP6) there would be no views of the proposed development, with the intervening roadside hedgerow and tree belt screening views of the site. There would be a **neutral** effect at year 1 and 15.
- Further west from the corner of St Mary's Lane (SCP7) there are transient open views of the site to the west for highway users and rarely pedestrians, with views of the north-eastern part of the site screened by a field boundary hedgerow. There would be a **moderate adverse** effect at year 1 as transient open views of the low-level battery storage units and compound would be visible. In the long-term at year 15 the landscape framework would have having established and would screen the built form of the compound, with vegetation appearing as a block of woodland, and is considered to reduce to a **neutral** effect.
- From the residential properties located on St Mary's Lane (SCP8) there are fixed, open view towards the site. The site's northern boundary hedgerows are visible, with the brightly contrasting buildings within Upminster Trading Park readily visible beyond. There would be a **moderate adverse** effect at year 1 as the fixed open views of the low-level battery storage units and compound would be form a noticeable component of the view for residents. Once the landscape framework matures, at year 15, the magnitude would reduce with the compound appearing as a block of woodland, screening views of the compound and Upminster Trading Park beyond, with a **neutral** effect.
- From St Mary's Lane (SCP9) highway users have a limited transient view of the site at a 90 degree angle to the direction of travel. A field gate creates a gap in the roadside hedgerow, with the site's arable field and northern boundary hedgerows are visible with the brightly contrasting buildings within Upminster Trading Park readily visible beyond.. There would be a **negligible adverse** effect at year 1 reducing to **Neutral** at year 15 once the landscape framework matures.

- From the junction of Warley Street and St Mary's Lane (SCP10) there is a limited, transient partial view of the site for highway and rarely pedestrian users. A gap in the adjacent field boundary hedgerow allows views of the south-east corner of the site and its boundary, with the rest of the site screened by the existing hedgerow and vegetation along Warley Street. There would be a **negligible adverse** effect at year 1 reducing to **Neutral** at year 15 once the landscape framework matures.
- From further north on Warley Street (SCP11) there are transient open views of the site through and above an intermittent roadside hedgerow for highway and rarely pedestrian users when travelling north. There are views across the site and of the eastern boundary hedgerows. The effects on this receptor are considered to be **moderate adverse** at year 1 as transient open views of the low-level battery storage units and compound would be visible. Once the landscape framework matures, at year 15, the magnitude would reduce with the compound appearing as a block of woodland, screening views of both the compound and Upminster Trading Park beyond, with a **negligible beneficial** effect.
- From the eastern boundary of the site on Warley Street (SCP12) there are transient open views of the site which are partly filtered through a strip of roadside vegetation for highway and rarely pedestrian users. There would be a **major adverse** effect at year 1 as the fixed open views of the low-level battery storage units and compound would be visible. Once the landscape framework matures, at year 15, the magnitude would reduce with the compound appearing as a block of woodland, screening views of both the compound and Upminster Trading Park beyond, with a **negligible beneficial** effect.

Regarding visual effects, due to the relatively flat topography and the existing boundary vegetation the proposed development would only be visible from localised receptors around the wider field. These are predominantly road users along Warley Street and St Mary's Street who would experience transient views of differing magnitudes depending on proximity and direction of travel. For PROW 179 which passes along the sites eastern boundary there would be initial major adverse effects. In the long-term, when the landscape framework has established all effects would reduce to at worst negligible adverse. The remaining receptors would reduce to neutral and in some cases beneficial where the proposal screen views of detracting features.

10.4 Response to Policy

The proposed development has been considered against the relevant landscape and visual policies outlined in section 3.

National Planning Policy Framework

In respect to NPPF paragraphs 135 and 180 the proposed development has been appropriately located within the existing landscape structure and is well-contained. The development promotes a landscape framework which is appropriate to the area, with native hedgerow, tree and shrub planting and wildflower meadow reinforcing the characteristics of the wider landscape character.

NPPF - London Metropolitan Green Belt

In the context of the five prescribed functions of the Green Belt, the provision of the development in this location would not adversely impact the purposes of designating the land, apart from '*assist in safeguarding the countryside from encroachment*' (Purpose 3). This is supported by the Havering Green Belt Study 2016 (LBHLP.26).

This section considers whether the proposed development is considered to be an inappropriate development in the context of the Green Belt arising from the impact of development on landscape character and visual impact. The test is whether there is an unacceptable impact on openness.

The concept of ‘openness of the Green Belt’ is not legally defined and as held in the supreme court decision in *R (Samuel Smith Old Brewery (Tadcaster) and others) v North Yorkshire County Council* [2020] UKSC 3³ it was confirmed that ...“*matters relevant to openness in any particular case are a matter of planning judgement, not law.*” (para 39).

This reinforces the guidance set out within the Green Belt PPG⁴ and that “...*openness is capable of having both spatial and visual aspects – in other words, the visual impact of the proposal may be relevant, as could its volume*”. Visual impacts may therefore be relevant to openness as a matter of planning judgement. In the case of the proposed development the visibility of the site is considered to be the overriding aspect.

The LVA demonstrates that the visual impact of the proposed development is very limited as the site is contained by existing vegetation features. In the long-term, once the landscape framework matures, the proposed development would result in very limited effects on existing views.

Impact on the openness of the Green Belt due to the proposed development will therefore be predominantly due to the volumetric increases of the low-level built form.

The London Plan

In regards to Policy D1 London’s form, Character and Capacity for Growth, the proposed development is not in context with the immediate site surroundings (the scale and mass of the proposals are incongruous with the immediate site surroundings), the proposed planting will however reinforce the existing characteristic hedgerows and field pattern described within the local character assessment in the long term. The proposal will however be in keeping with the wider landscape which features a scattering of small scale industrial developments around the arable fields.

In relation to Policy G2 *London’s Green Belt*, the impact on the openness of the Green Belt due to the proposed development will be visually perceived from a small number of public receptors within close proximity to the site, for instance walkers of the Public Right of Way (PRoW 179), vehicle users of the surrounding roads (St Mary’s Lane and Warley Street) and residents of the properties on St Mary’s Lane. The proposal will therefore have a loss of openness due predominantly to the volumetric increases of the low-level built form.

Whilst the exceptional circumstances pertaining to the location of the development are set out in the Planning Statement, the assessment of landscape and visual impacts demonstrates that harm is negligible and this in itself is a material consideration which must be taken into account in balancing the extent to which there is harm to Green Belt policies.

Havering Local Plan

Regarding Policy 27 Landscaping, the LVA has considered the existing landscape character and important landscape features, with the proposed development positioned to protect and enhance these. The proposed landscape framework maximises green infrastructure through the introduction of native tree and shrub planting which will reinforce the existing characteristic hedgerows and field pattern of the surroundings, while enhancing the biodiversity of the site and wider ecological networks.

Regarding Policy 29 Green Infrastructure, the LVA has considered the surrounding network of green spaces and natural features and provides green infrastructure on-site which is multifunctional and integrates into the wider green infrastructure network. The proposed landscape framework of native tree

³ R (on the application of Samuel Smith Old Brewery (Tadcaster) and others) (Respondents) v North Yorkshire County Council (Appellant) <https://www.supremecourt.uk/cases/docs/uksc-2018-0077-judgment.pdf>

⁴ Green Belt PPG, Paragraph: 001 Reference ID: 64-001-20190722 <https://www.gov.uk/guidance/green-belt>

and scrub planting will provide an opportunity to enhance existing and integrate additional green infrastructure on site.

Regarding Policy 30 Biodiversity and geodiversity, impacts of the proposed development has been considered through the commission of the Preliminary Ecological Appraisal and Biodiversity Net Gain assessments which will ensure the proposals will protect and enhance the borough's natural environment and increase the quantity and quality of biodiversity on site. Based on the Statutory Defra Biodiversity Metric calculations, the proposed development will result in an overall change in Habitat Units to +40.60% (+6.05 Habitat units). This will ensure the delivery of appropriate mitigation measures and a positive net gain in the biological diversity on the site.

In accordance with Policy 36 Low Carbon Design, Decentralised Energy and Renewable Energy, the LVA has demonstrated that the proposed development has been located and designed to minimise adverse impacts with both the cumulative and visual impacts of the proposals on "*landscape, biodiversity, historic environment, residential amenity*" having been carefully considered. The proposal will not be detrimental to the character of the surrounding area and there is no harm to visual or residential amenities. Furthermore, battery storage is seen by the Government to be an essential part of the energy mix and OFGEM have stated that projects of this kind have a key role: "*...by harnessing the potential of energy storage... we have an opportunity to upgrade to one of the most efficient, productive energy systems in the world. This is central to how we deliver secure, affordable and clean energy now and in the future*". Policy 36 must therefore be considered and given appropriate weight within the planning balance. The resulting low-level landscape and visual effects are in accordance with Policy 36.

It is important to note that part of the site is also identified under Policy 36 as having capacity for Small Wind Energy Development. The proposed low-level development for battery storage with its landscape framework will be less conspicuous and more in keeping with the scale of the surroundings relative to more significant energy infrastructure initiatives such as wind turbines.

Summary

The proposed development would respond positively to landscape related policies at National and Local levels. The proposal would not adversely affect important landscape features, historical features, ecologically designated sites, valued landscape or conservation areas or visual character and would therefore be in accordance with related planning policy. In addition, the proposed landscape framework would provide landscape and biodiversity enhancements in accordance with planning policy.

The impact on the openness of the Green Belt due to the proposed development will be visually perceived from a small number of public receptors within close proximity to the site and therefore the proposed development has a loss of openness predominantly due to the volumetric increase of the low-level built form. The negligible harm that arises to the openness of the Green Belt, when taken as a whole will however not outweigh the very special circumstances that justify development within the Green Belt for the specific purposes of low carbon energy generation.

The proposed development is in accordance with Policy 36 which must be considered and given substantial weight within the planning balance and this is emphasised through the site having been identified as having capacity for Small Wind Energy Development, which would have a much greater landscape and visual impact than the low-level batteries and associated equipment.

11 LIMITATIONS AND ASSUMPTIONS

The principal assumptions and limitations for this assessment are:

Assessment of sensitivity of receptors and the magnitude of change due to the development are inherently subjective and based on professional judgement.

12 CONCLUSION

Clearstone Energy have asked Weddles to prepare a Landscape and Visual Appraisal (LVA) to support a full planning application for a proposed battery storage facility on land between Warley Street and St Mary's Lane, Warley. An initial review was undertaken prior to any design works in order to identify the most suitable area where a BESS development could be accommodated appropriately while minimising the potential for adverse landscape impacts.

The objectives of the LVA are to assess the landscape character of the site and its surroundings and to consider the landscape and visual qualities of the site, its function in the landscape and its contribution to the wider landscape. The work undertaken includes an assessment of the existing landscape features, together with a visual appraisal of the site and its context.

The LVA is used to inform the continued design development of the proposed intervention and to explain the likely landscape and visual effects that may arise as a result of this. Therefore, providing sufficient information for decision makers to determine the landscape and visual impact of the proposals.

Site Context

The site is situated within the administrative area of the London Borough of Havering. The site development area of the whole scheme excluding the cable route is approximately 6 hectares and sits within a field comprising 17.92 hectares overall and is located 3.8km east of Havering centre between the villages of North Ockendon and West Horndon at Ordnance Survey grid reference TQ 59877 87107.

Located east of the M25 motorway (junction 29 – 30), the field in which the site is located is a relatively rectangular shaped flat field, bound to the north by a mainline railway line, to the west by Warley Street and to the south by St Mary's Lane. The railway between Havering and Basildon passes directly north of the site. There is a single public footpath passing to the north eastern boundary of the proposed site. The land is generally flat with gentle undulations but no major features. There is a drainage ditch passing from north to south through the field.

Whilst at a distance, the residential properties to the south have a view across the field to the proposed site. The M25, adjacent railway line, large electricity pylons and busy traffic on Warley Street and St Mary's Lane influence the site's character.

The landform in the immediate vicinity of the site is flat with the site located at 10m AOD. Small localised hills rise to approximately 40m AOD with the closest being Clay Tye Hill to the south and south west. There are no significant hydrological features in the surrounding area.

The main vegetation patterns in the surrounding landscape are arable farmland, with hedgerows, intermittent trees, tree belts or copses which divide the fields. There are larger woodlands to the south, Clay Tye Wood, and west, Thames Chase Forest Centre.

The site and surrounding land is designated as London Metropolitan Green Belt. The nearest other designation is a Local Nature Reserve (LNR) 'Cranham Brickfields', approximately 2km to the west of the site. Listed buildings are scattered throughout the area but none are located within 500m of the site.

Visibility of the site

The Visual Appraisal Plan and Site Context Photos 1 to 12 demonstrates that due to generally flat topography, field and roadside hedgerows and mature trees, the site is mainly visible from the near

distance views on sections of road and footpaths, including PROW 179, St Mary's Lane and Warley street, that run adjacent to the northern, southern and western boundaries respectively. There are also mid distance views from residential properties to the south of the site. The majority of these views are limited to gaps within or filtered through field and roadside hedgerows.

The existing tall electricity transmission pylons are considered to be detracting features which are apparent within many views in the locality.

The Proposed Development

The proposed development seeks to implement a 200 MW Battery Storage facility with associated ancillary structures, vehicle access and landscaping. The development will consist of a series of battery storage containers and related infrastructure which will have a maximum height of up to 3000mm. There will also be a single customer substation which may be up to 7200mm high, to be located in the north east corner of the site.

The whole development site will be surrounded by a 2.5m high paladin security fence. CCTV will be provided to the full perimeter with infrared for night operation.

For the purposes of this assessment, it is assumed that the development will be predominantly finished in appropriate recessive colours. Access would be improved off Warley Street to the west of the site, with a secondary entrance for emergency purposes only to the east of the site from St Mary's Lane.

The scheme would be supported by a robust landscape framework, which would incorporate the retention, enhancement and management of the existing hedgerows and trees, additional native tree, hedgerow and scrub planting to the boundaries, and areas of meadow grassland.

The accompanying Biodiversity Impact Assessment and Biodiversity Net Gain Metric demonstrates a biodiversity net gain of 40.60%.

Landscape and Visual Effects

Regarding visual effects, due to the relatively flat topography and the existing boundary vegetation the proposed development would only be visible from localised receptors around the wider field. These are predominantly road users along Warley Street and St Mary's Street who would experience transient views of differing magnitudes depending on proximity and direction of travel. For PROW 179 which passes along the sites eastern boundary there would be initial major adverse effects. In the long-term, when the landscape framework has established all effects would reduce to at worst negligible adverse. The remaining receptors would reduce to neutral and in some cases beneficial where the proposal screen views of detracting features.

Response to landscape related planning policy

The proposed development would respond positively to landscape related policies at National and Local levels. The proposal would not adversely affect important landscape features, historical features, ecologically designated sites, valued landscape or conservation areas or visual character and would therefore be in accordance with related planning policy. In addition, the proposed landscape framework would provide landscape and biodiversity enhancements in accordance with planning policy.

The impact on the openness of the Green Belt due to the proposed development will be visually perceived from a small number of public receptors within close proximity to the site and therefore the proposed development has a loss of openness predominantly due to the volumetric increase of the low-level built form. The negligible harm that arises to the openness of the Green Belt, when taken as a whole will however not outweigh the very special circumstances that justify development within the Green Belt for the specific purposes of low carbon energy generation.

The proposed development is in accordance with Policy 36 which must be considered and given substantial weight within the planning balance and this is emphasised through the site having been identified as having capacity for Small Wind Energy Development, which would have a much greater landscape and visual impact than the low-level batteries and associated equipment.

Cumulative Effects

The cumulative effects of committed developments alongside the proposed development will have a **neutral** visual effect and a **neutral** landscape effect in the long term due to nature of the development and the increased screening provided by the native scrub planting. as there are no instances of viewpoints from which multiple energy developments are visible from a single viewpoint at the same time.

Summary

Overall, as demonstrated within this LVA, the proposed development would be successfully assimilated into the existing landscape without adversely impacting on the surrounding arable character of the Thurrock Reclaimed Fenn farmland. The slight harm on the immediate landscape and visual character of the Thurrock Reclaimed Fen Landscape Character Area would need to be balanced against the benefits of the proposed energy storage. Visual effects are very localised and existing views are adversely affected by existing pylons and substation equipment to the west.

Protection and enhancement of the most significant landscape features, which provide visual containment and are characteristic of surrounding character, combined with additional landscape and biodiversity enhancements, would result in a long-term **negligible beneficial** effect on landscape features, a **neutral to negligible beneficial** effect on landscape character, a **negligible beneficial** visual effect and a positive response to landscape related policy at National and Local levels.

None of the Landscape Visual effects resulting from the development are considered to be significant and are predominantly beneficial in nature.

The development is not in context with the immediate site surroundings as the impact on the openness of the Green Belt due to the proposed development will be visually perceived from public receptors within close proximity to the site. The proposal will therefore have *limited* impacts on the openness of the green belt due to volumetric increases of the built form which will be reduced following the establishment of the landscape framework in the long term. Whilst the very special circumstances pertaining to the location of the development are set out in the Planning Statement, the LVA demonstrates that harm is negligible and this in itself is a material consideration which must be taken into account in balancing the extent to which there is harm to Green Belt policies.

The proposed development has been shown to be in accordance with Policy 36 which must be considered and given substantial weight within the planning balance.

APPENDICES

Appendix 1: LVA Methodology

Appendix 2: Published Landscape Character Extracts

Appendix 3: VISUAL APPRAISAL PLAN (1643-001)

Appendix 4: Site Context Photographs (1643-002)

Appendix 5: Landscape Strategy (1643-003)

APPENDIX 1: LVA METHODOLOGY

1.0 Introduction

Landscape and Visual Impact Assessment methodology is based on 'Guidelines for Landscape and Visual Impact Assessment (Third Edition, 2013), published by the Landscape Institute and the Institute of Environmental Management and Assessment. Impacts examined as part of the assessment process fall into the following two categories:

- Landscape impacts. This part of the assessment deals with impacts on the landscape resource. The landscape resource is examined in terms of features, character, quality, value and resulting sensitivity to change. Impacts are then analysed in relation to these factors.
- Visual impacts. This part of the assessment deals with impacts on views of the landscape and examines public perception of landscape change. Potential visual receptors with views of the proposed development are identified and their sensitivity examined. Impacts are then analysed in relation to the nature and sensitivity of these views.

The existing landscape and visual circumstances at the development site are examined, to establish baseline conditions. Impacts of the proposed development can then be examined against this baseline. After potential impacts are identified, these are addressed through alterations to the development proposals to avoid, reduce or mitigate against and adverse impacts can then be addressed.

This methodology is adapted to the specific nature and landscape context of different development projects, with different elements of the various areas of analysis being more or less important.

2.0 Baseline Studies

The purpose of baseline studies are to identify the existing landscape features, characteristics, potential visual receptors and the way in which the landscape is experienced. The following are typically undertaken as part of the baseline studies:

- Identification of the extents of the study area. The extent of this is based on professional judgement and may vary depending on the type of development proposed.
- A desktop study of patterns and scale of landform, land use and built development, relevant current planning policy (including landscape designations) and landscape character publications. This provides guidance on the general landscape character of the surrounding area.
- Zone of Theoretical Visibility (ZTV).
- Identification of potential representative viewpoints within the study area. The viewpoints chosen are not intended to be exhaustive but rather to build up a picture of the areas from which the proposed development is potentially visible.
- Site visits to public viewpoints to determine the likely visibility of the development.

3.0 Assessment of Landscape Effects

The GLVIA 3 in Paragraph 5.1 states that:

“An assessment of landscape effects deals with the effects of change and development on landscape as a resource.”

In order to assess the landscape effects, the sensitivity of the landscape receptor and the magnitude of effect experienced as a result of the Proposed Development is assessed.

Sensitivity of Landscape Receptors

The sensitivity of a landscape receptor is a combination of the value of the landscape receptor and the susceptibility of the landscape receptor to the type of change proposed, using professional judgement.

Landscape Value

The GLVIA 3 Glossary defines landscape value as:

"The relevant value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a variety of reasons"

Landscapes, including their character and features, may be designated at a range of levels (international, national, county and local level), examples of which are set out in Table 1.

Level	Description
High	Features or areas likely to be of international or national importance, designated at national or international level
Medium	Features or areas likely to be of county or borough importance, designated at county or borough level
Low	Features likely to be of importance to the local community but have little or no wider recognition of their value, and are not designated
Very Low	Features or areas with little or no evidence of being valued by the community, and are not designated.

Table A1: Landscape Value - Designations

The assessment of value is based on a combination of the importance of landscape-related planning designations and the following attributes:

- Landscape quality (condition): the measure of the physical state of the landscape. It may include the extent to which typical landscape character is represented in individual areas, the intactness of the landscape and the condition of individual elements.
- Scenic quality: the extent that the landscape receptor appeals to the visual senses.
- Perceptual aspects: the extent that the landscape receptor is recognised for its perceptual qualities (e.g. remoteness or tranquillity).
- Rarity: the presence of unusual elements or features.
- Representativeness: the presence of particularly characteristic features.
- Recreation: the extent that recreational activities contribute to the landscape receptor; and
- Association: the extent that cultural or historical associations contribute to the landscape receptor.

The overall value for each landscape receptor is categorised as High, Medium, Low or Very Low.

Landscape Susceptibility

The GLVIA 3 Glossary defines landscape susceptibility as:

"The ability of a defined landscape...receptor to accommodate the specific proposed development without undue negative consequences"

The following criteria is taken into consideration in the assessment of landscape susceptibility, although not all criteria are equally applicable or important within a given landscape / type of development proposed:

- Landform;

- Pattern/Complexity;
- Composition;
- Landcover; and
- Relationship of a given landscape area to any existing settlements or developments.

Landscape susceptibility of the character of the landscape / of the features is categorised as High, Medium or Low, as set out in Table 2. Landscape susceptibility can also be considered in the context of the capacity of landscape / landscape features to accommodate change. A landscape / landscape feature of low susceptibility would have a high capacity to accommodate change, and a landscape / landscape feature of high susceptibility would have a low capacity to accommodate change.

Susceptibility	Criteria
High	The receptor is likely to have little scope to accommodate the type of change proposed without undue effects upon its overall integrity.
Medium	The receptor is likely to have some scope to accommodate the type of change proposed without undue effects upon its overall integrity.
Low	The receptor is likely to be able to accommodate the type of change proposed with little or no effect upon its overall integrity.

Table A2: Landscape Susceptibility

Based on the combination of value and susceptibility, an assessment of landscape sensitivity is reached, defined as High, Medium and Low as shown in Table A3.

Sensitivity	Criteria
High	A landscape receptor of potentially international or national importance. The landscape features and character are the basis for designation and are likely to be largely intact and in a good condition with little scope to accommodate the type of change proposed without undue effects upon its overall integrity.
Medium	A landscape receptor that is potentially valued at a county level. The landscape may be in reasonably good condition with some scope to accommodate the type of change proposed without undue effects upon its overall integrity.
Low	A landscape receptor that may or may not be valued at a local level and may comprise a number of detracting elements. The landscape may be in a poor condition and can accommodate the type of change proposed with little or no effect upon its overall integrity.

Table A3: Landscape Sensitivity (Value + Susceptibility)

Landscape Magnitude of Effect

The landscape magnitude of effect is informed by judgements about the size and extent of the change brought about by the Proposed Development both in terms of the existing landscape character and landscape elements / features and the addition of new landscape elements / features, and its duration and reversibility as shown in Table A4.

Magnitude	Criteria
Large	Total alteration to the existing landscape receptor; may affect an extensive area.
Medium	Partial alteration to the existing landscape receptor; may affect a wide area.
Small	Slight alteration to the existing landscape receptor; may affect a restricted area.

Magnitude	Criteria
Very Small	Very slight alteration to the existing landscape receptor; may affect a limited area.
None	No change to the existing landscape receptor.

Table A4: Landscape Magnitude of Effect

4.0 Assessment of Visual Effects

The GLVIA 3 Paragraph 6.1 states that:

“An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity.”

In order to assess the visual effects, the sensitivity of the visual receptor and the magnitude of effect experienced as a result of the Proposed Development is assessed.

Viewpoint Selection

In order to assess the effects on visual receptors, a selection of publicly accessible viewpoints is made, which could include representative viewpoints (e.g. representing views of users of a particular footpath) and specific viewpoints (e.g. a key view from a specific visitor attraction).

Views are categorised as either near distance, medium distance or long distance with the relevant distance's dependant on the size and nature of the development, based on professional judgement. The type of view is typically described firstly as transient (i.e. in passing) or fixed (i.e. from a static location) and then in relation to being filtered (i.e. through intervening vegetation), oblique (i.e. not within the direct field of view), or open (i.e. uninterrupted).

Photographs of representative viewpoints are taken at eye level with a focal length of 35mm (equivalent to 50mm on a conventional 35mm camera), to create the view which is generally accepted as being closest to that seen by the human eye, in accordance with the Landscape Institute Advice Technical Guidance Note 06/19 'Visual Representation of development proposals', September 2019'. The photographs used are intended only to give an indication of the view discussed and are not a substitute for visiting the site in person.

Panoramic views consisting of photographs taken by the criteria outlined above are merged together using computer software. No other photographic manipulation is undertaken.

Due to the infinite number of possible viewpoints to choose from, those chosen are done so on the basis of their location in relation to the site and landform. These are further reduced to concentrate on those receptors that are identified as being of 'high' or 'very high' sensitivity. Beyond the area chosen, the visual impacts of the development are not considered likely to be significant. At these distances, the development is likely to be screened by local features, such as landform, buildings and vegetation or become a recessive element within the landscape.

A brief description of the existing land use of the area is provided and includes reference to existing settlements, transport routes and vegetation cover, as well as local landscape designations, elements of cultural and heritage value and local landmarks or tourist destinations. These factors combine to provide an understanding of landscape value and sensitivity, and an indication of particular key views and viewpoints that are available to visual receptors and therefore are to be included in the visual assessment.

Sensitivity of Visual Receptors

The sensitivity of a visual receptor is a consideration of the value of the view and the susceptibility of the visual receptor to the type of change proposed, using professional judgement, as set out in Table A5 and A6 respectively.

Level	Value
High	View from a location that is likely to be of national importance, either designated or with national cultural associations, where the view obtained forms an important part of the experience.
Medium	View from a location that is likely to be of local importance, either designated or with local cultural associations, where the view obtained forms part of the experience.
Low	View from a location that is not designated, with minimal or no cultural associations.

Table A5: Visual Value

Level	Susceptibility
High	People at their place of residence; People engaged in outdoor recreation, including users of Public Rights of Way (PRoW), whose attention is likely to be focused on the landscape; and People travelling along recognised scenic routes or where their appreciation of the view contributes to the amenity experience of their journey.
Medium	People engaged in outdoor sport and recreation, where their appreciation of their surroundings is incidental to their enjoyment; and People travelling on secondary roads or country lanes, rail or other transport routes.
Low	People travelling on major roads; People at their place of work.

Table A6: Visual Susceptibility

Based on the combination of value and susceptibility, an assessment of visual sensitivity is reached, defined as High, Medium and Low as shown in Table A7.

Sensitivity	Criteria
High	Typically a view from a location that is likely to be of national importance, where the view obtained forms an important part of the experience. The receptor may be a person in their place of residence / engaged in outdoor recreation using local public rights of ways.
Medium	Typically a view from a location that is likely to be of local importance. The receptor may be engaged in outdoor sport or travelling secondary roads or country lanes.
Low	Typically a view from a location that has no cultural associations or designations. The receptor may be travelling a major road or at their place of work.

Table A7: Visual Sensitivity (Value + Susceptibility)

Visual Magnitude of Effect

In the evaluation of the effects on views and the visual amenity of the identified receptors, the magnitude of visual effect is typically described with reference to:

- The scale of change in the view with respect to the loss or addition of features in the view and changes in its composition;
- The duration and nature of the effect, whether temporary or permanent, intermittent or continuous;
- The angle of view in relation to the main activity of the receptor;
- The distance of the viewer from the Proposed Development; and

- The extent of the area over which the changes would be visible.

The magnitude of visual effect classifications are set out in Table A8.

Magnitude	Criteria
Large	The proposals will cause a pronounced or complete change or contrast to the existing view, resulting in the loss or addition of features that will substantially alter the composition of the view.
Medium	The proposals will cause a noticeable change or contrast in the view, resulting from the loss or addition of features in the view and will noticeably alter the composition of the view.
Small	The proposals will cause an unobtrusive change or contrast in the view, which would not materially alter the composition of the view.
Very Small	The proposals will cause a barely perceptible change or contrast in the view, which would not materially alter the composition of the view.
None	No change discernible in the view.

Table A8: Visual Magnitude of Effect

5.0 Significance of Effects

In order to draw conclusions about the significance of landscape or visual effects, the combination of the sensitivity of the receptors and the magnitude of effects are considered for the Proposed Development at Year 1 and Year 15.

Significance is a combination of the magnitude and the sensitivity of the receptor. Impacts of greater magnitude are likely to be more significant. Significance will also depend on the sensitivity of the landscape to change, assessed in the baseline analysis.

Effect	Landscape
Major Beneficial	Alterations that result in a considerable / total and distinct improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced as part of the Proposed Development.
Moderate Beneficial	Alterations that result in a partial improvement of the existing landscape resource. Valued characteristic features would be largely restored or reintroduced.
Minor Beneficial	Alterations that result in a slight improvement of the existing landscape resource. Characteristic features would be partially restored.
Negligible Beneficial	Alterations that result in a very slight improvement to the existing landscape resource, not uncharacteristic within the receiving landscape.
Neutral	No alteration to any of the components that contribute to the existing landscape resource.
Negligible Adverse	Alterations that result in a very slight deterioration to the existing landscape resource, not uncharacteristic within the receiving landscape.
Minor Adverse	Alterations that result in a slight deterioration of the existing landscape resource. Characteristic features would be partially lost.
Moderate Adverse	Alterations that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be largely lost.
Major Adverse	Alterations that result in a considerable / total and distinct deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.

Table A9: Landscape Effects Criteria

Effect	Visual
Major Beneficial	Alterations that typically result in a pronounced improvement in the existing view.
Moderate Beneficial	Alterations that typically result in a noticeable improvement in the existing view.
Minor Beneficial	Alterations that typically result in a limited improvement in the existing view.
Negligible Beneficial	Alterations that typically result in a barely perceptible improvement in the existing view.
Neutral	No change to the existing view.
Negligible Adverse	Alterations that typically result in a barely perceptible deterioration in the existing view.
Minor Adverse	Alterations that typically result in a limited deterioration in the existing view.
Moderate Adverse	Alterations that typically result in a noticeable deterioration in the existing view.
Major Adverse	Alterations that typically result in a pronounced deterioration in the existing view.

Table A101: Visual Effects Criteria

APPENDIX 2: PUBLISHED CHARACTER EXTRACTS



Introduction

As part of Natural England's responsibilities as set out in the Natural Environment White Paper¹, Biodiversity 2020² and the European Landscape Convention³, we are revising profiles for England's 159 National Character Areas (NCAs). These are areas that share similar landscape characteristics, and which follow natural lines in the landscape rather than administrative boundaries, making them a good decision-making framework for the natural environment.

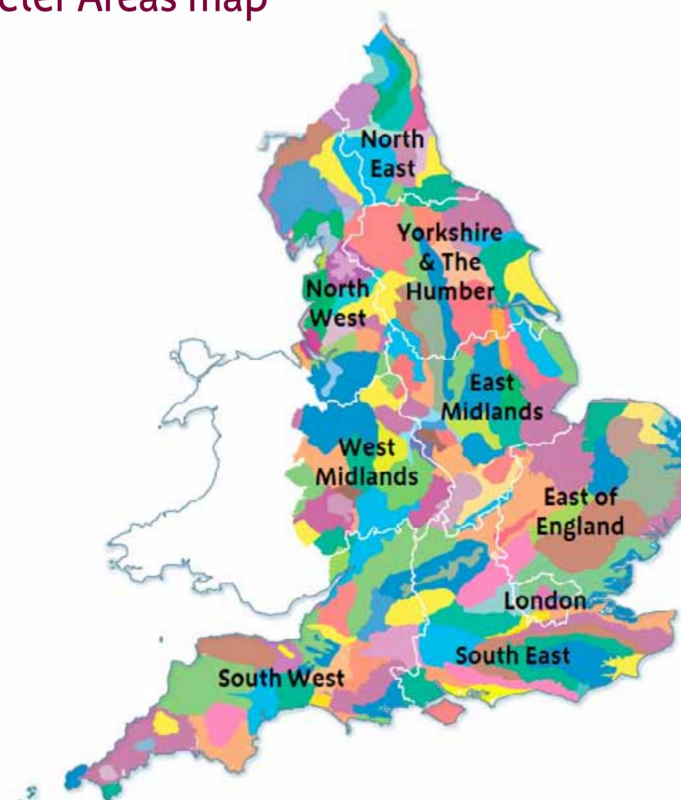
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and encourage broader partnership working through Local Nature Partnerships. The profiles will also help to inform choices about how land is managed and can change.

Each profile includes a description of the natural and cultural features that shape our landscapes, how the landscape has changed over time, the current key drivers for ongoing change, and a broad analysis of each area's characteristics and ecosystem services. Statements of Environmental Opportunity (SEOs) are suggested, which draw on this integrated information. The SEOs offer guidance on the critical issues, which could help to achieve sustainable growth and a more secure environmental future.

NCA profiles are working documents which draw on current evidence and knowledge. We will aim to refresh and update them periodically as new information becomes available to us.

We would like to hear how useful the NCA profiles are to you. You can contact the NCA team by emailing ncaprofiles@naturalengland.org.uk

National Character Areas map



¹ The Natural Choice: Securing the Value of Nature, Defra (2011; URL: www.official-documents.gov.uk/document/cm80/8082/8082.pdf)

² Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services, Defra (2011; URL: www.defra.gov.uk/publications/files/pb13583-biodiversity-strategy-2020-111111.pdf)

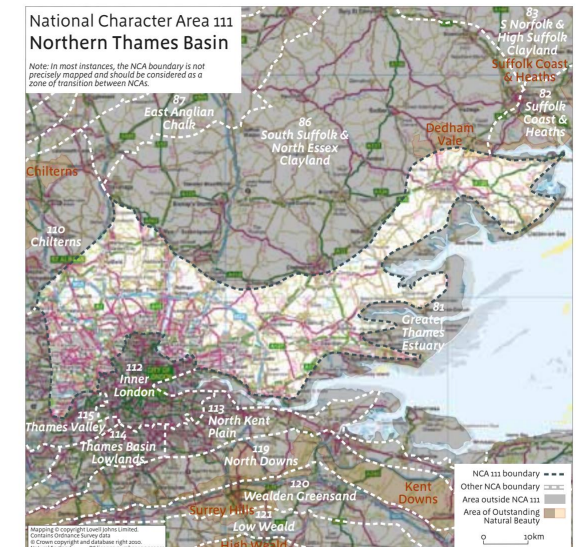
³ European Landscape Convention, Council of Europe (2000; URL: <http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm>)

Summary

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

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

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



Click map to enlarge; click again to reduce.

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

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



Farmland next to the River Colne in Essex.

Statements of Environmental Opportunity

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

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

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

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



Ancient woodland at Pound Wood in Benfleet, Essex.

Description

Physical and functional links to other National Character Areas

The Northern Thames Basin forms the rising land above the low-lying marshy landscapes adjoining the coast and estuaries of the Greater Thames Estuary and the Suffolk Coast and Heaths National Character Areas (NCAs) to its east and south-east extent and enjoys associated views of these areas. Chalk geology commonly underpins this NCA and the neighbouring Chilterns and South Suffolk and North Essex Claylands NCAs to the west and north; The Chilterns, a formation of chalk hills and plateaux with a prominent escarpment, offers views across to this similarly elevated NCA. To the south-west the Thames Valley NCA forms a wedge-shaped area containing the open Thames flood plain surrounded by rolling clay farmland. Directly south is the Inner London NCA on the banks of the Thames where the river valley widens out into a broad flood plain.

The London Basin Chalk aquifer, which underlies much of the western section of the Northern Thames Basin NCA, is the principal aquifer supplying water to Inner London. The Chalk is confined in the basin by the overlying Tertiary formations of London Clay, which means recharge largely occurs in the extensive Chalk outcrop of the Northern Thames Basin and into the Chilterns NCA to the north and the North Downs to the south.

A small part of the Dedham Vale Area of Outstanding Natural Beauty (AONB) straddles the eastern edge of this NCA, the more northerly South Suffolk and North Essex Claylands and the south-western tip of the Suffolk Coast and



Major transport links include the M25 motorway.

Heaths NCA. The urban character in the south of the Northern Thames Basin continues into the Thames Valley and Greater Thames Estuary NCAs.

The landscape becomes extensively urbanised towards the Inner London NCA and includes major transport links from outside the area such as the East Coast mainline railway, M11 which connects to London and Cambridgeshire, the M1 which passes north-west through the Chilterns to the Midlands beyond, and

the M25 which provides circular access to all parts of London and the south. Important A roads providing wide physical links include the A12 and A120 and the A1(M), which has a similar route to the M1 but diverts towards the East Anglian Chalk and Bedfordshire Claylands NCAs.

Many watercourses feed in or flow from surrounding areas, often along courses incised into boulder clays or tills, for instance the Blackwater and Colne flowing from the South Suffolk and North Essex Claylands and the Ver and Lea from the westerly Chilterns NCA which flow into Hertfordshire before joining the Thames in inner London. These, along with others, form a series of river valleys draining south to the Thames and east to the North Sea and Thames Estuary, including the Roding, Wid, Chelmer, Roach and Crouch. Also notable is the Grand Union Canal, which runs from here through several other NCAs northwards to Birmingham.

Distinct areas

- Hertfordshire plateaux and river valleys
- Essex wooded hills and ridges
- London Clay lowlands
- Essex heathlands



River Mimram valley flood plain, Hertfordshire.

Key characteristics

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

Northern Thames Basin today

The Northern Thames Basin is a large and diverse landscape with a similar overarching character of agricultural land, interspersed with woodland, dissected by rivers and influenced by the urban areas of North London. It falls naturally into several distinct areas, shaped by their geology, topography and land use which are called: Hertfordshire plateaux and river valleys, Essex wooded hills and ridges, London Clay lowlands and the Essex heathlands

The Hertfordshire plateaux and river valleys to the north-west of the NCA are high, broad arable plateaux divided by wooded and pastured valleys which have a mainly rural feel with, on the whole, small developments. Rivers that drain the plateaux are the Colne, Ver and Lea and the soils are mainly underlain with London Clay, resulting in heavy, acidic, nutrient-poor soils with poor drainage; however, in the river valleys alluvial deposits provide fertile and well-drained soils. The area is underlain by extensive Chalk beds of the principal London Basin chalk aquifer, which provides the main source of water for London. Recharge of the aquifer largely occurs from the Chalk as water flows underground to London from the Chilterns, and water quality and availability within the aquifer are largely dependent on land management practices in the area.

While the plateaux are predominantly in arable use, the valleys by contrast contain areas of pasture and have a more intimate character, although some have been heavily modified by reservoirs, gravel workings, landfill sites and river realignments. The valleys contain all the main settlements within the area. Field boundaries are dominated by informal enclosure patterns of the 18th century, with thorn hedges relating to rationalisation and amalgamation of this pattern in the 18th and 19th centuries. It is a well-wooded landscape, especially to the east, with a number of ancient broadleaved woodlands including oak



Grazing marsh at Kings Meads Valley Meadowlands alongside the urban landscape of Hertford.

and hornbeam coppice. Isolated areas of remnant heathland survive within commons. The area retains a substantial legacy of funerary monuments and settlement sites associated with the prehistoric period and was intensively settled in the Roman times, with a number of major and minor towns (including St Albans and Welwyn) having a Roman origin. Today, a medieval pattern of small villages and dispersed farming settlement is central to the area's character and there is good survival of medieval timber-framed houses and barns, moated sites and small medieval castles. The 16th and 17th centuries saw the growth of rural estates and country houses for London merchants and the landscape parklands surrounding these houses are a particular feature of the

area today. The area merges with the outer London suburbs of Enfield, Barnet, Harrow, Hillingdon and Hounslow. It also contains many large towns including Watford, Hatfield, Hertford and St Albans which have developed as commuter settlements as well as the pioneering and influential garden cities of Ebenezer Howard at later Welwyn. Road and rail routes plus utility infrastructure are now dominant features of some parts of the area. To the far south the area is heavily urbanised as it becomes part of London, where housing, industrial areas and shops dominate. Green areas are restricted to city parks, grassed areas in front of housing developments and residents' gardens.

The Lea Valley within the area has been exploited for supplying London with water and for generating power for a wide range of industries, together with extraction of sand and gravel. This historic use has underpinned its current importance for wildlife. The Lower Lea valley, which lies in the south of the area and in the adjacent Inner London NCA, was heavily regenerated for the 2012 London Olympics, bringing ecological landscape, recreational and economic benefit.

The designations afforded to this area are Ramsar, which is an international designation for wetland habitats, and Special Protection Area (SPA), which is a European designation; also, within the Lea Valley and the surrounding areas there are many Sites of Special Scientific Interest (SSSI). The main reasons for the designations within the Lea Valley area are its importance as a wetland site; wetlands and reservoirs occupy a large part of the valley and support many important overwintering waterfowl. The species of particular importance are bittern, which over-winter in the reedbeds in the area which at peak times can support around 6 per cent of the UK's population, as well as gadwall and shoveler which also over-winter here (representing almost 2 per cent of their overwintering European population). There are also two important woodland

complexes within the area: Wormley and Hoddesdon Park Wood, which is a Special Area of Conservation (SAC) and Broxbourne Wood, which is a National Nature Reserve (NNR). Wormley and Hoddesdon Park Wood is an almost exclusively hornbeam woodland which has been managed through coppicing with oak standards. The ground flora supports bluebells and great wood-rush as well as important mosses. Broxbourne Wood is an ancient woodland which supports the rare butterfly purple emperor and also has historical value as the area has been managed since Roman and medieval times as a source of wood

The Essex wooded hills and ridges lie to the east of the Hertfordshire plateaux and river valleys to the north of the NCA. This area has several ridges where the soils are acidic and stony and have low fertility but are easily cultivated. This and the wet soils at the base of the Bagshot Beds limit the agricultural potential for the hill slopes, but farmland can be found in the lower-lying areas. The ridges of Epping Forest, Brentwood to High Wood, Thorndon to Billericay and Danbury to Wickham Bishops are dissected by the river valleys of the Roding, Wid and Chelmer. The Ter, Brain and Blackwater also contribute to the drainage of the area and Hanningfield Reservoir provides an area of open water.

This area is in the central part of the NCA, and extends roughly from Epping Forest in the west to Danbury in the east. It is a transitional landscape between the London Clay lowlands and the South Suffolk and North Essex Claylands NCA. It is formed by a series of hills and ridges created by the resistant Bagshot Sands which rise up above the clay lowland as at Epping Forest, Brentwood to High Wood, Thorndon to Billericay and Danbury to Tiptree. These well-wooded hills contain extensive areas of ancient woodland, remnant wood pasture and secondary woodland on commons as well as more recent plantations. These include the substantial wooded areas of Hainault Forest and Epping Forest, formerly Royal Forests, now managed for conservation and recreation.

Historically, settlement was sparse with scattered villages associated with the commons and areas of wood pasture. Today, settlement is dominated by large, 20th-century urban areas. The A12, the former Roman road connecting London with Colchester, is a major commuter route through the area.

Within this area Epping Forest is an important site for wildlife and as such has been designated as an SAC. The main reason that this site is important is the beech forests found here and the rare species that these support – rare mosses and also fungi and deadwood invertebrates owing to the high number of veteran trees present. Also found here are significant populations of stag beetle.

The London Clay lowlands lie south and east of the Essex wooded hills and ridges and are characterised by the heavy, acidic soils associated with this area, which is the dominant feature of the London Basin, although lighter soils can be found on some footslopes. The heavy soils are difficult to drain and easily become waterlogged. The area is drained by numerous rivers such as the Roach, Crouch and Blackwater, which merge to create the flat marshes to the east. The large expanse of open water at Abberton Reservoir, formed by the damming of the Layer Brook on its way to the Roman River, is a notable feature.

This area embraces the outer east London suburbs at Grays and Thurrock and extends eastwards to the Dengie Peninsula. It includes the town of Basildon.

This area is essentially a flat to gently undulating lowland landscape. Local variation is created by the Laindon and Hockley Hills, formed of the more resistant sandy Bagshot Beds which cap the clay.

The east of the area is characterised by a planned Roman landscape with a rectilinear pattern of fields which is a nationally important but subtle feature



Wet heathland, acid grassland and coppiced ancient woodland at Bricket Wood Common, Hertfordshire.

of the landscape today. The heavy clays were difficult to work and remained in pasture; however, during the 1950s and 1960s the land was improved so that arable is now also a dominant land use. By contrast, the hills around Laindon, Hockley and Rayleigh are relatively well wooded. In addition, 19th- and 20th-century plantations and regenerated, formerly urbanised plotland landscapes add a further wooded aspect to parts of the area. The landscape today has an urban character, including the expanded resort of Southend, the 1950s planned

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town of Basildon and extensive 20th-century commuter settlements such as at Laindon and Rayleigh. Large areas of recreational land including parkland, golf courses and horse paddocks serve the urban population.

This area has many important wetland sites including Abberton Reservoir (designated as a Ramsar site and SPA) and also two reservoir areas recognised as SPA, the Crouch and Roach Estuary and Blackwater Estuary: however, only a small proportion of the two estuaries is found in this NCA with the majority falling within the Greater Thames Estuary. Abberton Reservoir is a significant site as it supports many important overwintering waterfowl such as golden plover, gadwall, shoveler and teal, as well as breeding cormorant, and also qualifies as a wetland of importance as it supports more than 20,000 waterfowl. The Crouch and Roach Estuary is an important site for overwintering dark-bellied Brent goose and the Blackwater Estuary (which is also an NNR) is important for overwintering avocet, golden plover, hen harrier, dark-bellied Brent goose, redshank and breeding little tern: it too is recognised as a wetland of international importance because it supports more than 20,000 waterfowl.

The Essex heathlands lie north-east of the London Clay lowlands and Essex wooded hills and ridges, in the north-east of the NCA. The geology of the area is predominantly sands and gravels, which were deposited by the Thames as it changed its course over time to its present location. Around the Tendring area deposits of wind-borne silty loam overlie the sands and gravels but overall the soils are light and free draining. The area is relatively flat with contrast provided by the steep-sided slopes of the Stour, Colne and Roman river valleys which, along with their tributaries, drain the plateau and are eventually discharged into the North Sea.

The east of this area is broadly bounded by the Stour Estuary to the north and the Thames Estuary to the south and east, and covers the land around

Colchester and the Tendring plain. It is separated from the North Sea and Thames Estuary by a narrow strip of coastal marshes which form part of the Greater Thames Estuary.

The area consists of a broad, sandy plateau created by ancient river deposits from the Thames. Historically it was dominated by extensive heaths and commons, although these are now restricted to isolated fragments of heath and scrub within an intensively farmed and largely arable agricultural landscape. Agriculture includes improved grassland and arable fields as well as distinctive areas of horticulture and market gardening associated with the light, sandy soils of former heaths. Orchards are a feature around Colchester.

A pattern of small but intricate creeks and valleys breaks up the plateau edges where the land falls to the Thames Estuary along the coast and extends the coastal influence inland. The narrow river valleys which incise the plateau also create areas of contrasting enclosed landscape, with abundant woodland and meadows, some with wider flood plains and wetland vegetation. Much of the woodland is ancient; however, in general the plateau has an open, treeless character owing to the loss of field boundaries.

Vernacular buildings are constructed of timber, with either weatherboarding or whitewashed plaster. The principal settlement is Colchester, the walled Roman capital and England's oldest town, dating from 49 AD.

Within this area is Hamford Water, designated as a Ramsar site as well as an SPA and SSSI owing to the important waterfowl that use it. Many species over-winter here, including avocet, golden plover, ruff, black-tailed godwit, grey plover, ringed plover and teal – up to 25 per cent of the UK population of overwintering avocet has been recorded here. In addition, little tern use it

as a breeding site and the area is considered to be a wetland of international importance as it supports more than 20,000 waterfowl. Part of the Colne Estuary is in this area (although the majority of it falls within the Greater Thames Estuary NCA); this is also a Ramsar site and SPA, and of national importance for geology. Similar species are found here to those found in Hamford Water, and in addition overwintering hen harrier, dark-bellied Brent goose and redshank. This area is also considered a wetland of international importance and includes a small part of the predominantly pastoral character of the Dedham Vale AONB. St Osyth marsh is an important site for salt marsh morphology dating back around 4,000 years, while geological exposures at East Mersea show important deposits beneath gravels which are attributed to the Thames and Medway system and are of considerable importance in Pleistocene studies.

The whole area is a combination of countryside mixed in with urban areas, with important habitats and species, especially woodland and wetland habitats and associated species. The rural area acts as a recreational opportunity for those living in the surrounding towns and cities and the urban areas offer work and recreation opportunities for those living in more isolated villages and settlements in the rural environment. There is strong historical association throughout the area owing to its close proximity to London and the Roman occupation of Colchester and the links that this creates within the area as a whole. Dedham Vale is strongly associated with the artist John Constable whose paintings were inspired by the landscape.

The landscape through time

The NCA is the northern part of the London Basin, a broad, concave fold which opens out towards the East Coast. This structure means that the oldest rock strata are at the periphery, with younger deposits towards the centre. Chalk deposited in the tropical seas of the Cretaceous Period (65–95 million years ago) underlies the area and forms the bedrock of adjacent NCAs, extending beneath London and providing the major aquifer for the capital. The folded structure, a syncline, developed some 20–40 million years ago during the Tertiary Era (2–64 million years ago) at the time that the Alps were being formed in southern Europe. During this period of uplift, the area became dry land and rivers developed, including the proto-Thames along a course to the north of its present location. Overlying the chalk is a series of sands and mudstones (Reading Beds) deposited during the Tertiary Era by ancient river systems that drained into the basin. The thick layer of London Clay which characterises this NCA today was laid down as a sequence of fossiliferous, shallow marine sediments under semi-tropical seas some 55 million years ago. Overlying the London Clay are sands and clays of the Bagshot, Barton and Bracklesham Beds.

The diverse geology has considerable influence on the landscape. The London Clays are heavy and typically difficult to work, resulting in the retention of pasture and considerable areas of ancient woodland. The lighter, sandy soils of the Bagshot Beds are likely to have remained relatively open and unwooded since prehistoric times and areas of remnant heath are a feature, particularly within the Essex heathlands and wooded hills. In Essex, the harder rocks of Bagshot Beds deposits form distinctive features, creating low hills and ridges such as at Danbury Hill, rising to a high point of 116 m.

The Quaternary deposits which overlie the clay provide an insight into Britain's most recent geological past. The Anglian ice sheet which reached

the outskirts of London approximately 500,000 years ago (evidenced at Hornchurch SSSI) advanced to the rim of the basin, leaving a series of glacial sands, gravels and clays and moving the course of the Thames southwards to its present location. Quaternary deposits have yielded artefacts illustrating early human presence (approximately 300,000 years ago) in the Thames Basin and more recently the evolution of prehistoric society. By the time that Britain was cut off as an island during the Holocene, humans had settled along the margins of the Thames and its tributaries. The light, sandy soils of the Essex heathlands to the east are particularly rich in buried archaeological remains associated with prehistoric and Roman occupation. Funerary monuments and settlement sites visible as cropmarks and earthworks are also a feature of the Hertfordshire plateaux and valleys and were extensively cleared and occupied in the prehistoric period. Here, the limited survival of coaxial field systems potentially of bronze-age origin is highly significant.

Roman occupation has left a significant impact on the area. A major road, now the A12, connected the Roman capital at Colchester to London. Other major and minor Roman towns and cities include St Albans and Welwyn and there are extensive villa estates, notably in the west of the area (in Hertfordshire). Also in Hertfordshire, the distinctive settlement pattern of 'homestead moats' aligned with the grid pattern is thought to be influenced by Roman estate management techniques. The London Clay lowlands are also characterised by planned landscapes created during the Roman period, forming a still distinct rectilinear pattern of enclosure on the Dengie Peninsula and in the area between Thurrock and Wickford. By comparison, the central part of the NCA (the Essex wooded hills) was relatively sparsely settled. Orchards were established around Colchester, as well as a significant area of meadow pasture and leys following the numerous narrow rivers and streams.



Traditional medieval timber-framed houses in Colchester, Essex.

Throughout the Northern Thames Basin, settlement is essentially based on a pattern of dispersed nucleated villages and farming settlements established in the medieval period. Post-Roman decline in Hertfordshire is evident in the number of medieval place names and settlement patterns which imply re-colonisation and clearance of a wooded landscape and late-medieval timber-framed houses and moated sites are a distinctive feature. In the Essex heathlands the dispersed settlement pattern was established within extensive tracts of heathland. In the London Clay lowlands some larger villages and small towns developed in the medieval period associated with local centres of civil

or religious authority. The exception to this dispersed pattern is in the Essex wooded hills where settlement remained sparse in the medieval period and was associated with the extensive commons or management of wood pasture and other resources belonging to medieval monastic houses.

The 16th, 17th and 18th centuries saw the growing influence of London, particularly in Hertfordshire, with the growth of market towns and rural estates and country houses for London merchants. Profitable farming conditions saw the demise of much medieval parkland in the 17th and 18th centuries, alongside the growth of substantial farming estates for the London merchants, rising nobility and gentry. The remaining associated parkland landscapes form a distinctive feature of the area today, particularly within the Hertfordshire plateaux area.

Industries based on agricultural produce (such as malting and brewing, paper making, hat making and tanneries) contributed to the prosperity of the market towns and developed further in the 19th century, aided by the growth in communications. This also stimulated the development of commuter settlements in the 19th and 20th centuries, and the urbanisation and expansion of existing towns and villages. The creation of new settlements is a particular feature, with the pioneering garden city at Welwyn and the planned 1950s town of Basildon. The edge of London has also expanded outwards with suburbs now embracing former villages. Communication routes – motorways (the M1, A1(M) and M11), main roads and railways running north–south connecting to London, plus the M25 radial route – are dominant features.

In the 1970s Dutch elm disease transformed many parts of the landscape, with the loss of tree and woodland cover, and the area continues to change with pressure for housing and industrial growth associated with, for instance,



Mixed coppice ancient woodland at Norsey Wood near Billericay, Essex.

the Thames Gateway, Haven Gateway and other strategic growth points such as Chelmsford, identified in the East of England Improvement Plan, the Lea Valley regeneration area (including the Olympics legacy) and changes in the agricultural landscape.

Ecosystem services

The Northern Thames Basin NCA provides a wide range of benefits to society. Each is derived from the attributes and processes (both natural and cultural features) within the area. These benefits are known collectively as 'ecosystem services'. The predominant services are summarised below. Further information on ecosystem services provided in the Northern Thames Basin NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food provision:** This is a predominantly arable landscape with arable crops covering 53 per cent of the area – primarily wheat and oilseed rape. The area also includes a sizeable sheep flock (approximately 18,800 breeding ewes in 2007) but relatively few cattle (only approximately 2,600 breeding dairy cattle and 3,200 breeding beef cattle), all of which have declined in number since 2000.
- **Timber provision:** The area only has 6 per cent woodland cover. This resource is unevenly distributed and some parts of the NCA have a relatively high woodland cover. The main areas of commercial timber are the coniferous plantations situated on former lime tree woods in the river valleys of Hertfordshire; these cover some 0.7 per cent of the total area of the NCA.
- **Genetic diversity:** Remnant traditional orchards provide a genetic stock of old apple varieties, many of which are no longer commercial. There are also rare animal breeds associated with the area including the British Saddleback Pig (which is partially bred from the Essex Pig), White Park Cattle, Red Poll Cattle, Jacob Sheep, Bagot Goat, Hackney Horse, Hackney Pony, shire horses and British Percheron Horse.

Regulating services (water purification, air quality maintenance and climate regulation)

- **Climate regulation:** Soils, woodland and hedgerows are likely to be significant stores of organic carbon across this area.
- **Water availability:** The Chalk which underlies the west of the area is extensively abstracted for drinking water in the NCA and provides a main source of recharge for the principal aquifer supplying Inner London.
- **Regulating soil erosion:** The sandy soils of the Essex heathlands and hills and ridges are susceptible to erosion if high risk crops are cultivated on sloping ground and in dry summers will become increasingly prone to wind erosion if they are left exposed. The restoration of hedgerows across the landscape can reduce the scale of wind erosion.



The River Lee near Hertford.

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- **Regulating soil quality:** This NCA has a range of soil types and the condition of these soils varies significantly. Within the area as a whole more than 50 per cent of the land is classified as excellent to good/moderate quality, which supports a wide range of agricultural and horticultural crops.
- **Regulating water quality:** The rivers flowing south and east from the chalk strata into the Thames and to the coast are of variable ecological quality. While most are considered to be of moderate quality, parts of the Lea are of poor quality as are some of the smaller rivers, such as the Rib. These classifications are based on results from the Environment Agency within their work under the European Water Framework Directive. Land management practices within the NCA will have a major impact on water quality in the underlying aquifer.
- **Pollination:** The areas of semi-natural habitat – heathlands, grasslands and woodland edges in parts of Essex and Hertfordshire – provide important habitats for pollinating insects. The extensive agricultural lands can provide habitats in the form of hedgerows, edges of farm tracks and ‘set aside’ areas. This in turn will be beneficial for food production through pollination of food crops, particularly oilseed rape, through pollinating invertebrates.
- **Pest regulation:** The presence of semi-natural habitats such as grasslands, woodlands, road-side verges and uncut farm tracks can provide overwintering habitats for beneficial predatory invertebrates which will help to control populations of many pest species. An example of this is the Carabidae family of beetles which feed on a number of pest species. Careful management of land to encourage such species can reduce the need for chemical control measures.

Cultural services (inspiration, education and wellbeing)

- **Sense of history:** A strong sense of history is captured in the ancient

woodlands and trees of the area – the Broxbourne Woods and Epping Forest – and also the built environment, including significant estates.

- **Recreation:** There is a strong appreciation of the local landscape as a ‘green lung’, offering opportunities for active and passive recreation away from the Greater London conurbation, and a ready recognition of the coast as offering a nearby visitor destination. The easy accessibility of the countryside and coast is a very important aspect of the lives of local residents.
- **Biodiversity:** The diverse range of semi-natural habitats present in the NCA, which includes 3 SAC and 3 SPAs, include ancient woodland, lowland heath and floodplain grazing marsh and provide important habitats for a wide range of species including great crested newt, water vole, dormouse and otter. The area is also important for wetland birds, especially the Ramsar wetland sites of Lee Valley, Hamford Water and Abberton Reservoir.
- **Geodiversity:** The area has a clear identity created by the geodiversity underpinning the diverse landscape. The underlying sediments themselves contain a record of ancient landscapes and climates. There are 20 geological SSSI in the area and 3 Local Geological Sites which are of local and national importance. These sites preserve important deposits of chalk stratigraphy and evidence for the formation of the London Clay as well as conserving several key geomorphological features. The majority of sites within this NCA, however, preserve evidence for past glaciations and the evolution of the Thames during the Quaternary. These sedimentary deposits and the fossils contained within them represent significant records of climate and environmental change that provide an important context for our understanding of and insights into the potential impacts of future climate change on our landscapes. Several sites also preserve important evidence for early human occupation of the area dating back around 300,000 years.

Statements of Environmental Opportunity

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

For example by:

- Managing and enhancing the river valleys and wetland habitats for the important habitats and species that they support, their geodiversity, landscape and recreational value, and to increase water storage capacity to reduce flood events in downstream urban areas.
- Sustainably managing the water resource including watercourses and aquifers, by implementing catchment-wide land management practices to help reduce pollution and aid aquifer recharge.
- Maintaining, enhancing and increasing the network of hedgerows along river valleys, especially in flood plains, to act as water stores which will absorb excess water during high rainfall, slowly release water in drier periods and reduce wind evaporation on fields in drier periods.
- Enhancing and creating riverside buffer strips of natural vegetation, including the conservation and planting of a new generation of riverside willows that will reduce overland run-off and help to minimise the deposition of soil and silt in channels and stop nitrates entering the watercourse in order to prevent adverse effects on aquatic life.
- Creating reedbeds in areas of potential pollution including along roads and near road bridges and agricultural drainage areas. This will help to improve urban diffuse pollution.
- Utilising semi-natural habitats to replace current engineered flood management. Current flood management will be insufficient to counteract future flooding, so allowing natural processes to reduce water levels in priority areas is the most sustainable alternative. Allowing rivers to flood naturally will also increase biodiversity and enhance geomorphology, wetland habitats and riverine character.
- Restoring river valley mineral sites to wetlands and washlands while enhancing geodiversity and archaeological interest.
- Raising awareness within the general public as to how they can individually help to reduce water waste and prevent contamination.
- Encouraging landowners to store water for individual usage, from using water butts for small gardens to larger storage systems for arable land and golf courses.
- Growing crops that are more resilient to drought so that less irrigation is needed in drier periods when water availability decreases.
- Restoring and improving the natural geomorphology of rivers in the area including urban rivers so that the quality of not only the water but also the river ecology as a whole improves by reducing pollution, sedimentation, invasive species etc; reducing the prolificacy of invasive aquatic and marginal plant species, including floating pennywort and Himalayan balsam, which cause waterways to become blocked, increase sedimentation, reduce biodiversity and affect movement of aquatic life as well as recreation activities along watercourses.

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

For example by:

- Retaining the overall agricultural diversity with areas of arable land, horticulture and pasture which are so important for food provision in the area, while encouraging sustainable management to protect agricultural soils and enhance biodiversity. Encouraging the use of sustainable farming methods to enhance soil quality, such as maintaining vegetation cover, reducing tillage and encouraging the use of organic manures and composts. This will help to retain organic matter, which is vital for productive soils.
- Managing, enhancing and, where appropriate, expanding hedgerows and grass strips as field boundaries as these help to bind the soil, reducing soil erosion, while also providing habitats for pollinating insects as well as various farmland birds, mammals and invertebrates. Hedgerows will also create habitat corridors, connecting habitats and so allowing wildlife to disperse and increase its range, creating a more diverse landscape.
- Encouraging a reduction in compaction of the clay-based soils in the area which can damage their structure and drainage potential and reduce aquifer recharge. This includes reduced poaching from livestock and careful use of heavy machinery.
- Encouraging the management of the heathland soils to prevent wind and water erosion using hedgerow and tree boundaries to reduce overland run-off and to act as a wind shield. These soils are more prone to erosion than the more clay-based soils and are usually of high quality in terms of arable usage.
- Encouraging improvements to water management within agricultural land using boundary features such as hedgerows and grass buffer strips to store water during wet periods and retain it in drier periods.
- Adopting land management practices, including the use of buffer strips next to watercourses, to reduce diffuse pollution from agricultural sources, prevent contamination of groundwater and safeguard future water quality and availability.
- Improving biodiversity in the area by putting aside less productive land and creating semi-natural habitats such as wildflower meadows and grasslands. The promotion of agri-environment schemes can help to establish these opportunities

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

For example by:

- Conserving historic features in the landscape with heritage interest and improving the condition of heritage assets through appropriate measures, and seeking to reduce conflicting or unsympathetic management regimes.
- Conserving and interpreting archaeological earthworks and sub-surface archaeology while recognising the high potential in this landscape for undiscovered remains.
- Preserving and enhancing current public access sites including nature reserves, common land, country parks and public footpaths and rights of way to attract the wider community.
- Creating better access to the countryside with an increased number of public footpaths and rights of way so that more of the area is open access. Enhancing current public access paths would also be beneficial to make the experience of the countryside more inviting and enjoyable.
- Restoring the connectivity of key habitats as well as expanding and creating new habitats which will maintain and enhance their attraction for visitors. Also, working to increase species diversity and density to increase this attraction for the community.
- Preserving the open landscape, enhancing geodiversity and biodiversity, for example the iconic species and habitats that attract visitors, to preserve their appeal to the wider community.
- Maintaining and enhancing the status of Sites of Special Scientific Interest, Special Protection Areas, Special Areas of Conservation, National Nature Reserves and Ramsar sites. This will preserve the character of the landscape, protecting and enhancing the sense of place.
- Increasing awareness and raising understanding within the community of the natural environment to improve their appreciation of their landscape so as to help to enhance their experience. This will also help to instil a sense of place.
- Planning for future pressure from urban expansion and urban-related development, major roads and other infrastructure as a result of the expansion of Stansted and Luton international airports (impacting from adjacent NCAs) and the impact of strategic growth in and around the NCA, such as at the Thames and Haven Gateways, Chelmsford and Southend, and the regeneration in the Lea Valley. Seeking measures to help to implement the All London Green Grid frameworks in order to ensure that associated design standards are of a high quality and pay due regard to the natural environment for the benefit of people and wildlife.
- Planning for a new vision of agricultural landscapes in areas of significant planned growth such as within the Thames Gateway, Haven Gateway and M11 corridor, including, potentially, the exploration of new forms of community food growing and community land ownership, providing a 21st-century interpretation of the plotlands of the 1920s and 1930s that are characteristic of this NCA.
- Ensuring positive management of land that may be developed in the future to preserve the character of the area and not adversely affect the rural areas that provide many resources, including food provision, carbon sequestration and recreation for the rural and urban communities.

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

For example by:

- Promoting the establishment of a coherent and resilient network of treescapes (native woodland, wood pasture, parkland, coppice, scrub, field trees and hedgerows) through expanding and linking existing woodland with areas of new planting.
- Managing the area's diverse range of historic woodlands, veteran trees and wood pasture and parklands to enhance landscape character and safeguard their biodiversity value while seeking opportunities to enhance access.
- Expanding current woodlands to create a greater resource and re-introduce coppicing and other management back into woodlands so as to make wood available to be sold commercially.
- Working within established management plans to ensure that the viability of the woodlands is not affected and that biodiversity is maintain or enhanced.
- Creating new woodlands, taking into account natural processes and bringing them into wood production management. Sensitively incorporating them into and around new developments to enhance landscape character. Community woodlands should be maintained and increased where possible for this purpose as well as for recreation.
- Creating new woodlands around or near to urban areas, which will, through carbon sequestration, help to counteract the carbon that is produced. Woodlands within urban areas will help to reduce the heat island effect.
- Incorporating woodland rides and paths within woodlands to allow for public access but also to create a variety of habitats within the woodlands which will increase biodiversity.
- Maintaining and enhancing woodland habitats which support important invertebrate species such as stag beetles, rare fungi and priority species such as dormouse. Ancient woodlands also support ground flora such as bluebells.
- Maintaining the diverse appearance of the landscape and shield developments and infrastructure from the wider landscape. This character should be maintained within any future developments that are built.
- Managing, restoring and re-linking areas of remnant lowland heathland and acid grassland found on areas capped by glacial sands and gravels, notably within the Essex heathlands and wooded hills and ridges.
- Conserving characteristic landscapes linked to the arts, such as Dedham Vale in the north- easternmost corner of the NCA (the inspiration for Constable), and the rich heritage of designed parklands associated with estates (particularly in the Hertfordshire plateaux and river valleys and the Essex wooded hills and ridges).

Additional opportunity

Continue to utilise the mineral resource as appropriate, ensuring screening and restoration plans are in place to protect landscape assets. Restore, enhance and manage previous mineral sites as suitable habitats or sites of key geological importance to demonstrate the significance of the rich mineral resources in shaping the area's landscape, and their potential as recreational and ecological assets of the future.

For example by:

- Appropriately utilising the minerals which are a much-needed resource in the area, with the continuing demand for new housing and other building projects. Ensure long term restoration plans seek landscape and ecological benefit so this resource can provide a source of revenue and jobs for the area as well as an opportunity to enhance our knowledge and awareness of geodiversity, and provide new assets for the community in the long term
- Restoring previous extraction to habitats that are appropriate for the area to improve the network of semi-natural habitats, and the recreational and educational opportunities for local communities.
- Provide appropriate access and interpretation to important geological sites once mineral extraction is completed to use this exposed resource to educate and inform people of the geological and geomorphological features.
- Encouraging an understanding of the interrelationships between the geological and archaeological heritage of the area.
- Ensuring appropriate management, educational access and interpretation of important geological and above and below ground archaeological features and sites throughout the area.

Land of the Fanns Landscape Character Assessment

Final Report

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2.0 About the Landscape

2.1 Introduction

The Land of the Fanns owes so much of its character to a marshy origin. The word 'fann' or 'fan' is the Saxon word which has changed into 'fen' over time. It occurs in Essex place-names both within the Project Area and beyond. Bulphan itself was once written as Bulfann and Bolefan. The Project Area however also contains areas which were not strictly fen but just low lying such as Childerditch.

The name 'Land of the Fanns' was also coined by Leslie Thompson in her book by the same title (published in 1957) where she referred to the area as comprising a 'half opened fan between the Thames and Langdon Hills'. In her book she describes the areas as *"a land of low hills and scattered villages and, between them, a countryside of mystery and an elusive charm. There are valleys of surprising steepness, the marshes of Thameside, aloof and eerie, Thames itself, secretive and sinuous here, and the giant industrial buildings, the docks and refineries that march along its banks"*.

It is important to remember that the Land of the Fanns owes much of its present day character to the ever present Thames and its tributaries which have shaped its development through the ages through natural processes and human activity.

2.2 Geology and Soils

Bedrock geology comprises a chalk basin, part of the London Basin, which extends far beyond the Project Area. This chalk bed is of a Late Cretaceous Chalk Group (100.5-66 Ma). This chalk bed is the main source of recharge for the principal London Basin Chalk aquifer. Overlying the chalk is a series of sands and mudstones (Reading Beds) deposited during the Tertiary Era by ancient river systems that drained into the basin.

The Landscape of the Fanns is largely influenced, not by these underlying bedrock and sand layers, but by the overlying geology of the Thames Group (formerly known as the London Clay formation).

This is a shallow marine geological formation of the Lower Eocene Epoch (approximately 56-49 Ma). It was formed in a warm tropical or sub-tropical climate as indicated by fossilised flora. The clay is stiff and bluish, becoming brown as it weathers. Lumps of pyrite and selenite crystals can be found in the clay along with large, compact masses known as septarian concretions.

The London Clay produces a heavy and acidic soil, often with poor fertility. In places the clay is overlain with glacial sands and gravels which produces free draining but nutrient poor soils. There are also areas, often along river valleys, where the clays are overlain by alluvial deposits and this produces drained and fertile soils.



In the north east of the area there is a small area of Bracklesham and Barton Group. This is a series of interbedded to interlaminated clays, silts and mostly fine- or medium-grained sands, locally shelly from the Middle Eocene (47.8-38 Ma).

There are occasional examples of loess deposits in the landscape. These are brickearth loess deposits, a periglacial wind blown dust which was deposited during a period of very cold, dry climate. It is called brickearth because it was easily manufactured into house bricks with little additional material being added. The clay is such that it easily fuses at the temperatures available in a wood fired kiln rather than at a higher temperature as is required with other clays. It often overlies River Terrace Gravels and is classified as the Langley Silt Complex on geological maps. In places its presence in the landscape can be noted by place names such as Brick Kiln Wood near Uppminster.

2.3 Topography and Drainage

The resulting landform is varied with a wide clay plateau in the north, incised with river valleys giving way to rolling hills, a clay plain and flat, low-lying land in the south along the Thames Estuary and can be seen on Drawing 2. Of particular note is the large inland low lying basin to the north of Thurrock and Grays. The higher hills of Langdon to the east, Brentwood to the north and Havering to the north west are also all clearly defined.

There are three principal river valleys draining this landscape: the Ingrebourne valley in the north and the Mardyke in the south east of the area and the River Beam in the west of the area. The rivers are tributaries of the Thames. The Ingrebourne is the larger river, rising from near Brentwood and flowing through Havering, north to south for 27 miles, joining the Thames at Rainham. The Mardyke is shorter, 11 miles, rising from Holden Wood between Great Warley and Little Warley and joining the Thames at Purfleet. The River Beam is known as the River Rom and the Bourne Brook along its length. It rises in Epping Forest as the Bourne Brook and forms the boundary between the London boroughs of Barking and Dagenham and Havering.

Although the landscape is underlain by the London Basin Chalk aquifer, (the principal source of water for the inner London population), the heavy clay prevents much drainage into the chalk beds. Recharge of the aquifer generally occurs north of the Project Area despite its presence in the Project Area.

Along the Thames Estuary drainage is poor and this has resulted in significant areas of ecologically rich marshes.

2.4 The Cultural Landscape and Historic Evolution

There is a rich history associated with the Land of Fanns. Excavations of Mammoth and Straight Tusked Elephants in ice age deposits cut into the London Clay, as well as jungle cats, suggest how vastly the landscape has changed over time.

In terms of human influence in the area, early human settlement is evidenced along the Thames and tributaries from the Holocene, when Britain was cut off as an island. Prehistoric stone and flint tools have been discovered in Thurrock suggesting that Neanderthal people hunted and moved through the area.

Bronze Age settlements are evidenced in the Ingrebourne Valley and a Bronze hoard from the period was discovered at Hornchurch.

The planned landscapes between Thurrock and Wickford are Roman in origin and show evidence that the land was settled and farmed, most probably for wheat, during Roman rule. Both London and Colchester (the Roman capital), on either side of the Project Area, were significant Roman settlements. A Roman staging post may have existed at Coldharbour, Rainham and evidence of Roman activity in the Mardyke valley includes the excavation of a Roman coffin, now in the British Museum.

Rainham, Havering, Dagenham, Cranham, Suttons Farm, Langtons, Stifford, Aveley, Purfleet, Thurrock, Warley, Ingrave, Horndon and Barking are all Saxon names, illustrating the influence of Saxon rule in the area. Saxon rule used 'Hundred' administrative districts to divide up the area and rule the local people. The word Fanns is the Saxon word for fens and the Bulphan fens extended from the Brentwood Hills down to the Thames marshes between Rainham and Canvey Island.

Many of the larger villages and small towns throughout the landscape are of medieval origin and are usually associated with centres of either civic or religious authority, with a significant number of local churches of Medieval origin and many are identified as Conservation Areas. William the Conqueror held land at Havering where he had a royal manor, whilst his half-brother, Bishop Odo, held land at Rainham, Aveley and Thurrock. The 1349 plague led to the loss of Hacton village which existed on both banks of the River Ingrebourne near to Hacton Bridge. There are reports of plague victims being buried in Rainham marshes but no evidence exists to date.

Medieval deer parks existed at Aveley (Belhus Park) and West Horndon (Thorndon Park). Both of these estates were re-landscaped by Capability Brown at the end of the 1700s. Designed landscapes by Humphry Repton are also present in the area at Stubbers, Little Warley Hall and Warley Place. A number of the former historic parklands are Registered Parks and Gardens and a number are Country Parks

This is largely an agricultural landscape, the locality relative to London has long provided a regular market and trading post and a dock existed at Rainham for some time. During the Victorian era the burgeoning population of London created not only a significant local food market for surrounding farms but also a source of fertiliser. Nightsoil, scraped from the streets would be transported via the rivers and drainage ditches to fuel the agricultural revolution which was taking place with improved farming tools and methods.

The revolution did not continue and bad harvests followed by the introduction of improved transport, such as the growth of railways and the development of larger dock facilities in London led to an agricultural decline from 1890. This created changes in the character of the agricultural landscape with farm holdings being broken up into smaller parcels of land. The result was an

increase in the number of small holdings in the area as well as the introduction of piecemeal development in places. This altering character continued to 1930. During 1930 the construction of the Ford Motor Plant on reclaimed marshes at Dagenham was associated with an increase in residential development to house workers from London. However, the introduction of the Green Belt policy in the same year restricted further unchecked urban development across the area.

The Green Belt policy did not cease all development though and during the 1970s the M25 was constructed. The motorway was first proposed in 1905 and is now the second longest city bypass in Europe.

From 1967 another significant change occurred in the Fanns landscape. The introduction of a virulent strain of Dutch Elm Disease to the UK led to a widespread loss of these trees throughout the area. They were a key species in hedgerows and many mature trees were lost creating a significant change to the landscape. Further significant loss of the older tree stock in the area is associated with both the 1987 hurricane and the 1990 Great Storm.

Mineral extraction, both relic and current, exist across the landscape for gravels, sand, clay and some chalk. Restoration of old sites varies, with some restored to lakes for recreation, such as fishing and some restored as important habitats. Others have been used as landfill sites to service the waste requirements of London. Occasionally sites have not been restored and have been designated as Local Geological Sites or SSSIs because they show the ancient river terraces and underlying geological profile.

Plotlands were a feature of the landscape prior to the Second World War. These are areas of land, often located on landowner estates. The plots were sold or rented and were used by people as weekend retreats. They were often owned by people from the City who enjoyed having a location that was relatively easy to reach where they could enjoy space and freedom for the weekend. Tents were often used and the plots treated as gardens. Over time, more permanent structures, such as small bungalows were added to the plots. During World War II many plot owners moved out of the city on a more permanent basis and used their plots as safer homes away from the risk of bombing. Following the war some plots were purchased by the City of London and the land used to build post war estates aimed to house the many people who had been 'bombed out' of London. There are some surviving examples of Plotlands in this landscape.

In the post war period there was a trend towards significant development. Many settlements which had previously been small, often agricultural settlements, were enlarged to help meet the housing crisis. The location adjacent to the city made the area an obvious location for rehousing people. Prefabs were constructed in places, these have largely now been replaced

with red brick or concrete constructed properties. Although post war development is a feature across the country it is a particular feature in the Land of Fanns and represents a notable characteristic of the area.

2.5 Habitats

This is a varied landscape where human intervention has played a significant role in the development and maintenance of many of the habitats which combine to create such a unique landscape so close to the urban centre of London.

There is a relatively high proportion of ancient woodlands in the Project Area with evidence of early assorted field boundaries and coppicing suggesting the close relationship of woodland to the settlement of people over time. Woodland was an important resource and some of the woodland in the area is particularly old, for instance, Brannets Wood in the Mardyke valley is the oldest recorded woodland in south east Essex. There are parkland landscapes in this area which often contain a range of veteran trees as well as wood pasture, an important habitat resource of unimproved grassland interspersed with woodland and veteran trees. Thorndon Country Park south of Brentwood contains wood pasture habitats and ancient woodland, much of which is designated as SSSI, while one of the first giant Redwood plantations in the country exists within Havering Country Park.

Loss of woodland to development and through natural events such as storms and disease has led to a decrease in the distinctive woodland character of the landscape. The Thames Chase Community Forest⁵ is seeking to reverse this trend through strategic objectives which include working with multiple stakeholders to deliver landscape scale regeneration and woodland expansion. In particular Thames Chase aims to increase the amount of woodland cover in the forest by 30% by 2030⁶ and to work with partners to ensure mineral and extraction sites are restored, wooded and accessible.

The three river valleys in the landscape play host to a range of important habitats, including wet meadows, carr woodland and reed swamps. These, along with the waterways, provide important diversity not only as wildlife habitats but also as recreational resources for the surrounding urban populations. The river valleys are vital routes through the urban area for migrating bird species. The birds use the valleys to travel through the landscape to the marshes on the banks of the River Thames. Where the Ingrebourne River meets the River Thames a wetland habitat exists which represents the largest reedbed in London.

⁵ <http://www.thameschase.org.uk/>

⁶ <http://www.thameschase.org.uk/about-thames-chase/thames-chase-plan>

The marshes along the banks on the River Thames are now important habitats to a range of bird species, as well as hosting one of the densest water vole populations in the country. The marshes combine a mosaic of habitats including saltmarsh, saline lagoons, grazing marsh and wet grasslands. They represent an ancient landscape, one of the few remaining in London and have a long history of human intervention, from medieval grazing land to sand and gravel extraction and a military firing range. Since the start of the century the land has been managed for nature conservation and a sizeable SSSI now covers the area, mainly managed by the RSPB. The reserve combines the habitats created by human intervention and by the geological and fluvial character of the area. It brings these together as a resource managed for both nature conservation and as a recreational and tourism resource.

Drawing Number 4 shows the distribution of natural heritage interest and designations across the Project Area. Although much of the area is managed for agriculture there are still important habitats interspersed within this productive land. The lack of nature conservation designations in the lower lying inland basin is notable and reflects the area's importance as arable farmland. Nevertheless the ditches which drain this landscape, whilst undesignated, perform an important role as wildlife corridors. Elsewhere, unimproved meadows, ponds and heaths comprise part of the agricultural landscape mosaic. Many hedgerows are mature and thick, providing important habitats and supporting a range of species.

2.6 Current Pressures

Inevitably, in an area so close to the capital city there are significant developmental pressures on this landscape. Settlement enlargement and development have been significant pressures since the post war bomb clearance of London. This pressure is still significant and is likely to grow as the need for new housing increases. Recently brownfield land has been designated as the Thurrock Thames-Side Towns Housing Zone.

There has been a long history of industrial development in the area because it is well located for transport and trade. This pressure is also likely to continue.

In recent years a number of landscape management initiatives have been undertaken locally, for example the Thames Chase Community Forest which is one of twelve Community Forest nationally founded in the 1990's⁷. The work of the Community Forest is directed by a Forest Plan, the third edition of which was launched in 2015 (setting out a vision for the next 10 years), and which is being delivered through the Thames Chase Trust. It seeks to achieve landscape regeneration through partnership work, community led

⁷ <http://www.communityforest.org.uk/aboutenglandsforests.htm>

participation and management. Meadows, ponds and woodlands are examples of the habitats created and alongside these habitats is a growing access network which enables the local community to value and enjoy the landscape.

River catchment management and awareness of the need to manage river landscapes for flood control is altering how the river valleys are valued and managed. The London Rivers Action Plan is part of the effort seeking to recognise the trans-boundary nature of rivers and the need for effective management along their length.

The Thames Marshes were, until recently, managed by the military. The changing ownership to the RSPB and the development of the area as a nature reserve has changed its character and ecological value. It has also created a valued recreational and educational resource.

Although significant pressures for development do exist within the Land of Fanns landscape, there is a growing awareness of and focus upon the value of the natural and semi-natural landscapes with significant regeneration projects being undertaken in a range of habitats and locations.

2.7 Broad Landscape Types

The above factors have shaped the range of landscape character types which exist across the Project Area. These types help explain the variety of character within the area. They are described briefly here to provide an overview prior to the detailed descriptions of the Landscape Character Areas.

There are six broad landscape character types as follows:

Reclaimed Fen

This type occurs in the low lying areas between the 5 and 20m contours and comprises a landscape which was historically subject to seasonal flooding forming areas of fen landscape navigated by boat. With drainage and agricultural improvements this has become a productive landscape supporting arable and pasture land uses in rectilinear fields reflecting planned enclosure with fields marked often by drainage ditches. It remains a relatively open and flat landscape.

Drained Marshes

This type occurs along the fringes of the Thames where historically tidal influences created estuarine marshes. Many of these areas are now reclaimed and drained and are characteristically flat and low lying with an intricate pattern of drainage ditches delineating fields. The open expansive character of this landscape means that vertical structures such as pylons can be highly visible. These areas have an ornithological interest and value.

Valley Meadowlands

This type occurs along the valley floor of the Beam, Ingrebourne and Mardyke. In places it comprises semi-improved and improved pastures, reedbed and wet woodland/scrub and elsewhere amenity grassland associated with country parks. This landscape type includes watercourses and associated species which typically include willow, poplar and alder. These landscapes are important corridors for fauna and flora and also recreation corridors for the local population.

Lowland Settled Claylands

This type occurs on low lying farmland which is gently undulating often over clay substrates giving rise to mixed farming. This landscape contains medieval villages some of which are relatively intact and others which have undergone considerable growth and change. The field enclosure is a medium to small scale pattern defined by hedgerows which show signs of elm loss. Historically woodland comprises small copes and orchards close to settlements. This pattern has changed in places where gravel extraction and land fill has dominated and restoration has included the planting of significant areas of new woodland.

Wooded Hills and Ridges

This type occurs on higher land rising to approximately the 100m contour where the drift geology is glacial till or sands and gravels, the latter giving rise to patches of acidic soils. The topography is gently undulating and the landscape well wooded reflecting its value for deer parks and later designed parkland and estates. The characteristic of these land uses is still strongly evident and this landscape type contains a high concentration of woodland and veteran trees.

Former Quarry Townscape

This type occurs where there has been significant urban growth/regeneration on land which has previously been chalk quarries, brickworks or where gravel/sand has been extracted. The urban form comprises both residential and commercial development and despite the significant changes this has brought there are still notable clues as to the former landscape in terms of chalk cliff faces, areas of open amenity space and sharp changes in topography/levels. Major arterial routes cut thorough this landscape and when coupled with the density of the development can feel disorientating.

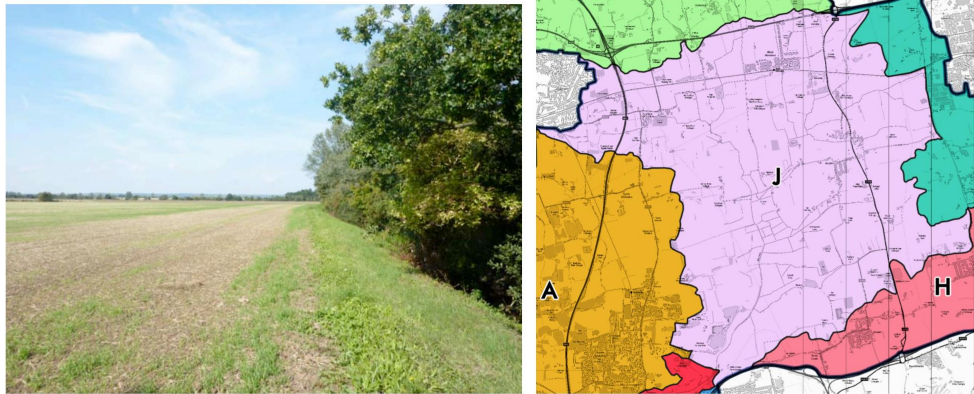
3.0 Landscape Character Areas

The Land of the Fanns Project Area has been divided into eleven Landscape Character Areas which reflect local variations in landscape character and are illustrated on Drawing 5. These areas are unique due to a combination of special landscape characteristics and features and serve to demonstrate the considerable variation in landscape over a relatively short distance.

The LCA descriptions provide information on the process of change in an accessible way covering aspects of its past evolution, present day character, current values, and how change may occur in the future. As such these descriptions assist and enable communities to interpret the past, be inspired by the present environment and to imagine the character of the area into the future.

A typical photograph and extract from Drawing 5 is provided at the start of each character area description. Each LCA is described in terms of its location, what makes it special, notable highlights and features of particular value and then a description of what is changing and how we might manage that change. In the descriptions the inseparable nature of natural heritage, cultural heritage and the present day landscape as well as the relationship of the landscape with The Thames is expressed.

3.4 Thurrock Reclaimed Fen



Location and extent

Thurrock Reclaimed Fens is located centrally in the Project Area forming a low lying inland basin which contrasts with the rising land of the Brentwood Wooded Hills to the north, Ockendon Rolling Farmland to the west, Langdon Hills to the east and Orsett Lowland Farmland to the south. These areas of adjacent rising land form an important backdrop and setting to this landscape.

This landscape falls within the Greater London Greenbelt and partly within the Thames Chase Community Forest area.

Key Characteristics

- London Clay geology with alluvial deposits associated with the upper reaches of the Mardyke and tributaries.
- Flat, open and exposed landscape with expansive views extending to the 15-20m contour at its fringes.
- Land use is predominately arable in large to medium sized fields but formerly extensive areas of fen.
- Within the lowest lying areas there are few field boundaries and fields are drained by ditches.
- Hedgerows of mainly blackthorn and elm occur mainly in the outer fringes of the area.
- Woodland blocks are infrequent and rectilinear and recently planted with the exception of Clay Tye Wood.
- Willow and poplar are prevalent along ditches and watercourses.
- Place names reflect former areas of marsh and fen landscape which are steeped in history and folklore.
- Sparse settlement comprising dispersed pattern of farms and village of Bulphan and more recent development at West Horndon associated with the railway.
- There are numerous waterbodies in this landscape including field ponds and also reservoirs which are not visually significant.
- Strong rectilinear patterns as a result of field divisions, drainage

ditches, hedgerows (often gappy) and causeway lanes.

- Settlement is dispersed and sparse and restricted to slight rising land or fen edges.

What makes the Thurrock Reclaimed Fens special?

Strong Rectilinear Patterns

This is a planned landscape with field boundaries marked by drainage ditches and hedgerows. Fields tend to be large and geometric, a pattern reinforced by linear roads along the causeways.

These lanes and tracks are defined by wide grass verges and hawthorn/elm hedgerows. Hedgerow trees are absent but historically, hedgerows would have contained mature Elm trees.

Open Expansive Views

Due to limited tree and hedgerow cover and relatively flat topography this area has an expansive character with extensive views in all directions to the rising land particularly to the Brentwood Hills in the north. The higher land at the edges of this landscape type define its extent and contrast with its simple character and patterns. Vertical structures are highly visible and large farm or industrial buildings, sometimes associated with conifer shelterbelts, form focal points. Wide skies are also a distinguishing feature of this landscape.

Watery Place Names

The village of Bulphan is a significant feature in this otherwise sparsely settled landscape. It lies in the south east of the character area. It is recorded in the Domesday Survey as Bulgenen meaning marshland in a fortified place. Phan, relates to fan, the Saxon word for fen. There are a number of moated houses in the village, including Appleton's Farm, dating from 15th century and Spring Farm on the Orsett Road. The land at Bulphan was owned and farmed by the Abbey of Barking. Farming would not have been the arable farming which now predominates as the landscape will have comprised a mosaic of large tracts of swamp, marsh and perhaps willow scrub and Alder woodland.

West Horndon, in the north of the character area appears to be a larger settlement because there is an industrial estate associated with it. The village was part of land belonging to a number of manors including Tillingham Hall and Little Warley. Tillingham Hall which still exists today, was the seat of the largest manor. It is recorded in the Domesday Book and was passed to the Tillingham family who owned it for several hundred years before it was conveyed to Coggeshall Abbey which restricted the rights of commons in the area meaning that the land became a mixture of scrub, marsh and woodland, ideal as a hunting ground for later landowners.

Little Warley, a small, linear hamlet in the north west of the character area was associated with Little Warley Hall, a 15th century manor house partly

rebuilt during the 16th century. There are fragments of a moat to the south and west of the site which suggests a previous manor may have stood on the site. This was a wooded landscape during the medieval period with marshland sheep pasture.

Highlights in this Area

- Low lying geometric landscape with strong lines and repetitive patterns reflecting early enclosure of fenland and marsh.
- Open and extensive views giving rise to a feeling of relative remoteness and wide skies.
- Bulphan is a medieval village.
- High potential for paleo-environmental deposits and surviving archaeology.
- Significant number of medieval moated sites in area indicative of a dispersed settlement pattern.
- Remnant fen landscape at Orsett Fen, Bulphan Fen and Stringcock Fen.
- Area popular for cycling due to flat topography.

What is changing in this area?

- Intensive agriculture resulting in loss of wet pasture/fen to arable land use, significant field aggregation and loss of infield ponds.
- Loss of traditional boundary features such as hedges impacts on the pattern of the landscape and visual cohesion.
- Development of large farms and associated large scale buildings with planting of conifer wind breaks.
- Growth of settlement and in particular West Horndon with associated industrial estate due to location on railway line.
- Urbanisation adjacent to this landscape can cause visual intrusion on the flat and open character.
- Recreational uses, such as golf courses impact upon the agricultural character of the landscape.

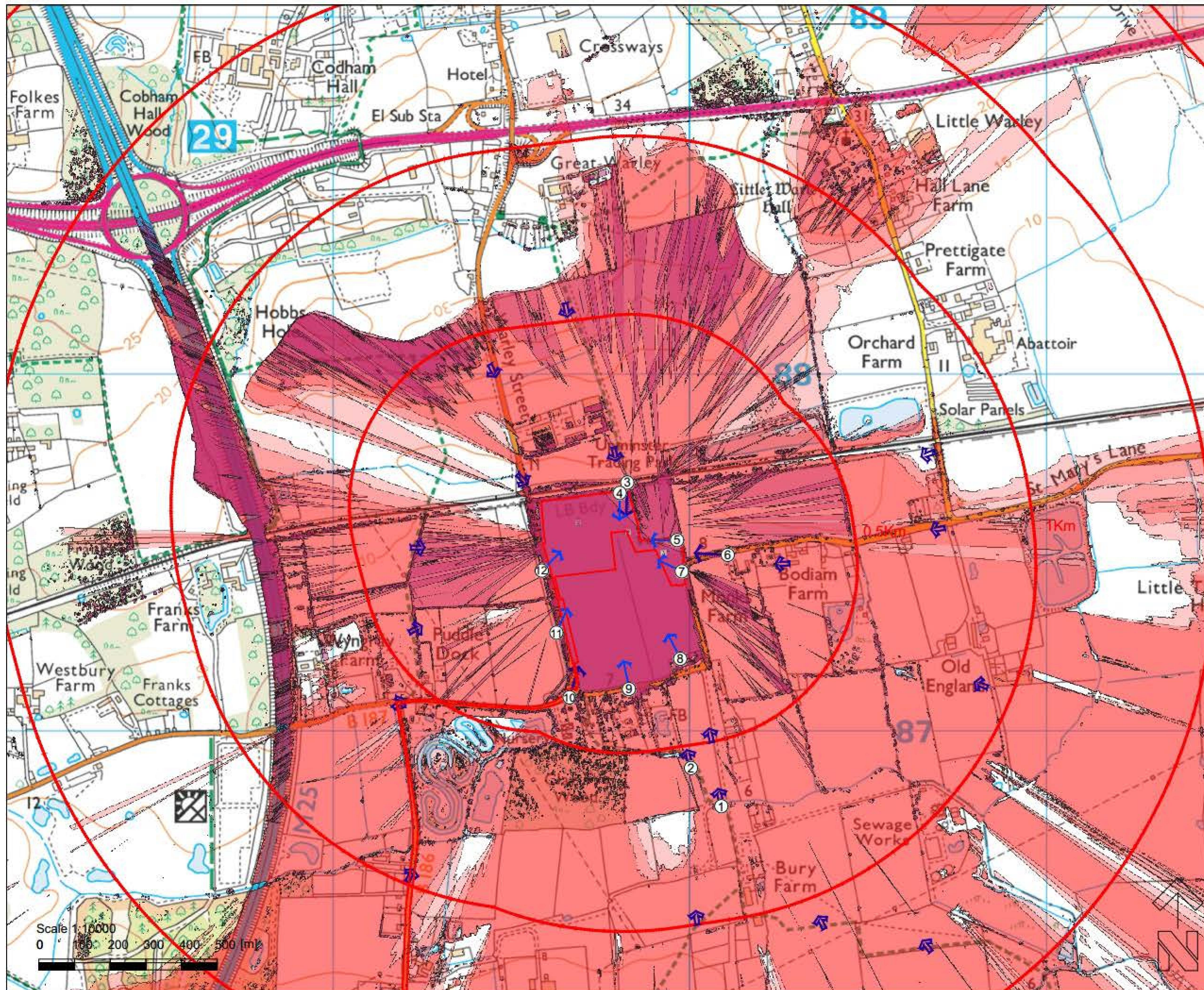
How should we manage the change?

This landscape has a moderate-low landscape quality as a result of intensive farming and gradual loss of defining characteristics which reflected its wetland past. Opportunities include:

- Restore fen landscapes at Orsett Fen, Bulphan Fen and Stringcock Fen - all of which have been lost in the last 50 years, by altering current drainage and land use.
- Restore/reinstate infield ponds and improve management of those that survive.

- Improve interpretation into the historic place names and features in this landscape through use of existing recreational routes, or specific new trails.
- Enhance people's connections with and understanding of this landscape through community archaeological excavations which can help to tell the story of this landscape.
- Restore hedgerows and some areas of small copses and hedgerow trees where feasible to improve landscape structure and legibility whilst still retaining the predominate expansive character of the area.

APPENDIX 3: VISUAL APPRAISAL PLAN (1643-001)



KEY:

- Site Boundary
- 0.5km Distance Radii
- Photographic Viewpoints (Site Context Photograph)
- Bare Earth Zone of Theoretical Visibility (ZTV)
- Surface Model Zone of Theoretical Visibility (ZTV) - Including obstruction of Trees / Buildings

Visual Appraisal

- Open Views
- Partial Views
- Truncated / No Views

Note: Bare Earth ZTV has been generated using OS Terrain 5 DTM bare earth terrain data. The ZTV is based on visibility from 1.6m height observer to 3 points positioned 4m above ground level across the proposed development area.

The Surface Model ZTV has been generated using 2022 Lidar 1m Digital Surface Model (DTM) data. The ZTV is based on visibility from 1.6m height observer to 3 points positioned 4m above ground level across the proposed development area. DTM data assumes all objects are solid.

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Ordnance Survey 0100031673

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LANDSCAPE
ARBORICULTURE
GARDEN DESIGN
ECOLOGY

Job: CLEARSTONE WARLEY BESS

Title: VISUAL APPRAISAL PLAN

Scale	Drawn	Date	Drawing Number	Revision
A3 1:10,000	IG	NOV 23	1643 - 001A	-

APPENDIX 4: SITE CONTEXT PHOTOGRAPHS (1643-002)



ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3

PROW 194 (not on ground)

Approximate extent of the site



SITE CONTEXT PHOTO 1: VIEW NORTH FROM ACCESS DRIVE / PROW 194

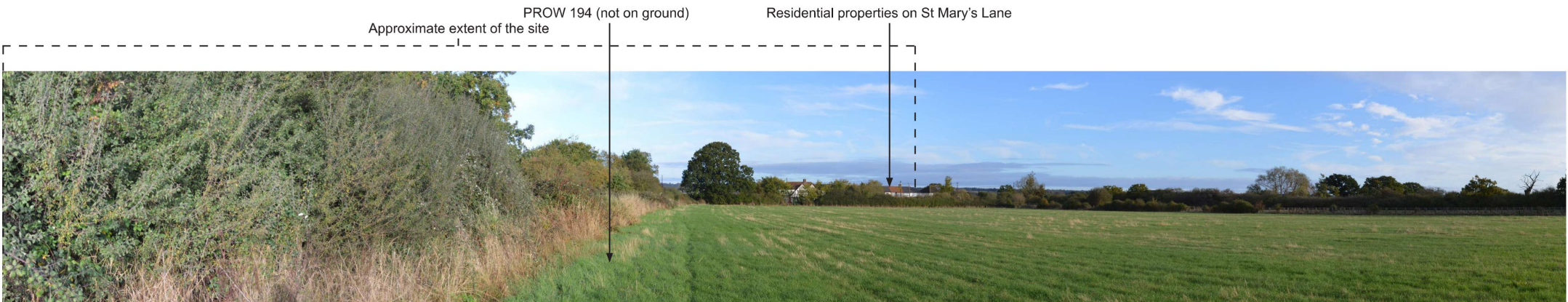
DISTANCE FROM SITE: 720M
 ELEVATION: 7M AOD
 OS GRID REFERENCE: TQ601867
 PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
 WEATHER CONDITIONS: SCATTERED CLOUD
 CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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Job CLEARSTONE WARLEY, BESS					
Title LVA - SITE CONTEXT PHOTO 1					
scale@A3 NTS	drawn IG	date NOV 23	job number 1643	number 002	revision -

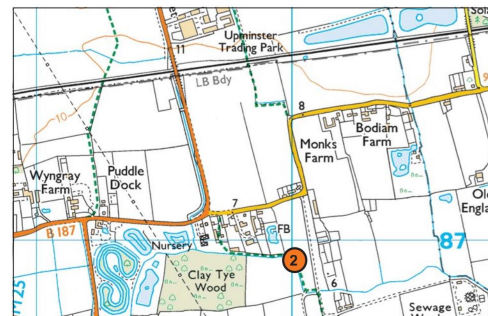


ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3



SITE CONTEXT PHOTO 2: VIEW NORTH FROM PROW 194

DISTANCE FROM SITE: 595M
 ELEVATION: 8M AOD
 OS GRID REFERENCE: TQ599869
 PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
 WEATHER CONDITIONS: SCATTERED CLOUD
 CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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Job CLEARSTONE WARLEY, BESS					
Title LVA - SITE CONTEXT PHOTO 2					
scale@A3 NTS	drawn IG	date NOV 23	job number 1643	number 002	revision -



ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3



SITE CONTEXT PHOTO 3: VIEW SOUTH FROM RAILWAY CROSSING PROW 179

DISTANCE FROM SITE: 40M
 ELEVATION: 9M AOD
 OS GRID REFERENCE: TQ598877
 PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
 WEATHER CONDITIONS: SCATTERED CLOUD
 CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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Job CLEARSTONE WARLEY, BESS					
Title LVA - SITE CONTEXT PHOTO 3					
scale@A3 NTS	drawn IG	date NOV 23	job number 1643	number 002	revision -

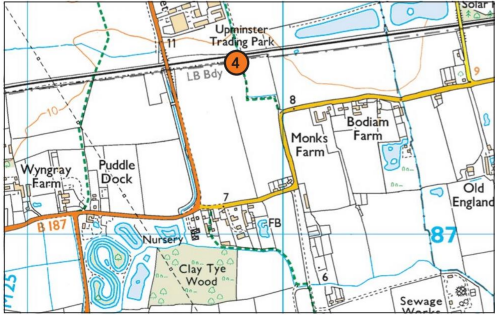


ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3



SITE CONTEXT PHOTO 4: VIEW SOUTH FROM PROW 179 AT NORTHERN BOUNDARY OF SITE

DISTANCE FROM SITE: 15M
 ELEVATION: 11M AOD
 OS GRID REFERENCE: TQ598876
 PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
 WEATHER CONDITIONS: SCATTERED CLOUD
 CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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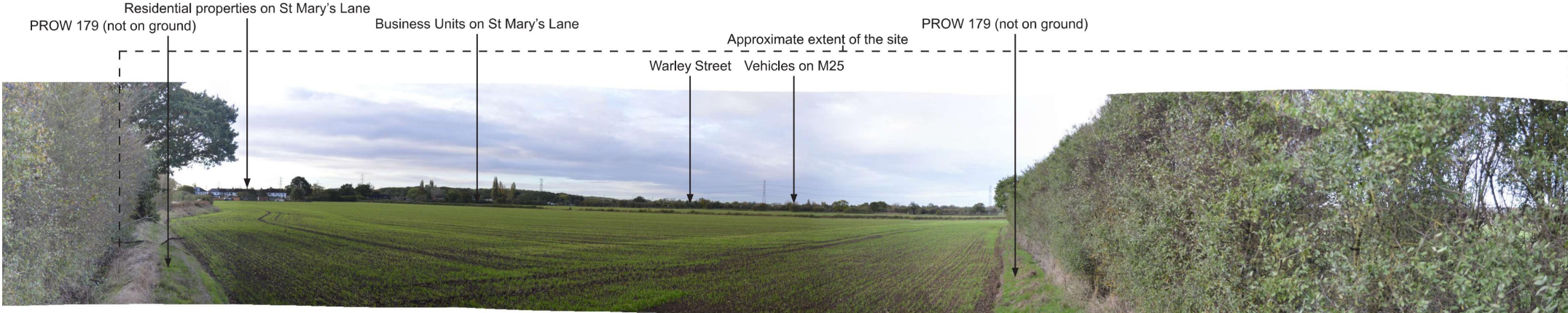
Job CLEARSTONE WARLEY, BESS

Title LVA - SITE CONTEXT PHOTO 4

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NTS	IG	NOV 23	1643	002	-

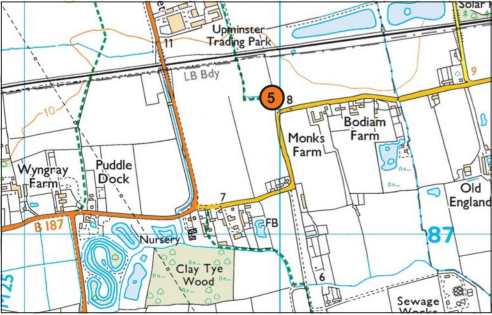


ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3



SITE CONTEXT PHOTO 5: VIEW WEST FROM PROW 179 ON EASTERN SITE BOUNDARY

DISTANCE FROM SITE: 10M
 ELEVATION: 8M AOD
 OS GRID REFERENCE: TQ599875
 PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
 WEATHER CONDITIONS: SCATTERED CLOUD
 CAMERA: NIKON D3200, 35MM FOCAL LENGTH



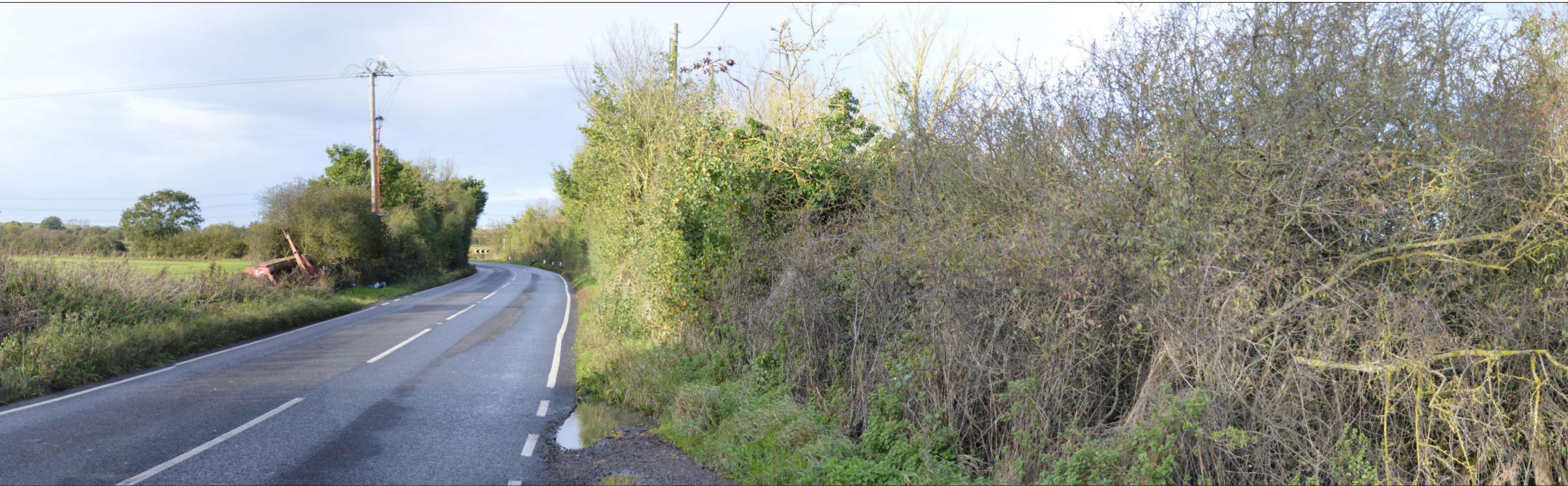
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Job CLEARSTONE WARLEY, BESS

Title LVA - SITE CONTEXT PHOTO 5

scale@ A3	drawn IG	date NOV 23	job number 1643	number 002	revision -
NTS					



ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3



SITE CONTEXT PHOTO 6: VIEW WEST FROM ST MARY'S LANE / MONK'S FARM

DISTANCE FROM SITE: 160M
ELEVATION: 8M AOD
OS GRID REFERENCE: TQ601875
PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
WEATHER CONDITIONS: SCATTERED CLOUD
CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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Title

LVA - SITE CONTEXT PHOTO 6

scale@A3	drawn	date	job number	number	revision
NTS	IG	NOV 23	1643	002	-



ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3



SITE CONTEXT PHOTO 7: VIEW WEST FROM CORNER OF ST MARY'S LANE

DISTANCE FROM SITE: 35M
 ELEVATION: 7M AOD
 OS GRID REFERENCE: TQ599874
 PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
 WEATHER CONDITIONS: SCATTERED CLOUD
 CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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Job	CLEARSTONE WARLEY, BESS				
Title	LVA - SITE CONTEXT PHOTO 7				
scale@A3	drawn	date	job number	number	revision
NTS	IG	NOV 23	1643	002	-



ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3

Warley Street

Approximate extent of the site

St Mary's Lane

Upminster Trading Park



SITE CONTEXT PHOTO 8: VIEW NORTH FROM REAR OF RESIDENTIAL PROPERTIES ON ST MARY'S LANE

DISTANCE FROM SITE: 245M

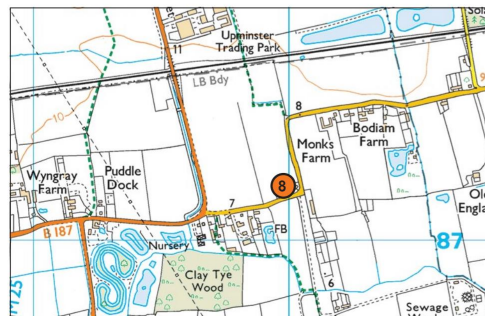
ELEVATION: 8M AOD

OS GRID REFERENCE: TQ599872

PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023

WEATHER CONDITIONS: SCATTERED CLOUD

CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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Title LVA - SITE CONTEXT PHOTO 8

scale@A3	drawn	date	job number	number	revision
NTS	IG	NOV 23	1643	002	-



ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3



SITE CONTEXT PHOTO 9: VIEW NORTH FROM FIELD GATE ON ST MARY'S LANE

DISTANCE FROM SITE: 310M
 ELEVATION: 7M AOD
 OS GRID REFERENCE: TQ598871
 PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
 WEATHER CONDITIONS: SCATTERED CLOUD
 CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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Job CLEARSTONE WARLEY, BESS						
Title LVA - SITE CONTEXT PHOTO 9						
scale@A3 NTS	drawn IG	date NOV 23	job number 1643	number 002	revision -	



ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3



SITE CONTEXT PHOTO 10: VIEW NORTH FROM JUNCTION OF WARLEY STREET AND ST MARY'S LANE

DISTANCE FROM SITE: 360M
 ELEVATION: 9M AOD
 OS GRID REFERENCE: TQ596871
 PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
 WEATHER CONDITIONS: SCATTERED CLOUD
 CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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Job CLEARSTONE WARLEY, BESS						
Title LVA - SITE CONTEXT PHOTO 10						
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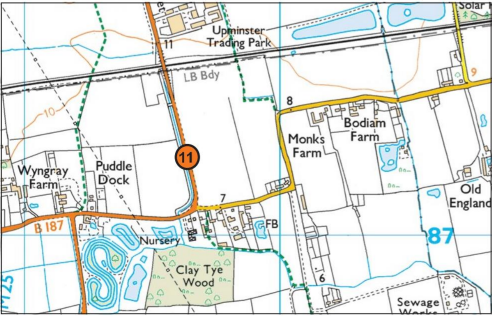


ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3



SITE CONTEXT PHOTO 11: VIEW NORTH EAST FROM WARLEY STREET

DISTANCE FROM SITE: 250M
 ELEVATION: 9M AOD
 OS GRID REFERENCE: TQ596873
 PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
 WEATHER CONDITIONS: SCATTERED CLOUD
 CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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Job CLEARSTONE WARLEY, BESS

Title LVA - SITE CONTEXT PHOTO 11

scale@ A3	drawn IG	date NOV 23	job number 1643	number 002	revision -
NTS					



ACTUAL SIZE EXTRACT: RECOMMENDED VIEWING DISTANCE APPROXIMATELY 300MM @ A3



SITE CONTEXT PHOTO 12: VIEW EAST FROM WARLEY STREET

DISTANCE FROM SITE: 10M
 ELEVATION: 9M AOD
 OS GRID REFERENCE: TQ595874
 PHOTOGRAPH TAKEN: 3RD NOVEMBER 2023
 WEATHER CONDITIONS: SCATTERED CLOUD
 CAMERA: NIKON D3200, 35MM FOCAL LENGTH



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LANDSCAPE

ARBORICULTURE

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ECOLOGY

Job CLEARSTONE WARLEY, BESS

Title LVA - SITE CONTEXT PHOTO 12

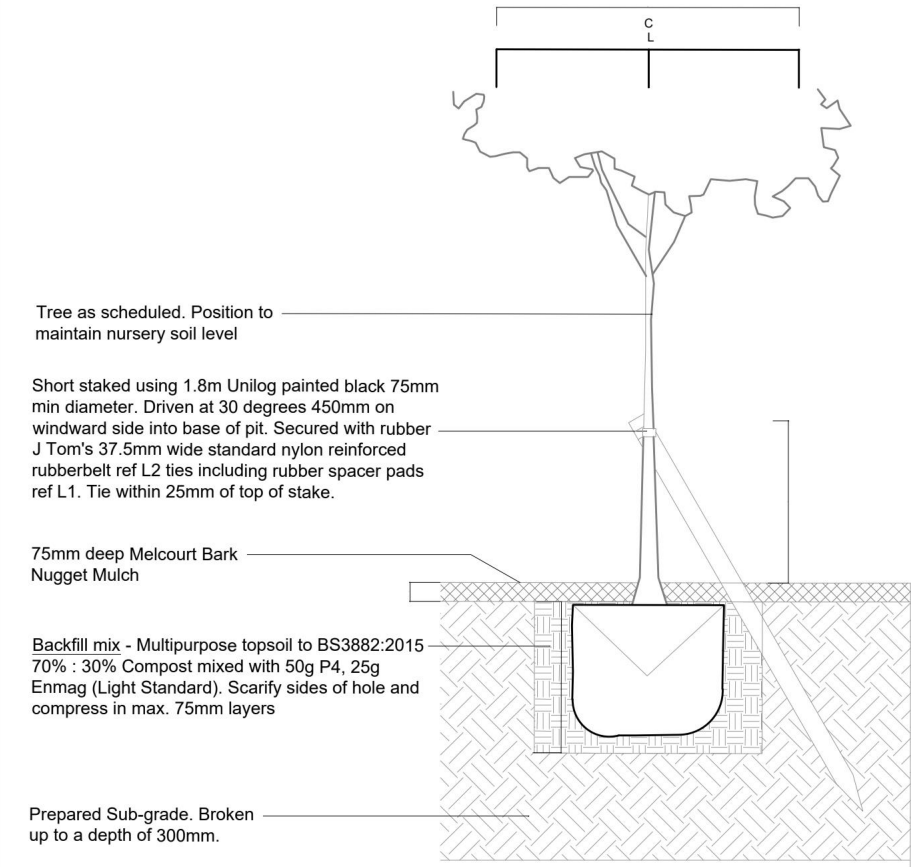
scale@A3	drawn	date	job number	number	revision
NTS	IG	NOV 23	1643	002	-

APPENDIX 5: LANDSCAPE STRATEGY (1643-003)

KEY:

- Existing Vegetation Retained
- Light Standard Tree
- Neutral Grassland Planting
- Native Scrub Planting
- Meadow Grassland Planting
- Truckgrid with Grass
- Tarmac
- MOT Type 1 Cover Gravel
- 2.4m High Paladin Security Fence
- Site Boundary
- Ownership Boundary
- Service Easements/ Cable Route
- Public Right of Way (PRoW 179)
- Drainage Ditch
- Existing Gas (Medium Pressure)
- Existing Gas (Low Pressure)
- Existing Overhead Electricity
- CCTV

Light Standard Tree Planting Pit 1:20



Planting Schedule

Light Standard Trees

Abbrev.	Name	Girth/Dia. cm	Height cm	Root Zone	Specification	Number
Aca	Acer campestre	6-8	250-300	B	2x; LS; clear stem 150-175cm; 3 brks	13
Bpub	Betula pubescens	6-8	250-300	B	2x; LS; clear stem 150-175cm; 3 brks	13
Fs	Fagus sylvatica	6-8	250-300	B	2x; LS; clear stem 150-175cm; 3 brks	13
Pnig	Populus nigra	6-8	250-300	B	2x; LS; clear stem 150-175cm; 3 brks	13
Pav	Prunus avium	6-8	250-300	B	2x; LS; clear stem 150-175cm; 3 brks	13
Qpe	Quercus petraea	6-8	250-300	B	2x; LS; clear stem 150-175cm; 3 brks	13
Sa	Salix alba	6-8	250-300	B	2x; LS; clear stem 150-175cm; 3 brks	13
Sauc	Sorbus aucuparia	6-8	250-300	B	2x; LS; clear stem 150-175cm; 3 brks	13
St	Sorbus torminalis	6-8	250-300	B	2x; LS; clear stem 150-175cm; 3 brks	12
Tco	Tilia cordata	6-8	250-300	B	2x; LS; clear stem 150-175cm; 3 brks	13

Native Shrub Mix - 1.5m centres

Abbrev.	Name	Height cm	RootZone	Specification	Mix %	Number
Aca	Acer campestre	40-60	2L	1+1; Transplant - seed raised	5	175
Agl	Alnus glutinosa	60-80	B	1+1; Transplant - seed raised	5	175
Csan	Cornus sanguinea	40-60	B	1+1; Transplant - seed raised; branched; 2 brks	5	175
Cmon	Crataegus monogyna	60-80	B	1+1; Transplant - seed raised	25	875
Ia	Ilex aquifolium	40-60	2L	Leader with laterals	10	350
Lvu	Ligustrum vulgare	40-60	B	0/1; Cutting; branched; 2 brks	5	175
Psy	Pinus sylvestris	40-60	B	1+2; Transplant - seed raised	5	175
Psp	Prunus spinosa	60-80	B	1+1; Transplant - seed raised; branched; 2 brks	15	525
Rarv	Rosa arvensis	60-80	B	1+1; Transplant - seed raised; branched; 2 brks	5	175
Rcan	Rosa canina	60-80	B	1+1; Transplant - seed raised; branched; 3 brks	10	350
Tb	Taxus baccata	40-60	150cc min.	1+0; Seedling; cell grown	3	105
Vop	Viburnum opulus	40-60	B	1+1; Transplant - seed raised; branched; 2 brks	7	245

OUTLINE SPECIFICATION:

GENERAL

All works to be in accordance all relevant British Standards and the Landscape Consultant's planting plans and specification (to be issued) and in compliance with the National Landscape Specification (NBS) 1998, latest revision.

SETTING OUT

All dimensions and levels should be checked and adjusted on site. Contractor responsible for care around all services. Do not scale from this drawing.

SITE PREPARATION

Building rubble in excess of 50mm dimension to be removed, compaction ripped 150mm deep or broken out by JCB back-actor leaving surface rough. Ensure free drainage.

TOPSOIL

Multipurpose topsoil BS:3882 medium loam, not more than slightly stoney, pH 5.7-7.5. Depth 450mm all planting areas. Provide Declaration of Analysis of topsoil to Employer's Agent.

TOPSOIL - MEADOW

Specific purpose topsoil to BS:3882, low fertility. 150mm depth to be used. Supplier to provide certification of testing.

TREE PIT

Transplants 300mmØ x 300mm depth
Light Standard 900mmØ x 600mm depth

PREPARATORY HERBICIDE

Weed allowed to grow and treated with up to three applications of weed killer prior to cultivation or planting during the fallow period.

GRASSING

Grassing between April-October. Cultivate to prepare seed bed. Finished seed bed levels 25mm above pavings and kerb edges. Stones pick to 25mm. Pre-seeding fertiliser 50g/m². Grass mix chosen for low maintenance requirements:- GRASS SEED MIX from DLF Trifolium Tel: 01386 791102:

PLANTS

General

Plant material in accordance with the HTA's National Plant Specification 1997. All plants container grown, well formed and free from disease. Plant handling to CPSE Plant Handling Code.

Quality as supplied by:

Johnsons of Whitley Ltd, York YO26 8AQ. Tel: 01423 330234. Or other nursery listed in the Horticultural Trades Association Nursery Certification Scheme.

Planting

Plant November to March. Planting areas cultivated 150 mm deep and stone picked of material greater than 50mm. Plant material pit planted 300 x 300 x 200 minimum. Approved planting compost incorporated into the soil during planting.

Backfill mix	Enmag	P4	Compost
Shrubs	35g	5g	10 litres
Transplants	35g	5g	10 litres
Light Standard	50g	25g	50 litres

Backfill mix (30%) incorporated into topsoil (70%) during planting.

TRANSPLANT STAKING AND SHELTERS

75cm Biodegradeable Standard Tree shelters. Secured with100cm x (25mm square) softwood stake driven at least 30cm into the ground. For native shrub planting mix.

TREE STAKING

Light Standard-Short Single Staking
Short staked using 1.8m Unilog painted black 75mm min diameter. Driven at 30 degrees 450mm on windward side into base of pit. Secured with rubber J Tom's 37.5mm wide standard nylon reinforced rubberbelt ref L2 ties including rubber spacer pads ref L1. Tie within 25mm of top of stake.

MULCH

Total cover coarse bark mulch to shrub areas, Melcourt Bark Nuggets 75mm deep.

AFTERCARE

24 months aftercare by planting contractor. Including grass and meadow cutting, weed, pest and disease control, pruning and watering. Weed control by residual herbicide or hand weeding as necessary to achieve a weed free condition. Watering in periods of drought to ensure establishment and continued thriving of planting.

DEFECTS LIABILITY

Twenty-four months on plant material and grass. Replacements in November in year of loss.

ONGOING MAINTENANCE

Continue to maintain for five years from completion of planting by hand weeding and spot treatment of weed killer to any weed in planted areas until plants close canopies. Replace failures for 5 years.

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LANDSCAPE
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GARDEN DESIGN
ECOLOGY

Job CLEARSTONE WARLEY BESS

Title
LANDSCAPE STRATEGY

scale@A1	drawn	date	drawing number	revision
1:1000	RR	OCT 24	1643 - 003	-