A428 Black Cat to Caxton Gibbet improvements

TR010044

Volume 6

6.1 Environmental Statement

Chapter 7: Landscape and Visual Effects

Planning Act 2008

Regulation 5(2)(a)

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

26 February 2021

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A428 Black Cat to Caxton Gibbet improvements

Development Consent Order 202[ ]

Chapter 7: Landscape and Visual Effects

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7 Landscape and visual effects

7.1 Competent expert evidence

7.1.1 This chapter presents the results of an assessment of likely significant effects of the Scheme on landscape character (and where relevant townscape character), visual amenity (people's views), the character of the night sky and effects of lighting.

7.1.2 The assessment comprises a Landscape and Visual Impact Assessment (LVIA) which has been undertaken and reported by a team of competent Chartered Landscape Architects within AECOM with extensive experience in LVIA of road schemes.

7.1.3 The quality and completeness of the assessment has been approved by a Technical Director, who holds the qualifications of BSc (Hons) Landscape Management and is a Chartered Member of the Landscape Institute (CMLI).

7.1.4 They have 18 years of experience in landscape design/consultancy and contribute to, and manage, landscape and visual impact assessments as part of Environmental Impact Assessments (EIA) and landscape design projects. They possess a detailed knowledge of the LVIA process and have given evidence at public inquiry on landscape and visual matters.

7.2 Legislative and policy framework

7.2.1 The following summary of legislation and planning policy is of direct relevance to the assessment of landscape and visual effects and should be read in combination with **Appendix 7.1** of the Environmental Statement **[TR010044/APP/6.3],** which provides further detail concerning national and local policy relating to the LVIA.

7.2.2 Compliance (or otherwise) with statute and policy relating to the protection and enhancement of landscapes, and the features that influence their character, quality and value, is addressed within the Case for the Scheme **[TR010044/APP/7.1]**.

National Policy Statement for National Networks

7.2.3 The *National Policy Statement for National Networks* (NPSNN) (Ref 7-1) acknowledges that the construction and operation of road infrastructure has the potential to result in effects on landscape and visual amenity, and provides guidance on their identification, assessment and mitigation and the requirements of 'good design'. Applying good design should produce "*sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction, matched by an appearance that demonstrates good aesthetics as far as possible*."

7.2.4 The NPSNN (Ref 7-1) sets out the matters regarding landscape character and visual amenity that the Secretary of State for Transport should give due regard to when determining Development Consent Order (DCO) applications.

7.2.5 The requirements of the NPSNN (Ref 7-1) in relation to identifying the characteristics, value and importance of designated and undesignated landscapes, and assessing and mitigating the effects of the Scheme on landscape character (and where relevant historic landscape) and visually sensitive receptors, have been taken account of in the assessment.

7.2.6 In identifying the likely significant effects that the Secretary of State for Transport needs to give due regard to in their decision-making, consideration has also been given to the findings of the assessment into noise and vibration reported in **Chapter 11, Noise and vibration** of the Environmental Statement **[TR010044/APP/6.1]**, which can influence the appreciation, experience and tranquillity of the landscape.

Overarching National Policy Statement for Energy (EN-1)

7.2.7 The *Overarching National Policy Statement for Energy (EN-1)* (Ref 7-2) sets out the Government's policy on energy and infrastructure development.

7.2.8 In relation to landscape and the visual environment, EN-1 (Ref 7-2) states that an applicant's assessment should reference existing landscape character assessments, take account of relevant policies, and consider the visibility and conspicuousness of a development (to identify potential impacts on views and visual amenity).

7.2.9 The requirements of EN-1 (Ref 7-2) in relation to landscape and visual effects associated with construction of the gas pipeline diversion within the Scheme have been accounted for in the assessment, in the manner described in paragraph 7.2.5 and paragraph 7.2.6.

National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)

7.2.10 The *National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)* (Ref 7-3) relates to gas supply and gas and oil pipelines and sits under EN-1 (Ref 7-2).

7.2.11 With regard to landscape and visual effects, EN-4 (Ref 7-3) identifies further considerations over and above those detailed in EN-1 (Ref 7-2) specifically relating to the construction of pipelines and their potential impacts on landscape elements within and adjacent to pipeline routes, and the temporary visual impacts that can occur during the works.

7.2.12 The additional requirements of EN-4 (Ref 7-3) associated with the construction of the gas pipeline diversion within the Scheme have been accounted for as part of the wider assessments of the likely construction-phase landscape and visual effects of the Scheme.

National Planning Policy Framework

7.2.13 The *National Planning Policy Framework* (NPPF) (Ref 7-4) sets out the Government's planning policies for England and provides a framework within which local planning authorities formulate their development plans.

7.2.14 The NPPF (Ref 7-4) acknowledges the importance of: achieving good design by ensuring developments are sympathetic to the local character and settings of landscapes; protecting valued landscapes from inappropriate development; and conserving and enhancing landscapes by encouraging developments to provide wider recreation and biodiversity benefits.

7.2.15 The requirements of the NPPF (Ref 7-4) have been accounted for in the assessment, with particular emphasis placed on: establishing the character and value of landscapes; avoiding, or minimising the extent and duration of, potential landscape and visual effects; and the development of an Environmental Masterplan for the Scheme (illustrated on **Figure 2.4** of the Environmental Statement **[TR010044/APP/6.2]**) that positively responds to local landscape character and opportunities.

Planning Practice Guidance

7.2.16 Planning Practice Guidance (PPG) for the *Natural Environment* (Ref 7-5) provides context to the NPPF (Ref 7-4) and advises on how the consideration of landscape character and green infrastructure can inform planning decisions.

7.2.17 Further PPG for *Light Pollution* (Ref 7-6) provides related advice on when pollution from artificial lighting introduced by developments should be considered, for example in landscapes characterised as being intrinsically dark or where glare could be introduced in established views.

7.2.18 This guidance has been considered by:

a. Undertaking desk-based and site-based surveys to define areas of distinctive landscape character and the extent to which artificial lighting currently influences the experience and amenity of visual receptors.

b. Assessing the extent to which the Scheme would alter the balance of components within established landscapes and available views.

c. Developing appropriate mitigation measures that reinforce the local green infrastructure network and agreeing these, as far as possible, with relevant statutory bodies.

Planning (Listed Building and Conservation Areas) Act 1990

7.2.19 The *Planning (Listed Buildings and Conservation Areas) Act 1990* (Ref 7-7) (as amended) provides specific protection for buildings and areas of special architectural or historic interest.

7.2.20 The extent to which these designated areas and buildings contribute to understanding the historic and cultural value of landscapes associated with the Scheme has been considered in the assessment; however, the assessment of impacts and effects on historic landscapes is presented within **Chapter 6, Cultural heritage** of the Environmental Statement **[TR010044/APP/6.1]**.

The Town and Country Planning (Tree Preservation) (England) Regulations 2012

7.2.21 *The Town and Country Planning (Tree Preservation) (England) Regulations 2012* (Ref 7-8) provide powers to local planning authorities to make and administer Tree Preservation Orders (TPO), the purpose of which is to protect selected trees and woodland by prohibiting their cutting down, uprooting, topping, lopping, wilful destruction or wilful damage without prior consent.

7.2.22 The locations of trees and woodland that have a relationship to the Scheme, including those protected by TPO, have been considered as part of the assessment and are referred to in the arboricultural assessment reported in **Appendix 7.5** of the Environmental Statement **[TR010044/APP/6.3]**.

The Hedgerow Regulations 1997

7.2.23 *The Hedgerow Regulations 1997* (Ref 7-9) provide protection for Important Hedgerows, these being hedgerows that meet certain criteria in respect of their length, location and importance.

7.2.24 The assessment has referenced the findings of the biodiversity assessment reported in **Chapter 8, Biodiversity** of the Environmental Statement **[TR010044/APP/6.1]**, which identifies the relationships between the Scheme and Important Hedgerows, to evaluate their contribution in defining landscape character and understanding how areas of landscape have evolved over time.

Local planning policy

7.2.25 Relevant policies in the following local and neighbourhood plans within the authorities of Huntingdonshire, Bedford Borough, Central Bedfordshire and South Cambridgeshire have been considered as part of the LVIA where these have informed: the assessment methodology; the identification of receptors and resources and their sensitivity; the potential for significant environmental effects; and mitigation:

a. *Bedford Borough Local Plan 2030* (Ref 7-10).

b. The *Central Bedfordshire Pre-submission Local Plan 2015 – 2035* (Ref 7-11).

c. Central Bedfordshire Council's *Core Strategy and Development Management Policies Development Plan Document* (Ref 7-12).

d. *Huntingdonshire's Local Plan to 2036* (Ref 7-13).

e. St. Neots Neighbourhood Plan (Ref 7-14).

f. *South Cambridgeshire Local Plan 2018* (Ref 7-15).

7.2.26 Individual policies within these documents of relevance to the LVIA are detailed in **Appendix 7.1** of the Environmental Statement **[TR010044/APP/6.3]** and have a common thread of aiming to conserve, enhance and protect the landscape, and basing the design of development upon an understanding of the existing landscape context supported by the use of landscape character assessments. Similarly, these policies require that negative impacts must be mitigated by sensitive landscape measures which respond to their context.

7.2.27 Additional local planning policy documents relating to green infrastructure strategies and design guides have also been referenced in the assessment, the details of which are presented in **Appendix 7.1** of the Environmental Statement **[TR010044/APP/6.3]**.

7.3 Assessment methodology

Scope of the assessment

7.3.2 A scoping exercise was undertaken in mid-2019 to identify the matters to be covered by the LVIA and agree the approach with relevant statutory bodies.

7.3.3 The assessment scope was established at that time by comparing available design and landtake details for the Scheme with data, information and records relating to landscape character and the visual environment.

7.3.4 The scoping exercise was informed by the technical and reporting guidance contained in the *Design Manual for Roads and Bridges Volume 11: Environmental Assessment* (Ref 7-16) (DMRB), *Interim Advice Note 125/15: Environmental Assessment Update* (Ref 7-17) and *Interim Advice Note 135/10: Landscape and Visual Effects Assessment* (Ref 7-18).

7.3.5 The outcomes of scoping were recorded in a scoping report (Ref 7-19), which was consulted upon as part of a formal request to the Inspectorate for a scoping opinion and included a summary of all assessment work undertaken as part of the design-development of the Scheme.

7.3.6 The Inspectorate's scoping opinion **[TR010044/APP/6.5]** identified a number of additional overarching EIA and topic-specific matters that were subsequently brought into the overall scope of the assessment (Ref 7-20). These further considerations are detailed in **Table 1** of **Appendix 4.3** of the Environmental Statement **[TR010044/APP/6.3]** and include a summary of how Highways England has responded to the points raised, and where this information is reported.

7.3.7 The Inspectorate agreed with Highways England that activities associated with the future maintenance of the Scheme would have limited potential to result in significant landscape and visual effects. Accordingly, the effects associated with the maintenance phase of the Scheme were scoped out of the assessment and are not considered further.

7.3.8 The Inspectorate noted that the LVIA should include a description and assessment of impacts to visual receptors from the introduction of lighting associated with the Scheme during both the construction and operational phases. The LVIA has accordingly included a qualitative assessment of night time effects of the Scheme on landscape character and visual receptors (residents only) for both construction and operation phases, based upon:

a. The identification of existing sources of lighting and the existing brightness of the night sky within the study area (the study area is defined in Section 7.5).

b. The identification of potential new sources of light during the construction and operational phases of the Scheme.

7.3.9 The effectiveness that mitigation measures (see Section 7.8) would have in reducing the adverse effects of lighting was also considered in the assessment.

7.3.10 The Inspectorate also noted a requirement to include a description and assessment of impacts on historic landscapes (where significant effects may occur), and to illustrate the extent to which the Scheme would be visible from designated heritage assets. The LVIA refers to features and characteristics within the historic landscape; however, the Cultural Heritage assessment within **Chapter 6, Cultural heritage** of the Environmental Statement **[TR010044/APP/6.1]** reports the effects on historic landscape character and the setting of designated heritage assets.

7.3.11 Subsequent to the publication of the scoping opinion **[TR010044/APP/6.5]**, Highways England published a series of new DMRB standards relating to sustainability and the environment, resulting in the phased withdrawal of the guidance used to inform the scoping exercise (Ref 7-16; Ref 7-17; Ref 7-18) from July 2019.

7.3.12 A decision was made by Highways England to adopt the new DMRB standards part way into the assessment process, the details of which are summarised in **Chapter 4, Environmental assessment methodology** of the Environmental Statement **[TR010044/APP/6.1]**.

7.3.13 **Table 2** of **Appendix 4.3** of the Environmental Statement **[TR010044/APP/6.3]** sets out the changes to the scope and methodology of the LVIA resulting from adoption of the new DMRB standards.

7.3.14 In addition to the matters raised in the scoping opinion **[TR010044/APP/6.5]** and through adoption of the new DMRB standards, the final assessment scope has also been shaped by the following:

a. The outcomes of consultation and engagement with statutory bodies, non-statutory organisations and those with an interest in landscape character and visual amenity.

b. Design changes made to the form and extent of the Scheme and the area of land required for its construction, operation and maintenance (the Order Limits).

c. The outcomes of further desk-based and field surveys undertaken to establish the landscape and visual baseline, and to inform the identification of the likely significant effects of the Scheme.

7.3.15 The following sections summarise the methodology applied in the LVIA, the full details of which are presented in **Appendix 7.2** of the Environmental Statement **[TR010044/APP/6.3]**.

Assessment standards and guidance

7.3.16 The following standards and guidance have been used to inform the scope and content of the LVIA, and to assist the identification and mitigation of likely significant effects. This builds upon the overarching EIA methodology and guidance presented in **Chapter 4, Environmental assessment methodology** of the Environmental Statement **[TR010044/APP/6.1]**:

a. *GG 103 Introduction and general requirements for sustainable development and design* (Ref 7-21).

b. *LA 104 Environmental assessment and monitoring* (Ref 7-22).

c. *LA 107 Landscape and visual effects* (Ref 7-23).

d. *LD 117 Landscape design* (Ref 7-24)

e. *Guidelines for Landscape and Visual Impact Assessment: Third edition* (GLVIA3) (Ref 7-25).

f. *An Approach to Landscape Character* (Ref 7-26).

g. *Townscape Character Assessment – Technical Information Note 05/17* (Ref 7-27).

h. *Infrastructure Technical Guidance Note 04/20* (Ref 7-28).

i. *Visual Representation of Development Proposals – Technical Guidance Note 06/19* (Ref 7-29).

7.3.17 Further detail on how these documents have informed the approach to the LVIA is provided in **Appendix 7.2** of the Environmental Statement **[TR010044/APP/6.3]**.

Establishment of the baseline

7.3.18 Establishment of the baseline has involved consultation with statutory bodies, other organisations and landowners, reference to existing data sources through desk study and fieldwork surveys. Further detail is provided in **Appendix 7.2** of the Environmental Statement **[TR010044/APP/6.3]**.

Consultation

7.3.19 The team responsible for undertaking the LVIA and the landscape design has worked closely with the wider project team and engaged stakeholders throughout the design process.

7.3.20 Comments from statutory consultees made in response to the statutory consultation, supplementary consultation and through face to face meetings with landscape officers of relevant planning authorities have informed the scope and methodology of the LVIA and development of the landscape strategy.

7.3.21 Further details regarding consultation undertaken as part of the Scheme are presented in the Consultation Report **[TR010044/APP/5.1]**.

Desk study

7.3.22 Published landscape character assessments were used to assist in the initial identification of the boundaries, qualities, elements and key characteristics of individual landscape character areas, and their landscape value.

7.3.23 Reference was also made to the prevailing policy framework, Ordnance Survey mapping, 3-dimensional topographical data, and site photographs and aerial photography.

Fieldwork surveys

7.3.24 Fieldwork surveys were undertaken by qualified and experienced landscape architects to inform the scoping process and record the winter and summer season conditions. The purpose of this fieldwork was to review the boundaries and key characteristics defined in the published landscape character assessments and to identify, record and map features and characteristics of the landscape. This included perceptual qualities including tranquillity and night time lighting.

7.3.25 Arboricultural surveys were undertaken to identify and map the location, age, species and health of all trees within the Scheme's Order limits. The findings of the arboricultural survey is presented in **Appendix 7.5** of the Environmental Statement **[TR010044/APP/6.3]**.

7.3.26 An extended Phase 1 Habitat Survey, Phase 2 Habitat / National Vegetation Classification surveys, arable flora survey, and veteran tree and hedgerow survey have also been carried out as part of the Biodiversity assessment reported in **Chapter 8, Biodiversity** of the Environmental Statement **[TR010044/APP/6.1]**.

7.3.27 Information from these surveys has been used, where relevant, to inform the identification of baseline landscape conditions.

Landscape baseline

7.3.28 Establishing the landscape baseline involved the identification of existing physical features of the landscape and its character.

7.3.29 Existing, published landscape character assessments were reviewed to identify existing Landscape Character Types (LCT) and Landscape Character Areas (LCA) at the national, regional and district scales.

7.3.30 A series of 16 local landscape character areas (LLCA) were then defined to provide a finer level of detail to inform the assessment of landscape effects. These are described in **Appendix 7.3** of the Environmental Statement **[TR010044/APP/6.3].**

Visual baseline

7.3.31 Zones of Theoretical Visibility (ZTV) were used to assist in the identification of visual receptors and representative viewpoints upon which the assessment of visual effects is based. These ZTVs are presented on **Figure 7.14.1** – **Figure 7.14.8** of the Environmental Statement **[TR010044/APP/6.2]** and are based on the design of the Scheme illustrated on the General Arrangement plans on

Figure 2.2 of the Environmental Statement **[TR010044/APP/6.2]**. The methodology for the preparation of the ZTVs is presented in **Appendix 7.2** of the Environmental Statement **[TR010044/APP/6.3]**.

7.3.32 The final list of the viewpoints and visual receptors evaluated in the visual assessment is presented in the Visual Effects Schedule (VES) presented in **Appendix 7.4** of the Environmental Statement **[TR010044/APP/6.3]** and on the Visual Effects Drawings (VED) presented on **Figure 7.11** – **Figure 7.13** of the Environmental Statement **[TR010044/APP/6.2]**.

7.3.33 Photographs and visualisations have been included to assist in describing baseline views and visual effects with reference to the viewpoints, which have been agreed with relevant local planning authorities. They have been prepared in accordance with best practice guidance published by the Landscape Institute (Ref 7-29) and are presented as Type 1[1] (annotated viewpoint photographs) or Type 4[2] (photomontage) on **Figure 7.15.1** – **Figure 7.15.53** of the Environmental Statement **[TR010044/APP/6.2]**.

Sensitivity of receptors

Landscape sensitivity

7.3.34 In accordance with *LA 107* (Ref 7-23), judgements on the value and susceptibility of landscape receptors have been combined to determine their sensitivity to the Scheme.

7.3.35 Landscape value is typically informed by the process of landscape character assessment and is influenced by factors such as whether the landscape is designated and at what scale, and with reference to criteria set out in Box 5.1 of *GLVIA3* (Ref 7-25): condition; rarity; scenic quality; and perceptual aspects.

7.3.36 Assessing the susceptibility of landscape receptors to change refers to the ability of landscape receptors to accommodate the specific proposed change without negative consequences.

Visual sensitivity

7.3.37 Assessing the value of views has been informed by the location of the viewing place and the quality or designation of the existing landscape and elements in the view. This can include whether the view: is of or from important heritage assets; is afforded its own designation or is from or towards a designated landscape; or is named or promoted (such as those found in guidebooks and tourist literature).

7.3.38 The susceptibility of visual receptors to the change brought about by the Scheme relates mainly to their occupation or activity and the extent to which their attention or interest is focused on the view.

[1] Type 1 visualisations are the most basic form of visual representation and are produced to aid the clear understanding of a view and context, typically by illustrating the extent of a development site within the view and annotating any key features.
[2] Type 4 visualisations represent the most sophisticated type of visualisation and require the use of equipment and processes which provide quantifiable data, the accuracy of which can be checked and verified.

Assessment of effects

7.3.39 The identification of landscape and visual effects takes account of the effectiveness of embedded mitigation measures contained in **Chapter 2, The Scheme** of the Environmental Statement **[TR010044/APP/6.1]** (and summarised in Section 7.8), and essential mitigation measures described in Section 7.8.

Magnitude of landscape effects

7.3.40 The magnitude of landscape effects has been determined in consideration of the of size/scale, geographical extent of influence and its duration and reversibility.

Magnitude of visual effects

7.3.41 The magnitude of visual effects has considered the size / scale, intensity, geographical extent of the view influenced, the elements of the Scheme that would be visible, the level of integration with existing elements, and the duration and reversibility of effects.

Assessment of night time lighting effects

7.3.42 A qualitative assessment of night time lighting effects has been carried out for landscape and views.

7.3.43 The effects of night time lighting have been considered for all LLCA during the construction and operational phases of the Scheme.

7.3.44 The effects of night time lighting have been considered for all residential visual receptors during the construction and operational phases of the Scheme. Users of public rights of way (PRoW) have not been included as it is assumed that these routes would not be used at night.

Significance of effects

7.3.45 The approach to deriving the significance of landscape and visual effects from the sensitivity of receptor values and the magnitude of effects has been informed by Table 3.8.1 of *LA 104* (Ref 7-22), as shown in **Table 7-1**.

Table 7-1: Significance matrix

		Magnitude of effect				
		No change	**Negligible**	**Minor**	**Moderate**	**Major**
Sensitivity	**Very high**	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

7.3.46 *GLVIA3* (Ref 7-25) acknowledges that the assessment of significance is not a prescriptive process. Where the significance of an effect is represented by two descriptors, for example large or very large within the matrix, professional judgement has been used to determine which of the significance descriptors applies to the effect being assessed.

7.3.47 Significant effects comprise those effects that are within the moderate, large or very large categories, in accordance with *LA 104* (Ref 7-22).

7.3.48 This chapter presents summaries of the identified significant landscape and visual effects. The detailed baseline, sensitivity, magnitude of effect and significance of effect and the judgements that support these findings for each landscape receptor are reported in **Appendix 7.3** of the Environmental Statement **[TR010044/APP/6.3]**, and for each visual receptor in **Appendix 7.4** of the Environmental Statement **[TR010044/APP/6.3]**.

Assessment scenarios

7.3.49 Landscape and visual effects have been identified for the following scenarios, which represent the key stages of Scheme development.

Construction: Year 2022 – 2026

7.3.50 Construction: Year 2022 – 2026 represents the changes that would be apparent when construction activity is at its peak i.e. when construction works, vehicles, equipment and machinery are in maximum use. This has been assessed during winter, when existing deciduous vegetation is not in leaf and therefore less effective at filtering or screening views of construction activity. This represents a worst-case assessment scenario.

7.3.51 Consideration has been given to: borrow pits; construction compounds; access and haul routes; the type of machinery likely to be used; the position and scale of working areas; temporary lighting; and the duration of construction works within each phase of the construction programme.

7.3.52 The construction programme and works phasing is presented in **Chapter 2, The Scheme** of the Environmental Statement **[TR010044/APP/6.1]**.

Winter year one: 2026

7.3.53 Winter year one (2026) represents the changes that would be apparent in the first year that the Scheme would be open for traffic. This includes the location, scale and extent of earthworks, carriageways, grade-separated junctions, bridges and underpasses for road crossings, junction improvements, lighting, gantries and signage.

7.3.54 The assessment at year one has been undertaken during winter and assumes that proposed planting would be less than 1 metre in height and would not have established sufficiently to fully mitigate the adverse effects of the Scheme, thereby representing a worst-case assessment scenario.

Summer year 15: 2041

7.3.55 Summer year 15 (2041) represents the changes that would be apparent 15 years after opening of the Scheme i.e. once all planting has established and reached a level of maturity where it is fulfilling its intended visual screening and landscape integration functions.

7.3.56 Year 15 assumes that the planting would have established to reach an average height of 7.5 metres and represents summer conditions when deciduous vegetation would be in leaf. The year 15 assessment therefore represents a best-case assessment scenario.

7.4 Assessment assumptions and limitations

Scheme design and limits of deviation

7.4.2 The assessment has been based on the Scheme description presented in **Chapter 2, The Scheme** of the Environmental Statement **[TR010044/APP/6.1]** and has taken into account the lateral limits of deviation illustrated on the Works Plans **[TR010044/APP/2.3]**, and the vertical limits of deviation, in order to establish a realistic worst-case assessment scenario.

7.4.3 This scenario has identified and reported the effect that any lateral and/or vertical deviation would realistically give rise to. This has, for example, taken into account the potential for components if the Scheme is to be positioned at a slightly higher elevation in the landscape, or brought into closer proximity to visual receptors, and thereby potentially result in different effects.

7.4.4 Notwithstanding any potential deviation, all embedded and essential mitigation measures would remain deliverable within the extents of the limits of deviation.

Baseline data and fieldwork surveys

7.4.5 The LVIA has been undertaken with reference to the baseline conditions recorded at the time of undertaking winter and summer fieldwork surveys. These surveys were carried out from publicly accessible locations. In most cases they are considered to also be representative of the conditions that would exist at the point of commencing Scheme construction, as described in Section 7.6, as the nature of the landscape is such that no material changes to its character or views are predicted to occur during this time. There are exceptions, such as on the eastern edge of St. Neots, where extensive new development at Wintringham is under construction, and the ongoing restoration of the Black Cat Quarry, which are described as part of the review of future baseline conditions in Section 7.6.

7.4.6 As viewpoint photography has not been undertaken from private properties, professional judgement has been used to assess the likely effects on residential and commercial visual receptors.

7.4.7 The Landscape and Ecology Management Plan (LEMP) within the First Iteration EMP **[TR010044/APP/6.8]** describes the landscape vision and strategy and actions that are assumed to be implemented to achieve the successful establishment of planting incorporated into the design of the Scheme.

Impact assessment and mitigation

7.4.8 The accuracy of the ZTVs has been constrained by the distance and height parameters adopted in their generation, as described in **Appendix 7.2** of the Environmental Statement **[TR010044/APP/6.3]**.

7.4.9 It is not possible to identify and assess every individual visual receptor within the ZTV extents. This limitation has been addressed by grouping receptors, where appropriate, and then identifying and assessing the greatest adverse effect within the group. In adopting this approach, this assessment considers the most realistic worst-case outcome for the receptors within the group and reports this as a single effect in the LVIA.

7.4.10 The assessment of temporary construction effects has considered the peak activity periods, for example when taller plant and equipment such as cranes would be visible and in use, in order to assess the reasonable worst-case.

7.4.11 The assessment of effects during construction and in year one has assumed that the effectiveness of screening provided by existing vegetation and planting incorporated into the design of the Scheme would be reduced during winter, when deciduous vegetation is not in leaf.

7.4.12 The identification and evaluation of likely effects in year 15 assumes that all planting incorporated into the Scheme design would have been appropriately managed over the period in accordance with the principles and actions set out in the LEMP within the First Iteration EMP **[TR010044/APP/6.8]**, such that it would have successfully established and be in full leaf.

7.5 Study area

7.5.1 The study area for the LVIA includes all land within the Order Limits and the area within which the Scheme may give rise to significant landscape and visual effects, as illustrated on **Figure 7.1** of the Environmental Statement **[TR010044/APP/6.2]**.

7.5.2 Further details relating to the definition and refinement of the study area are presented in **Appendix 7.2** of the Environmental Statement **[TR010044/APP/6.3]**.

7.6 Baseline conditions

Existing baseline

Topography and hydrology

7.6.2 The topography within the study area varies between the low-lying floodplain of the River Great Ouse in the west to a broad, more elevated plateaux in the east. Much of the land in the central section of the study area (to the east of St. Neots) consists of gently undulating land (see **Figure 7.2** of the Environmental Statement **[TR010044/APP/6.2]**).

7.6.3 The land within the floodplain of the River Great Ouse is predominantly flat or gently undulating, lying at approximately 20 metres above ordnance datum (AOD). Beyond the East Coast Main Line (ECML) Railway, it rises steeply to high points of approximately 50 metres AOD east of Alington Hill at Boys Wood. This prominent local ridge extends north, falling gently into the suburbs of Eynesbury and east beyond the B1046 towards the valley of Hen Brook.

7.6.4 At a more distant point to the south-east of the existing Black Cat roundabout, more distinct changes in landform are apparent where the land rises steeply to form the Bedfordshire Greensand Ridge. This prominent feature forms a contrasting, narrow and elevated outcrop, which is visible in the backdrop of views across the landscape from the west and north.

7.6.5 At the eastern end of the study area the land forms a broad plateau above the sedimentary bedrock upon which the settlements of Toseland, Yelling, Papworth Everard, Croxton, Eltisley and Caxton are situated. Subtle variations in landform create a series of lowland plateaux areas divided by broad, shallow valleys and ridge lines. These areas share the same underlying bedrock of West Walton Formation and Ampthill Clay Formation as the narrow ridge at Alington Hill.

7.6.6 The principal watercourse that passes through the study area is the River Great Ouse, which meanders south to north. Within the study area, the river is broadly parallel with the A1 from the south side of the existing Black Cat roundabout between Roxton and Tempsford to the southern edge of St Neots, where it passes under the existing A428. Smaller watercourses within the study area, all of which are tributaries of the River Great Ouse, include:

a. River Ivel, which joins the River Great Ouse to the west of Tempsford.

b. Rockham ditch, which flows under the A421, Bedford Road and the A1 south of the existing Black Cat roundabout.

c. South Brook, which flows under Roxton Road and the A1 north of the existing Black Cat roundabout.

d. Hen Brook and Wintringham Brook, and their respective tributaries, which flow from east to west through open farmland to the east of St Neots.

e. Fox Brook and Gallow Brook, both located to the east of St. Neots, which flow east to west, to the north side of the existing A428.

7.6.7 Large waterbodies are common within the River Great Ouse floodplain. These generally take the form of flooded, former gravel pits; several of these are used for recreational activities including water sports and fishing. There is also an ornamental lake within Croxton Park. Other waterbodies include modern agricultural irrigation reservoirs.

7.6.8 There are several historic moated features within the study area, east of the River Great Ouse. These include moats at Abbotsley Golf and Country Club, Caldecote, Wintringham, Westbury Farm at Croxton, Manor Farm and Jesus College Farm at Eltisley and Pastures Farm near Croxton. Ponds are also associated with the deserted medieval sites and villages of Wintringham and Weald and are scattered throughout the study area within agricultural fields.

Landcover and vegetation patterns

7.6.9 There is a mixed pattern of landcover and vegetation as illustrated on **Figure 7.3** of the Environmental Statement **[TR010044/APP/6.2]**, with intensively farmed arable land making up the majority of the study area.

7.6.10 Features of value for biodiversity and cultural heritage that contribute to landscape character and visual amenity are illustrated on **Figure 7.4** of the Environmental Statement **[TR010044/APP/6.2]**.

7.6.11 To the west of the ECML, there is a concentration of mature trees, woodland blocks and tree belts along the River Great Ouse. Beyond the river corridor and associated lakes, trees tend to be focussed within and around the edges of settlements, for example at Roxton, Tempsford and Chawston.

7.6.12 The historic estates of Tempsford Hall and Roxton Park retain a strong parkland character with mature trees set within grass and with tree and woodland belts around the perimeter. Hedgerows in this area are either absent, gappy or otherwise confined to settlement edges or property boundaries. Further north, mature trees, woodland blocks and hedgerows surround smaller arable fields and pasture at Little Barford, which are remnants of parkland surrounding the derelict New Manor House.

7.6.13 Larger blocks of woodland are more prevalent to the east of the ECML, where the land rises up to Alington Hill. This includes a distinctive round woodland plantation on the high point of the ridge, along with Boys Wood and the ancient replanted woodland at Sir John's Wood, located approximately 3.5 kilometres (2.1 miles) east of the existing Black Cat roundabout.

7.6.14 Further to the south, across parts of the Greensand Ridge, the thin, sandy soils atop the north-west-facing scarp slope support lowland heathland and acid grassland.

7.6.15 To the north-east, riparian vegetation also forms locally important features. It occurs intermittently along smaller watercourses such as Hen Brook to the east of St. Neots and Fox Brook and Gallow Brook north of the existing A428 between St. Neots and Croxton.

7.6.16 Larger areas of broad-leaved and mixed woodland are more common where the land begins to rise to the north of Wintringham. They include Cromwell's Close Plantation, Sheep Walk Plantation, Fox Holes and New Gorse to the north of Fox Brook. Intermittent and broken hedgerows define the boundaries of fields in this area.

7.6.17 Woodland blocks increase in size and frequency between Abbotsley Road, Toseland Road and Eltisley to the north and south of the existing A428. Much of this woodland is located within Croxton Park, to the south of the existing A428 and in its wider setting to the immediate north. Mature trees set within pasture or on the field boundaries are also common.

7.6.18 To the immediate south of the village of Eltisley is a parcel of ancient replanted woodland (Eltisley Wood). Beyond the eastern extents of the village, woodland cover is generally limited to shelter belts between large open arable fields that are largely devoid of hedgerows.

7.6.19 Woodland and tree belts planted around two large farms (North East Farm and Pembroke Farm), located east of Eltisley adjacent to the existing A428 break up the open nature of the landscape to the north. Some of this woodland is still maturing, including that which lines the northern edge of the existing A428.

7.6.20 There are several trees and tree groups that are subject to TPOs located within Huntingdonshire and South Cambridgeshire. A veteran Elm tree is also located approximately 0.5 kilometres (0.3 miles) to the north of Hen Brook and approximately 0.5 kilometres (0.3 miles) to the east of the existing A428.

7.6.21 Further information regarding TPOs is presented in the arboricultural assessment in **Appendix 7.5** of the Environmental Statement **[TR010044/APP/6.3]**.

Land use and settlement

7.6.22 The primary land use within the study area is agriculture, comprising predominantly large-scale arable fields with smaller pockets of pasture clustered around villages and some farmsteads, as shown on **Figure 7.3** of the Environmental Statement **[TR010044/APP/6.2]**.

7.6.23 There is a mixed land use pattern along the A1 and the existing A428 corridors between Roxton and St Neots. Roxton is a small village, centred on the High Street with predominantly residential land use. Roxton Garden Centre is separated from the village by arable fields and is located to the west of the existing Black Cat roundabout.

7.6.24 Kelpie Marina is a small boat marina connected to the River Great Ouse. It is situated to the east of Roxton in a parcel of land located between the A1 northbound (providing road access) and southbound carriageways where they cross the River Great Ouse.

7.6.25 Active, open cast sand and gravel workings extend across the land to the east of the existing Black Cat roundabout and south of Wyboston in the floodplain of the River Great Ouse.

7.6.26 The settlements of Wyboston and Chawston are divided by the A1, with a mixture of residential, horticultural and industrial uses. The density of this planned development is sparse due to the inter war land settlement scheme which gave rise to market gardening. There are remnants of horticultural activity, including glasshouses, with residential dwellings typically interspersed with light industrial uses.

7.6.27 East of the existing Black Cat roundabout and the River Great Ouse, the landscape is predominately agricultural, extending north across the higher ground of Alington Hill. Other uses include the extensive Abbotsley Golf Course and a plant hire business located on a broad plateau above the valley of Hen Brook.

7.6.28 St Neots is the principal settlement in the study area, located to the north of the existing A428 and predominantly to the west of the ECML. Industrial and commercial activity defines much of the southern and eastern edges of the town, focussed in several business and industrial parks, particularly close to the A1 and the existing A428. This area includes Little Barford Power Station, the tall turbine halls and chimneys of which are visually prominent local landmarks along with tower cranes within the neighbouring crane hire business.

7.6.29 To the south of St. Neots and the existing A428 is Wyboston Lakes, an extensive complex of conference facilities, hotels, and leisure facilities including a golf course.

7.6.30 Recent residential development at Loves Farm has expanded St. Neots to the east of the ECML. This consists of a new, high density residential development, comprising a mix of three to four storey blocks fronting Cambridge Road and generally two-storey properties to the north.

7.6.31 To the south of Loves Farm and Cambridge Road is an extensive area of land between the ECML and the existing A428 known as Wintringham. It is part of the ongoing expansion of St. Neots and is currently under construction, with the first phase adjacent to Cambridge Road due to be completed and occupied by the end of 2020.

7.6.32 East of St Neots, settlement is sparse and mostly limited to individual farmsteads and small villages. Along the existing A428 these are Croxton and Eltisley, which lie to the south of the road. At more distant points between 2.4 kilometres (1.5 miles) and 2.7 kilometres (1.7 miles) to the north of the existing A428 there are further small settlements at Toseland and Yelling, and a larger nucleated settlement at Papworth Everard approximately 1.6 kilometres (1 mile) north of the existing Caxton Gibbet roundabout. Cambourne is a modern settlement that has been under construction since 1998 and lies approximately 1.8 kilometres (1.1 miles) east of the existing Caxton Gibbet roundabout.

Landscape designations

7.6.33 The study area does not contain any statutory designated landscapes (for example National Parks or Areas of Outstanding Natural Beauty), nor does it coincide with the setting of such designated landscapes as illustrated on **Figure 7.4** of the Environmental Statement **[TR010044/APP/6.2]**.

7.6.34 There is one Registered Park and Garden (RPG) within the study area – the Grade II* listed Croxton Park – located to the south of the existing A428 which also forms its northern boundary. It is defined as "*a mid C18 house and walled garden set in an early C16 deer park which incorporates earthwork remains of C16 garden features and which was enlarged and landscaped in the early C19*" (Ref 7-29).

7.6.35 There is archaeological evidence for historic settlement in the form of 'deserted villages' present to the south of the existing A428 at Wintringham, Weald and Croxton. These assets are designated as Scheduled Monuments, the details of which are presented in **Chapter 6, Cultural heritage** of the Environmental Statement **[TR010044/APP/6.1]**.

7.6.36 The study area also contains a number of other heritage assets including, numerous listed buildings, scheduled monuments, and conservation areas within the settlements of St Neots, Yelling, Eltisley, Croxton, Caxton, Papworth Everard, Tempsford, Roxton, and Church End. Where such heritage features contribute to the character of the landscape and views, these are described as part of the review of landscape character. Further details of these heritage assets are presented in **Chapter 6, Cultural heritage** of the Environmental Statement **[TR010044/APP/6.1]**.

7.6.37 Sites designated for biodiversity also contribute to the character of the landscape within the study area. These include statutory designated sites such as Sites of Special Scientific Interest (SSSI) at Papworth Wood and Elsworth Wood, and County Wildlife Sites at the River Great Ouse, Croxton Park and Eltisley Wood. As noted above, Ancient Woodland is present at Sir John's Wood and Eltisley Wood and numerous non-designated small and medium-sized deciduous woodland throughout the farmland to the east of the River Great Ouse, including woodland contained on the National Forestry Inventory, as described in **Chapter 8, Biodiversity** of the Environmental Statement **[TR010044/APP/6.1]**.

Infrastructure

Road network

7.6.38 The existing A1 and A421 are both two-lane dual carriageway, all-purpose trunk roads which from part of the Strategic Road Network. The A1 connects with the existing A428 approximately 2.8 kilometres (1.7 miles) north of the existing Black Cat roundabout on the southern edge of Eaton Socon, a village within the town of St. Neots.

7.6.39 The A1 crosses the study area from south to north, connecting London and Scotland. The A421 connects the M1 at Milton Keynes to the west with the A1 at the existing Black Cat roundabout.

7.6.40 The existing A428 is a single-carriageway all-purpose trunk road which bypasses St. Neots along its southern and eastern edge. The existing A428 connects with Cambridge Road (B1428) at an at-grade roundabout to the east of the Loves Farm development. From this point it broadly follows its historic alignment, connecting the villages of Croxton and Eltisley. East of the existing Caxton Gibbet roundabout, the existing A428 is a two-lane dual carriageway all-purpose trunk road.

7.6.41 A number of local roads intersect the route of the Scheme. At the western end, Bedford Road connects the village of Roxton to the existing Black Cat roundabout. Further east, Barford Road runs broadly parallel with the River Great Ouse and the ECML, connecting Tempsford to the south with St. Neots to the north via the hamlet of Little Barford. It follows the existing topography, rising and falling across the undulating landscape.

7.6.42 South-east of Eynesbury, the B1046 / Potton Road crosses the ECML and the existing A428 on a high point in the landscape. Beyond the junction with Potton Road it falls to follow the valley of Hen Brook towards the village of Abbotsley.

7.6.43 Abbotsley Road leads north from Abbotsley, joining the existing A428 at a staggered crossroads to the west of Croxton. Toseland Road leads north towards the villages of Toseland and Yelling.

7.6.44 The B1040 leads north from the village of Waresley to join the existing A428 west of Eltisley. This route continues north as the B1040 St. Ives Road towards Papworth Everard from a junction approximately 0.6 kilometres (0.37 miles)to the east.

7.6.45 The existing road network within the study area is illustrated on **Figure 7.4** of the Environmental Statement **[TR010044/APP/6.2]**.

Existing roundabouts that form part of the Scheme

7.6.46 The existing Black Cat roundabout is a large, at-grade, four-arm roundabout located to the south of Chawston and Wyboston and north of Roxton. It connects the A421 from the west, the A1 from the south and the A1 from the north. In addition, Bedford Road approaches from the south-west and serves local road traffic of Roxton, Great Barford and other villages further south.

7.6.47 Access to the northern parts of St. Neots is via Cambridge Road which joins the existing A428 at the existing Cambridge Road roundabout, which is an at-grade three-arm roundabout.

7.6.48 The existing Caxton Gibbet roundabout is an at-grade four-arm roundabout located to the east of the village of Eltisley. The existing A428 approaches as a single carriageway road from the west, the A1198 from the south, the A428 dual carriageway from the east and the A1198 Ermine Street South from the north. The Caxton Gibbet Park Service Area, which includes a fuel filling station and restaurants, is located to the south of the existing Cambridge Road roundabout.

Other linear infrastructure

7.6.49 The ECML crosses the western extent of the study area from north to south. This busy line carries freight, local and intercity services and is electrified, with overhead line equipment prominent in the landscape. There is one railway station (St. Neots) within the study area.

7.6.50 Tall pylons and overhead high-voltage power lines are common across the study area, leading to substations and the Little Barford Power Station south of St. Neots.

Public rights of way

7.6.51 The PRoW network within the study area is illustrated on **Figure 7.5** of the Environmental Statement **[TR010044/APP/6.2]**. PRoW is a collective term and comprises predominately footpaths and bridleways across agricultural land, with occasional byways open to all traffic.

7.6.52 The Ouse Valley Way is a long distance public footpath and promoted trail. It follows a meandering course roughly south-north along the River Great Ouse and valley floor west of Tempsford in the south. To the north of Tempsford it deviates from the river to follow roads and crosses fields between Chawston and Wyboston, before crossing the A1 and heading north into Eaton Socon, north of the existing A428.

7.6.53 Further to the south, the Greensand Ridge Walk is another long distance public footpath and promoted trail which climbs the steep scarp slope to the west of Everton before turning north and following the top of the ridge to Tetworth and Gamlingay.

7.6.54 There is a network of footpaths to the west of the A1 which connect the settlements of Tempsford, Roxton, Chawston and Wyboston, and generally cross open agricultural fields.

7.6.55 There are limited PRoW to the east of the existing Black Cat roundabout across Alington Hill and as far as Potton Road.

7.6.56 The land between the B1046 and B1428 is crossed by broadly parallel public footpaths. They lead east from St. Neots, beneath the ECML and across or beneath the existing A428 St. Neots bypass to join a byway east of Wintringham. This byway joins the existing A428 north of Weald Farm, continuing as a bridleway north of the existing A428 to Toseland.

7.6.57 Several PRoW lead south from the settlements of Toseland, across open farmland in the valley of Gallow Brook.

7.6.58 A public footpath connects Weald Farm and Croxton south of, and parallel with, the existing A428. This continues east through the village terminating at the Church of St. James within Croxton Park.

7.6.59 Two public footpaths are located to the north of the existing A428 between Toseland Road and the B1040. A public footpath to the east of Toseland Road connects Yelling to the north and Croxton to the south and a bridleway connects Yelling and Eltisley.

7.6.60 A Pathfinder Long Distance Walk (P26) is a promoted route that passes through Yelling and Papworth Everard, crossing the narrow valleys of streams that create undulations in the landscape. This route connects with a public footpath which runs along the bottom of a valley on the southern edge of Papworth Everard.

7.6.61 A bridleway crosses open farmland to the east of Eltisley, linking the village with Caxton. This bridleway lies approximately 1 kilometre (0.6 miles) to the south of the existing A428 at its closest point.

7.6.62 A public footpath runs parallel with the existing A428 immediately to the north east of the existing Caxton Gibbet roundabout. To the south of the existing A428, and east of the A1198, a further public footpath crosses fields linking the A1198 north of Caxton with Swansley Wood farm.

Tranquillity

7.6.63 **Figure 7.6** of the Environmental Statement **[TR010044/APP/6.2]** illustrates the relative tranquillity across the study area, as mapped by the Campaign to Protect Rural England (CPRE) (Ref 7-31). This demonstrates that the tranquillity across the study area is generally in the mid-range, although it decreases in relation to the settlements and parts of the road network such as along the A1, the existing A428 to the south of St Neots and along elevated sections of Potton Road at its junction with the B1046.

7.6.64 Fieldwork surveys recorded that tranquillity surrounding the existing Black Cat roundabout, the A421, A1 and the existing A428 is influenced by a range of negative factors including views and noise of roads caused by the movement of traffic, and industrial and commercial uses (including garages and road haulage businesses). Quarrying activity at the Black Cat Quarry (east of the existing Black Cat roundabout) continue these influences as far as the River Great Ouse, but will have concluded before construction of the Scheme commences. Night time light pollution is also evident as illustrated on **Figure 7.7** of the Environmental Statement **[TR010044/APP/6.2]**. Ongoing construction of the Wintringham development at St. Neots also reduces tranquillity as far north as the existing Cambridge Road roundabout.

7.6.65 **Chapter 11, Noise and vibration** of the Environmental Statement **[TR010044/APP/6.1]** identifies a number of Noise Important Areas (NIA) within the study area. These include two separate NIAs on the existing A1 to the north of the existing Black Cat roundabout between South Brook and The Lane, and at a further point adjacent to Wyboston Lakes, and smaller NIAs present on Bedford Road to the west of Roxton, at Wintringham Hall and to the east of Caxton Gibbet Services.

7.6.66 The land east of the River Great Ouse is generally more tranquil with positive factors evident, including the openness of the landscape. Noise and visual distraction from the ECML do, however, intermittently reduce tranquillity.

7.6.67 Alington Hill is the most tranquil, where the openness of the landscape is higher and there is a greater perceived naturalness, lower noise and visibility of urban development. Public access in this area is, however, limited with few public roads and PRoW.

7.6.68 North of Potton Road, urban development and industry around St. Neots, becomes more apparent with an increase in perception and noise. This includes the presence of the Little Barford Power Station the existing A428 and the ECML. To the east and north of the existing Cambridge Road roundabout through to the existing Caxton Gibbet roundabout, general signs of human influence are less evident but the presence of the existing A428 remains a notable detractor. There are also other, taller influences in the wider landscape such as the Cotton Farm and Common Barn wind farms which are prominent on the skyline to the north.

7.6.69 In summary, tranquillity within the study area is reduced by major infrastructure and human influences are apparent across much of the wider landscape. There are a few areas where human influence is reduced, principally across the top of Alington Hill, which is remote owing to a lack of urban development and public access. This conclusion is consistent with CPRE's tranquillity mapping (Ref 7-31).

Night time

7.6.70 The extent of existing lighting within the night sky varies across the study area. This is evident in CPRE's *Light Pollution and Dark Skies* map (Ref 7-30); the applicable section is reproduced on **Figure 7.7** of the Environmental Statement **[TR010044/APP/6.2]**. This shows that the A1 corridor, including the existing Black Cat roundabout, the existing A428 from the Wyboston interchange, extending north to the existing Cambridge Road roundabout east of St. Neots, range from colour band 5 (2 – 4 nw/cm2/sr)[3] to colour band 9 (>32 nw/cm2/sr), which is the highest band. This indicates a moderate to high night time brightness, which coincides with lit sections of the road network, industrial and residential areas. Fieldwork surveys indicate that sky glow is apparent across this area, particularly on cloudy nights.

7.6.71 Much of the area east of the existing Black Cat roundabout through to Potton Road, the B1046, and east of the existing Cambridge Road roundabout, north of Croxton to the Caxton Gibbet junction, fall within colour band 2 (0.25 – 0.5 nw/cm2/sr) and colour band 3 (0.5 – 1 nw/cm2/sr), where the night time sky is less affected by artificial lighting and is therefore noticeably darker.

7.6.72 The area east of St. Neots between Potton Road and the existing Cambridge Road roundabout lies within an area affected by light spill from St. Neots and the existing A428, falling broadly into colour band 4 (1 – 2 nw/cm2/sr) and colour band 5 (2 – 4 nw/cm2/sr). There are similar levels of lighting at Croxton and Eltisley and an increased level of lighting associated with the existing Caxton Gibbet roundabout and Papworth Everard, which fall within colour band 7 (8 – 16 nw/cm2/sr).

[3] Nw/cm2/sr refers to night time brightness levels measured in nanowatts/cm2/steradian.

7.6.73 Principal sources of artificial lighting in the study area include street lamps, car park lighting, infrastructure related with commercial and industrial uses, and vehicles travelling on the road network. Particularly intense sources of light include the golf driving range at Wyboston Lakes, the Little Barford Power Station and the crane hire business located to its immediate north, and industrial development along the eastern edge of St. Neots.

7.6.74 Further details on existing night time lighting are provided where relevant in the descriptions of LLCA in **Appendix 7.3** of the Environmental Statement **[TR010044/APP/6.3]** and the descriptions of existing views in **Appendix 7.4** of the Environmental Statement **[TR010044/APP/6.3]**.

Future baseline

7.6.75 As detailed in **Chapter 4, Environmental assessment methodology** of the Environmental Statement **[TR010044/APP/6.1]**, a review has been undertaken to determine whether the existing baseline conditions might change between the time of undertaking the assessment and the future years in which the Scheme is planned to be constructed and become operational.

7.6.76 Consideration was given to the following types of change that could potentially alter the landscape and visual environment:

a. The natural evolution of the landscape, for example whether the growth of existing vegetation would alter existing landscape character and how its components feature in existing views.

b. The loss of features and components of the landscape, for example as a consequence of landtake from planned developments in the area, leading to changes in landscape character and the opening of existing views for visual receptors.

c. The introduction of new built form and infrastructure into the existing landscape and available views, which changes the character, value and appreciation of the local landscape and features in existing views.

d. The introduction of new receptors, for example residents of new dwellings under construction that are expected to become occupied and subsequently be exposed to awareness of Scheme construction and/or operation.

7.6.77 The review included an evaluation of the planned development projects identified in **Chapter 15, Assessment of cumulative effects** of the Environmental Statement **[TR010044/APP/6.1]**. This involved:

a. The identification of any permitted (i.e. consented) development projects within the assessment study area that have yet to be implemented.

b. Analysis of the likely environmental effects and planned timescales for each identified development project.

c. An assessment of the potential for each identified development project to change the baseline in the construction year (2022) and opening year (2026) of the Scheme, in the manner described above.

7.6.78 The following sections summarise the principal changes expected to occur within the baseline.

Construction year baseline (2022)

7.6.79 The landform across the study area would reflect the existing baseline identified through the LVIA during 2019 and 2020 and would remain the low-lying floodplain of the River Great Ouse in the west of the study area rising to a plateau in the east.

7.6.80 The vegetation pattern would reflect the existing baseline, with a combination of roadside hedgerows and blocks of woodland interspersed across a predominantly open landscape. The agricultural land use would remain, comprising predominantly large-scale arable fields with smaller pockets of pasture clustered around villages and some farmsteads. The RPG at Croxton Park and its wooded setting would remain.

7.6.81 The settlement pattern would broadly reflect the existing spatial distribution of St Neots and surrounding villages. This includes the principal settlement patterns associated with St Neots and the more developed mixed settlement and land use pattern, extending along the A1 / existing A428 corridor between Roxton and St Neots. It also includes the more sparsely settled areas east of St Neots, along the existing A428 including Croxton and Eltisley, which lie to the south of the existing A428 road.

7.6.82 The existing A428, A1 and A421 would remain the main road networks, and the existing Black Cat roundabout and existing Caxton Gibbet roundabout would remain the principal junctions in the study area.

7.6.83 The PRoW network would reflect the existing baseline, as illustrated on **Figure 7.5** of the Environmental Statement **[TR010044/APP/6.2]**.

7.6.84 A review of committed developments within the study area, at the time of assessment, identified that the following are expected to expand or alter the land use changes and settlement patterns in the study area, principally around St Neots and Cambourne:

a. Initial phase of a mixed use urban extension at Wintringham. This is planned to include residential development of up to 2,800 dwellings (C3), up to 63,500 sqm of employment development (B1-B8), District Centre including shops, services, community and health uses (A1-A5, D1 & D2), Local Centre (A1-A5), a temporary primary school, two permanent primary schools, open space, play areas, recreation facilities and landscaping, strategic access improvements including new access points from Cambridge Road and the existing A428 (ref: 17/02308/OUT).

b. Initial phase of a mixed use development at Loves Farm Eastern Expansion Development Area. This is planned to include phased development of up to 1,020 dwellings, up to 7.6ha of mixed uses including a nursery/crèche (Use Class D1), public house (Use Class A4), hotel (Use Class C1), care accommodation (Use Class C2) and employment uses (Use Class B1), a primary school (Use Class D1), formation of new access junctions onto Cambridge Road, connections with Loves Farm, on-site roads and pedestrian / cycle routes and other related infrastructure (ref: 1300388OUT).

c. Initial phase of a mixed use development on Land to The West Of Cambourne (Excluding Swansley Wood Farm). This is planned to include development of up to 2,350 residential units including affordable housing retail use classes A1-A5 (up to 1.04 ha) offices/light industry use class B1 (up to 6.25ha) community and leisure facilities use class D1 and D2 (up to 0.92 ha), two primary schools and one secondary school (up to 11 ha) use class D1 three vehicular access points including the extension and modification of Sheepfold Lane a four arm roundabout provided on A1198/Caxton Bypass and an access point off the A1198 south of the Caxton Gibbet to serve the proposed employment uses a network of segregated pedestrian and cycle routes sustainable drainage system and other infrastructure together with associated earth works, parking, open space including equipped play playing fields and landscaping (ref: S/2903/14/FL).

d. Mineral extraction and restoration at the Black Cat Quarry to include extraction of sand and gravel as an extension to Black Cat Quarry with restoration to agriculture and nature conservation (ref: 15/02551/EIAWM and 17/00462/AOC).

7.6.85 A small section of Phase 1 of the mixed-use urban extension at Wintringham is complete and a small number of residential properties are expected to be occupied at the beginning of 2021. These include a section of the development that lies directly to the west of the existing Cambridge road roundabout, south of Cambridge Road, St Neots. These residents have therefore been included within the visual baseline section with reasonable estimates of receptors.

7.6.86 The visual amenity of the identified visual receptors would also remain due to the open character of the landscape and retention of the above features as per the baseline. During construction phased sections of the above developments will lead to new receptors being in place by either the construction baseline (2022) or the opening baseline (2026).

Opening year baseline (2026)

7.6.87 Landform, land cover and land use would remain as reported above for the construction year baseline. The RPG at Croxton Park and its wooded setting would remain.

7.6.88 The settlement pattern would reflect the existing spatial distribution of St Neots and surrounding villages and the incorporation of buildings and developments set out above.

7.6.89 The existing A428, A1 and A421 would remain the main road networks, and the existing Black Cat roundabout and existing Caxton Gibbet roundabout would remain the principal junctions in the study area. There would be an additional roundabout on the existing A428 east of St. Neots to facilitate access to the new Wintringham development.

7.6.90 Mineral extraction at the Black Cat quarry would have ceased and the profiles of the waterbodies creased would have been restored in line with the environmental masterplan illustrated on **Figure 2.4** of the Environmental Statement **[TR010044/APP/6.2]**.

7.6.91 The PRoW networks would reflect the existing baseline, as illustrated on **Figure 7.5** of the Environmental Statement **[TR010044/APP/6.2]**.

7.6.92 A review of committed developments within the study area identified that the following would introduce a number of buildings and facilities within the St Neots area, including:

a. 1,450 residential properties and employment areas within Phase 1 of the urban extension at Wintringham.

b. Residential properties and the school within initial sections of Phase 2 of the urban extension at Wintringham.

c. Subsequent phases of development at Loves Farm eastern expansion development area.

d. Subsequent phases of development on land to the west of Cambourne (excluding Swansley Wood Farm) with approximately 150 – 220 residential units being completed each year.

7.6.93 The visual amenity of the identified visual receptors would also remain due to the open character of the landscape and retention of the above features as per the baseline.

Landscape baseline

7.6.94 Landscape character assessment is defined within *LA 107* (Ref 7-23) as the *"process of identifying and describing variation in character of the landscape - the unique combination of elements and features that make landscapes distinctive - to assist in managing change in the landscape"*.

7.6.95 Natural England's '*An approach to Landscape Character Assessment'* (Ref 7-26) notes the use and purpose of key characteristics, stating:

"Key characteristics are those combinations of elements which help give an area its distinctive sense of place. If these characteristics change, or are lost, there will be significant consequences for the current character of the landscape. Key characteristics are particularly important in the development of planning and management policies. They are important for monitoring change and can provide a useful reference point against which landscape change can be assessed. They can be used as indicators to inform thinking about whether and how the landscape is changing and whether, or not, particular policies – for example - are effective and having the desired effect on landscape character."

7.6.96 **Appendix 7.3** of the Environmental Statement **[TR010044/APP/6.3]** includes a detailed description of the landscape baseline. The following sections summarise this information and identify the landscape receptors referred to in the assessment.

Published landscape character assessments

7.6.97 Relevant national, regional, county and district scale published landscape character assessments have been reviewed as part of the LVIA to identify the key features and characteristics of the study area. This information has been used to inform the iterative design process and assess the likely impacts and effects as a result of the Scheme.

National Character Areas

7.6.98 National Character Areas (NCA), which have been defined by Natural England, are broad scale and provide context to more detailed studies of local landscape character.

7.6.99 The Scheme and the majority of the study area lies within *NCA 88: Bedfordshire and Cambridgeshire Claylands* (Ref 7-33). *NCA 90: Bedfordshire Greensand Ridge* (Ref 7-34) extends into the south-eastern corner of the study area, as shown on **Figure 7.8** of the Environmental Statement **[TR010044/APP/6.2]**.

Regional landscape character types

7.6.100 The *East of England Landscape Framework* (Ref 7-35), established by the Landscape East forum, sets out a landscape typology for the region, which is a structured, spatial framework for describing and evaluating the character of the countryside.

7.6.101 The typology breaks the region down into landscape character types (LCTs), two of which are relevant to the study area:

a. Lowland Village Farmlands.

b. Wooded Village Farmlands.

7.6.102 These LCTs, which are shown on **Figure 7.8** of the Environmental Statement **[TR010044/APP/6.2]**, have informed the definition of LLCAs.

County landscape character assessment

7.6.103 The *Cambridgeshire Landscape Guidelines – A Manual for Management and Change in the Rural Landscape* (Ref 7-36) was published in 1991 but remains the relevant document for the eastern part of the study area, within Huntingdonshire and South Cambridgeshire.

7.6.104 Two key LCAs identified in the guidelines are relevant to the study area:

a. Western Claylands.

b. Ouse Valley.

7.6.105 These LCAs have been used to inform landscape character assessments at the district level, the extents of which are illustrated on **Figure 7.9** of the Environmental Statement **[TR010044/APP/6.2]**.

District landscape character assessments

7.6.106 The study area is also covered by several published landscape character assessments at the district level, the extents of which are illustrated on **Figure 7.9** of the Environmental Statement **[TR010044/APP/6.2]**.

7.6.107 The following sections define each LCA from west to east across the study area.

Bedford Borough Landscape Character Assessment, and Central Bedfordshire Landscape Character Assessment

7.6.108 Bedford Borough Council (Ref 7-37) and Central Bedfordshire Council (Ref 7-38) have published separate but integrated Landscape Character Assessments. These documents cover the land around the existing Black Cat roundabout and north towards Wyboston, St Neots and Little Barford. Those LCAs of relevance to the study area are summarised below.

7.6.109 The western end of the study area lies within the southern fringes of LCA1E: Renhold Clay Farmland, and LCA1D: Thurleigh Clay Farmland lies within the north-western extents of the study area.

7.6.110 LCA1D and LCA1E are characterised by gently undulating landform and a flatter, elevated plateau in the west with an underlying geology of Oxford Clay, overlain with Boulder Clay. This supports a large-scale, open landscape of intensive arable farmland with a pattern of fragmented hedges and remnant, mature hedgerow trees and some scattered woodland. Shallow valleys formed by small tributaries of the River Great Ouse are tree-lined, with clustered rural settlements which are generally of low density.

7.6.111 The existing Black Cat roundabout, the A1 corridor and land towards the River Great Ouse towards Wyboston and St Neots lie within LCA4A: Great Ouse Clay Valley, the extents of which continue along the river to the south-west and to the south along the A1.

7.6.112 The area between Barford Road and the south side of Alington Hill lies within LCA5F: Biggin Wood Clay Vale. This LCA continues to extend to the south and east towards Sandy and the Greensand Ridge.

7.6.113 Alington Hill lies within the central sections of LCA1C: Alington Hill Clay Farmland and continues to extend to the east and west. This LCA was defined within the superseded *Bedford Borough Landscape Character Assessment* (Ref 7-39) published in 2007[4] but has been included in the assessment as it provides further detail on the character of this area.

7.6.114 LCA6C: Everton Heath Greensand Ridge is located in the southern extents of the study area beyond LCA5F and forms a ridge of high ground orientated from northeast to south-west, elevated above the intervening clay vale.

[4] LCA1C was formerly defined as a separate LCA in the 2007 *Bedford Borough Landscape Character Assessment* (Ref 7-39) but is now incorporated within LCA5F. This area has been included separately for the purposes of the LVIA as it helps to explain the local change in character within the study area and provides a further level of detail in understanding the baseline.

Huntingdonshire District Landscape and Townscape Assessment

7.6.115 The landscape character across the central part of the study area from St Neots, to Yelling and Abbotsley, is defined within the *Huntingdonshire Landscape and Townscape Assessment* (Ref 7-40). Those LCAs of relevance to the study area are summarised below.

7.6.116 LCA4: Ouse Valley lies to the west of the B1046 / Potton Road junction and continues to extend northwards through the central sections of St. Neots.

7.6.117 From the south side of the B1046 / Potton Road junction through to the north of Eltisley lies LCA5: South East Claylands. This LCA is large and continues to extend to the north, beyond the study area.

7.6.118 LCA8: Southern Wolds lies to the north west of St Neots. A small part of this LCA covers the north-western extents of the study area and it continues to extend beyond the study area to the north.

South Cambridgeshire District Landscape Character Assessment

7.6.119 The eastern parts of the study area, including the settlements of Croxton, Eltisley and Papworth Everard and Cambourne, are defined within the *Cambridgeshire Landscape Guidelines – A Manual for Management and Change in The Rural Landscape* (Ref 7-36).

7.6.120 These parts are covered by the Western Claylands (LCA3), which also extends across LCA5 within the Huntingdonshire district. This LCA extends to the south-east and north-east beyond the limits of the study area.

Summary of published landscape character assessments

7.6.121 The review of the published landscape character assessments has identified four key characteristics which strongly influence the character of the study area:

a. Broad, meandering course of the River Great Ouse within the low-lying floodplain with a mixed pattern of land use.

b. Gently undulating landform, heavy clay soils supporting intensive arable farming and a pattern of large fields, areas of extensive woodland cover and tall hedgerows with frequent mature hedgerow trees.

c. Scattered historic landscape features set within the pattern of large-scale arable fields. The historic parkland landscape of Croxton Park with extensive woodland blocks occupies a large area south of the existing A428.

d. An industrial / post-industrial landscape defined by the A1 / existing A428 corridor with major road, rail, power and industry defining a more developed, mixed land use pattern and urban fringe character.

Local Landscape Character Areas

7.6.122 The scale of the LCAs defined in published landscape character assessments is generally large. Therefore, a total of 16 Local Landscape Character Areas (LLCA) has been identified to provide a finer level of detail to inform the assessment of landscape effects.

7.6.123 These LLCA, the location and extents of which are illustrated on **Figure 7.10** of the Environmental Statement **[TR010044/APP/6.2]**, have been defined through desk study and fieldwork surveys to detail existing landscape character at a more relevant and proportionate scale to the Scheme.

7.6.124 The key characteristics, value, susceptibility to change, and sensitivity of each LLCA and how they relate to the LCAs defined in published landscape character assessments are provided in **Appendix 7.3** of the Environmental Statement **[TR010044/APP/6.3]**.

Visual baseline

7.6.125 This section describes the visual baseline with reference to the visual receptors and representative viewpoints identified within the study area through a review of ZTVs and fieldwork surveys.

Zones of Theoretical Visibility

7.6.126 The following ZTVs which accompany the Environmental Statement **[TR010044/APP/6.2]** have been prepared to inform the visual assessment:

a. **Figure 7.14.1** – Zone of Theoretical Visibility (ZTV) - Operation: whole Scheme, bare earth
b. **Figure 7.14.2** – Zone of Theoretical Visibility (ZTV) - Operation: whole Scheme, screened.
c. **Figure 7.14.3** – Zone of Theoretical Visibility (ZTV) - Operation: Black Cat junction, bare earth.
d. **Figure 7.14.4** – Zone of Theoretical Visibility (ZTV) - Operation: Black Cat junction, screened.
e. **Figure 7.14.5** – Zone of Theoretical Visibility (ZTV) - Operation: Cambridge Road junction, bare earth.
f. **Figure 7.14.6** – Zone of Theoretical Visibility (ZTV) - Operation: Cambridge Road junction, screened.
g. **Figure 7.14.7** – Zone of Theoretical Visibility (ZTV) - Operation: Caxton Gibbet junction, bare earth.
h. **Figure 7.14.8** – Zone of Theoretical Visibility (ZTV) - Operation: Caxton Gibbet junction, screened.

7.6.127 The bare earth ZTVs indicate the potential for wide ranging views of the Scheme across the study area, whilst the screened ZTVs demonstrate how existing buildings and woodland blocks would limit the extent of views.

7.6.128 The ZTVs have been used to help identify sensitive visual receptor groups and locate representative viewpoints. Fieldwork surveys have shown that other vegetation not modelled into the ZTV, for example along field boundaries and in private gardens, further reduces the extent of visibility. This is recorded in the baseline sections of the VES in **Appendix 7.4** of the Environmental Statement **[TR010044/APP/6.3]**.

Visual receptors

7.6.129 Visual receptors likely to experience views of the construction or operation of the Scheme were identified through interrogation of the ZTVs and fieldwork, and subsequently categorised into the following types:

a. Residents.

b. Commercial.

c. Users of PRoW.

d. People traveling through the area on roads and trains.

7.6.130 Where a collection of visual receptors in the same category are likely to experience similar views, these were grouped. In total, 185 visual receptor groups have been identified.

7.6.131 A detailed description of the baseline view experienced by each visual receptor group is provided in **Appendix 7.4** of the Environmental Statement **[TR010044/APP/6.3]**.

Representative viewpoints

7.6.132 Representative viewpoints have been identified and used to inform the assessment of visual effects. These viewpoints, which have been agreed with the relevant local planning authorities, have been selected to represent a range of close, middle and long-distance views from various receptor groups including residents, recreational users and people travelling through the area.

7.6.133 Descriptions of the baseline view from these viewpoints are provided in the VES in **Appendix 7.4** of the Environmental Statement **[TR010044/APP/6.3**], which also indicates which viewpoints are relevant to each visual receptor group.

7.6.134 The VED presented on **Figures 7.11** – **Figure 7.13** of the Environmental Statement **[TR010044/APP/6.2]** illustrate the location of each representative viewpoint in relation to the Scheme and the study area.

7.6.135 Winter and summer photographs of the existing baseline view are included for each representative viewpoint, as agreed with the relevant local planning authorities. Verifiable photomontages (Landscape Institute Type 4) are presented for 18 of the viewpoints (winter and summer), and annotated photographs (Landscape Institute Type 1) are presented for the remaining 35 viewpoints. These are shown on **Figure 7.15.1** – **Figure 7.15.53** of the Environmental Statement **[TR010044/APP/6.2]**.

Summary of the visual baseline

7.6.136 Desk study and fieldwork surveys have identified three principal areas within the study area which strongly influence visual amenity. These areas have been used to help describe the visual baseline and effects:

a. The existing Black Cat roundabout to the ECML, including the meandering course of the River Great Ouse within the low-lying floodplain with a mixed pattern of land use.

b. ECML to the Cambridge Road roundabout, including the higher ground of Alington Hill and the undulating landscape to the north defined by Hen Brook and Wintringham Brook.

c. Cambridge Road roundabout to the existing Caxton Gibbet roundabout, where blocks of woodland and parkland trees result in a range of short to long distance views across the rural landscape.

The existing Black Cat roundabout to the ECML

7.6.137 At the western end of the study area, residential receptors and users of PRoW at Roxton and Chawston are located in a relatively flat landscape. This includes receptors with views influenced by major infrastructure, including the existing Black Cat roundabout. Residents, commercial receptors and users of PRoW in Tempsford and Little Barford have views north across the open landscape, with the existing A1, the existing Black Cat roundabout and ECML featuring in the background. Users of the A1, Roxton Road and Barford Road have fleeting views which include major infrastructure.

7.6.138 Residential receptors at Brook Cottages, both of which are assumed to be currently inhabited and commercial receptors relating to the existing Black Cat Services at the existing Black Cat roundabout are not included in the assessment as these buildings would be demolished as part of the construction of the Scheme.

ECML to the Cambridge Road roundabout

7.6.139 Views east of the ECML are characterised by the more elevated landscape of Alington Hill, which lacks settlement. This gives rise to more open views across the valley of the River Great Ouse to the west and St. Neots to the north. Visual receptor groups include residents of Little Barford and Potton Road.

7.6.140 PRoW are limited across Alington Hill but there are a number of routes across the open landscape east of St Neots. Views from residential areas of St Neots are limited to the eastern edge, across the ECML and existing A428. The baseline east of St. Neots is evolving as the Wintringham development progresses, introducing further residential receptors.

Cambridge Road junction to the existing Caxton Gibbet junction

7.6.141 The landscape east of the existing Cambridge Road roundabout is sparsely populated and mostly limited to settlements north and south of the existing A428. There are occasional residential receptors adjacent to the existing A428, particularly at Wintringham and Croxton. Views from PRoW south of Toseland and Yelling across the gently undulating landscape are disrupted by blocks of woodland and vegetation on field boundaries. Croxton is enclosed by dense woodland and mature trees and views north towards the route of the Scheme are heavily screened.

7.6.142 At Eltisley the landscape becomes more open, giving rise to longer distance views from PRoW. The village itself is enclosed by dense vegetation, with occasional views north and east from the edge where there are gaps. Commercial and residential receptors on the southern edge of Papworth Everard have views south towards the existing Caxton Gibbet roundabout, limited by the undulating topography and intervening vegetation. Views west from Cambourne are limited by vegetation around the settlement and the existing A428 and A1198 Ermine Street.

7.7 Potential impacts

7.7.1 The scoping exercise identified that the introduction and/or modification of road infrastructure associated with the Scheme would potentially result in different types and durations of impact on landscape character and visual amenity, during both the construction and operational phases.

Construction

Landscape impacts

7.7.2 Impacts on landscape during construction of the Scheme are likely to include the following:

a. Site clearance operations to remove vegetation, including hedgerows, trees and woodland, soil stripping and the demolition of existing buildings and structures, which could increase the openness of the landscape.

b. The introduction of temporary compounds, stockpiles, machinery, haul roads, borrow pits and associated buildings, temporary fencing, signage and lighting within the landscape, which would temporarily increase the extent of built development.

c. General construction activity and operations, and the movement of construction plant and machinery, which could temporarily increase levels of activity within the Order Limits.

d. Operations to remove vegetation, including hedgerows, trees and woodland, and buildings and structures as part of site clearance works, which may alter the pattern or balance of components that combine to inform the local landscape character.

Visual impacts

7.7.3 Impacts on visual receptors during construction of the Scheme are likely to include the following:

a. The removal of vegetation, buildings and structures as part of site clearance works may open up views towards construction working areas or the wider landscape beyond.

b. The introduction of temporary compounds, stockpiles, machinery, haul roads, borrow pits and associated buildings, temporary fencing, signage and lighting and the construction of the Scheme may detract from the quality of existing views.

Operation

Landscape impacts

7.7.4 Impacts on landscape during the operational phase of the Scheme are likely to include:

a. Loss of existing vegetation and localised changes in natural landforms including the introduction of cuttings, embankments and bunds, which may alter the topography, cause severance in the landscape and fragmentation of existing landscape elements (for example woodland and hedgerows).

b. The introduction of major highway infrastructure, including new carriageway, and structures into the rural landscape.

c. Increased scale of new grade separated junctions at the Black Cat, Cambridge Road and Caxton Gibbet junctions.

d. Realignment of local roads and PRoW, altering patterns of movement.

e. The introduction of dominant vertical elements including new signage gantries, variable message signs (VMS), closed circuit television (CCTV) cameras and lighting columns.

f. Increased influence and dominance of traffic moving at speed through the landscape resulting in reduced tranquillity.

g. Increased light spill and impacts on the character of the landscape at night, particularly lit sections around grade separated junctions.

Visual receptors

7.7.5 Impacts on visual receptors during the operational phase of the Scheme are likely to include the following:

a. Views of major highway infrastructure including junctions and bridges, new signage gantries, CCTV cameras and lighting columns.

b. Views of other elements including environmental bunds, attenuation basins, borrow pits and ecological mitigation areas and ponds.

c. Views of traffic moving at speed and at elevated positions, through views of the landscape.

d. Light spill in localised areas around grade separated junctions and vehicles travelling along the new dual carriageway at night.

e. Screening, for example by bunds, structures, fences or proposed planting, reducing the extent of existing views.

7.8 Design, mitigation and enhancement measures

Embedded mitigation

7.8.2 The Scheme has been designed, as far as possible, to avoid adverse effects on the landscape and views through option identification, appraisal, selection and refinement, as described in **Chapter 3, Assessment of alternatives** of the Environmental Statement **[TR010044/APP/6.1]**.

7.8.3 Modifications made to the design of the Scheme to avoid effects include:

a. Limiting the extent of temporary and permanent landtake within the Order Limits, where possible, to retain established vegetation and features that contribute to landscape character and visual amenity.

b. Modifying the horizontal alignment of the new dual carriageway to avoid impacts on valued landscape features, for example a veteran Elm tree located to the north of Hen Brook and the Croxton Park RPG.

7.8.4 Measures have been integrated (embedded) into the Scheme to minimise effects on landscape character and visual amenity. These measures are described in **Chapter 2, The Scheme** of the Environmental Statement **[TR010044/APP/6.1]** and in summary include the following:

a. Optimising the horizontal and vertical alignment of the new dual carriageway in a way that seeks to minimise impacts associated with crossing valleys and landform within the landscape.

b. Reducing the levels of the three-tier Black Cat junction to bring the A1 lower to ground -1, reducing visual impacts.

c. The positioning of sections of the new dual carriageway in cuttings and between blocks of existing vegetation to visually contain much of the carriageway and its associated infrastructure and traffic movements from existing views by receptors in close range and more distant views.

d. Designing earthwork slopes to gradients that soften their appearance and achieve good integration with the rural landscape.

e. Confining lighting on new and improved sections of road within the Scheme to locations where road safety is a priority, to minimise the potential for light spill in night time views.

f. Designing lighting to minimise light spill.

g. Optimising zones within construction compounds to minimise their temporary impact on the landscape and views, including at night.

h. Designing permanent structures, such as footbridges, in a way that minimises their visual impact.

i. Returning and reinstating land used temporarily to its former condition and profiles, where appropriate.

j. The development and inclusion of a comprehensive landscape strategy (described in the ‘landscape strategy’ section below).

Landscape strategy

Overview and principles

7.8.5 A landscape strategy for the Scheme was developed early in the design-development process, and referenced the 'vision' set out in Highways England's *The Road to Good Design* (Ref 7-41). This requires the road network to *"reflect in its design the beauty of the natural, built and historic environment through which it passes, and enhancing it where possible".*

7.8.6 In developing the landscape strategy, regard was given to the requirements and design principles contained in *LD 117: Landscape Design* (Ref 7-42) which states that *"integration and minimising the impact of disturbance of new roads within the rural or urban landscapes and improving the landscape character of existing roads is the basis for good environmental landscape design"*.

7.8.7 *LD 117* (Ref 7-42) also states that *"A project's design strategy shall establish a landscape strategy (design vision) and/or a set of defined landscape objectives for the project early on in the development of motorway and all purpose trunk road projects as an essential part of the design process"*.

7.8.8 Consideration was also given to:

a. The recommendations contained within relevant landscape guidelines, including Natural England Statements of Environmental Opportunity (SEO) outlined in *NCA88* (Ref 7-33).

b. Guidance contained in *LD 119 Roadside environmental mitigation and enhancement* (Ref 7-43) relating to the design of earth bunds and planting.

c. Guidance contained within *Infrastructure Technical Guidance Note 04/20* (Ref 7-28).

7.8.9 Further details of the design principles underpinning the landscape strategy are presented in the LEMP within the First Iteration EMP **[TR010044/APP/6.8]**.

Aims and objectives

7.8.10 The overall objective of the landscape design is to integrate the Scheme into its landscape setting and eliminate or minimise adverse landscape and visual effects as far as practicable.

7.8.11 The design has been developed in collaboration with the wider highway design team and other specialists to achieve a solution that achieves this objective whilst maximising opportunities to deliver net gains in biodiversity gain.

7.8.12 Accordingly, the landscape design aims to achieve the following:

a. To integrate the Scheme into the existing landscape pattern as far as possible by retaining and following existing features, including vegetation, where practicable.

b. To replace vegetation lost because of construction of the Scheme through areas of new planting.

c. To filter and screen more prominent components of the Scheme in views from visual receptors.

d. To provide visual interest to people travelling along the Scheme and the existing network of local roads and PRoW.

7.8.13 The Environmental Masterplan for the Scheme, which places the landscape design within the wider framework of other environmental mitigation measures for biodiversity, drainage and noise, is presented on **Figure 2.4** of the Environmental Statement **[TR010044/APP/6.2]**.

7.8.14 A series of illustrated landscape cross-sections through points in the Scheme have also been prepared to assist in describing landscape and visual effects and the mitigation proposed. These are presented on **Figure 7.16.01** – **7.16.07** of the Environmental Statement **[TR010044/APP/6.2]**.

7.8.15 Details of the landscape measures embedded into the Scheme design, including a summary of their environmental functions and objectives, is presented in **Chapter 2, The Scheme** of the Environmental Statement **[TR010044/APP/6.1]**.

Essential mitigation

7.8.16 Measures have been identified which would be implemented by the Principal Contractor to reduce the effects that construction of the Scheme is likely to have on landscape and views.

7.8.17 The First Iteration EMP **[TR010044/APP/6.8]** details the general construction measures that would be implemented during construction of the Scheme to mitigate temporary effects. These measures focus on:

a. Maintaining well-managed and tidy construction working areas and site compounds to minimise their visual impact and appearance in the landscape.

b. Ensuring that materials are delivered on an ‘as and when’ basis, to minimise the potential for stockpiling and associated visual impact.

c. So far as practicable, stockpiles of top soil and plastic wet soil will be no higher than 2 metres in order to reduce their visual impact.

d. The retention and protection of trees in proximity to construction working areas, to avoid damage to existing vegetation.

e. Finishing site offices and facilities within the main construction compound in a recessive colour to blend into the local landscape and immediate surroundings.

f. Keeping construction lighting to the minimum luminosity necessary for safe working within construction compounds and working areas and where possible, fitting it with motion sensors to minimise the duration of potential light spill in night time views. Lighting will also be designed, positioned and directed so as not to unnecessarily intrude on adjacent buildings, ecological receptors, structures used by protected species and other land uses to prevent unnecessary disturbance, interference with local residents, railway operations, passing motorists, or the navigation lights for air or water traffic.

7.8.18 The Principal Contractor would be responsible for undertaking landscape management within the five year establishment period, after which the longer term maintenance and management responsibilities would transfer to Highways England. The outline requirements for maintenance to achieve successful establishment of the landscape measures are presented in the LEMP within the First Iteration EMP **[TR010044/APP/6.8]**.

7.8.19 The Principal Contractor would be responsible for the preparation of the Second Iteration EMP during the construction contract period, the content of which would be based on, and would refine, the outline measures within the First Iteration EMP **[TR010044/APP/6.8]**.

7.8.20 At the end of the construction stage, the Principal Contractor would be responsible for the preparation of a Third Iteration EMP. This would refine the content of the Second Iteration EMP and provide information relating to existing and future environmental commitments that would need to be delivered. The Third Iteration EMP would also include specific requirements concerning the long-term maintenance and management of all landscaping incorporated into the Scheme.

7.9 Assessment of significant effects

7.9.1 In accordance with *LA 104* (Ref 7-22), the prediction of landscape and visual impacts and the assessment of effects (and their significance) associated with construction and operation of the Scheme has taken account of the effectiveness of both embedded and essential mitigation measures.

Construction: Winter Year 2022 – 2026

Landscape effects of construction

7.9.2 The following section provides a summary of the significant landscape effects that would result from the construction of the Scheme.

7.9.3 A detailed assessment of all landscape effects, including those that are considered not significant, is reported in **Appendix 7.3** of the Environmental Statement **[TR010044/APP/6.3]**.

The existing Black Cat roundabout to the ECML

7.9.4 Around the existing Black Cat roundabout and across the valley of the River Great Ouse, construction activity would be widespread. This would affect parts of LLCA 01, LLCA 02, LLCA 03, LLCA 04 and LLCA 05, with construction introducing a range of temporary facilities and land use changes including multiple purpose construction areas, compounds, materials storage and borrow pits.

7.9.5 The construction of the elevated sections of the Black Cat junction would also require the removal of some small areas of existing vegetation. The construction of this part of the Scheme would last up to two years and would result in localised, temporary and permanent changes to landform and landcover patterns.

7.9.6 Construction activities within LLCA 01, LLCA 02 and LLCA 03 would be in the context of existing large-scale road infrastructure which heavily influences existing character locally. The effects in LLCA 01 would be limited given the scale of the activities related to modifying the existing A421 and only affecting a small section of the LLCA. However, there would be a range of temporary adverse effects within LLCA 02 and LLCA 03 with extensive disruption to the physical components and character of the landscape.

7.9.7 Within LLCA 02 and LLCA 03 there would be major excavation and earthworks to excavate the A1 (ground -1) to a depth of approximately 10m metres below existing ground levels. There would also be other major earthworks including the excavation and filling in of borrow pits to the north of the existing A421 and east of the A1, north of the existing Black Cat roundabout and attenuation features to the west of the existing A1.

7.9.8 Traffic would be diverted while works are carried out for the formation of the Black Cat junction and the new elevated section of the Black Cat junction on approximately 15 metre high embankments. Further construction activities would also include construction of the Roxton Road link between Roxton Road and The Lane, and the construction of the River Great Ouse viaduct.

7.9.9 These construction activities would include operations to alter landform and remove existing vegetation around the existing Black Cat roundabout, along the A1 corridor and across a section of the River Great Ouse valley. These works would also include the removal of sections of existing road and bridge structures, and the demolition of buildings including the Grade II listed Brook Cottages, Travelodge hotel and Black Cat services.

7.9.10 The effects of this activity on the character of LLCA 02, would be localised to the northern fringes to the north and east of Roxton where changes would be in the context of the existing road infrastructure and the existing Black Cat roundabout. The effects would then diminish to the south of Roxton and the pattern of characteristics associated with the semi-enclosed valley landscape would remain intact.

7.9.11 Within LLCA 03 the effects of construction would result in temporary changes to landform across the southern sections of the LLCA and add activity to this busy, urban fringe landscape but diminish to the north across the more settled sections of the LLCA.

7.9.12 Within LLCA 04 and LLCA 05 the construction of the River Great Ouse viaduct and ECML underbridge would require cranes and tall lifting equipment, and the localised reprofiling of the valley sides to create the embankments west and east. Such equipment would also be required as part of the construction of the realigned Barford Road and the Barford Road bridge.

7.9.13 Earthworks operations across the undulating valley east of the existing Black Cat roundabout and excavation of cuttings through the hillside east of the River Great Ouse would result in disruption to landform and landcover patterns across a section of the valley landscape and open farmland and the tranquillity of the rural landscape. The construction of this part of the Scheme would last for up to two years.

7.9.14 Within LLCA 04 and LLCA 05 construction activities would be isolated from the context of existing highway infrastructure and would therefore introduce activity and temporary structures and materials storage into sections of the landscape which are more remote and rural. However, in both LLCA 04 and LLCA 05 this activity would be localised and effects would diminish across the wider landscape. This is due to the nature of existing vegetation patterns and landform within LLCA 04 and LLCA 05 which provide some degree of containment with the wider pattern of characteristics associated with the LLCAs remaining intact.

ECML to the Cambridge Road roundabout

7.9.15 Between the ECML and the Cambridge Road roundabout there will be a range of temporary construction effects on LLCA 05, LLCA 06 and LLCA 08.

7.9.16 To the east of the ECML, construction would involve earthwork operations including the excavation of cuttings through Alington Hill. Construction vehicles on haul roads, cranes and other tall plant to construct the new ECML underbridge and the B1046 bridge would disrupt tranquillity on the northern and southern edge of the LLCA 06 area, which are open and lie above the surrounding landscape. There would be extensive temporary soil storage at several points across the area, including to the south of B1046 and to the east of the ECML. There would also be temporary satellite construction compounds, including to the south of Alington Top Farm and north of the B1046 realignment, where construction traffic would be intense.

7.9.17 Field boundary vegetation would be removed where it is intersected by the Scheme and on the southern slopes of LLCA 06. This would disrupt the pattern and tranquillity of the rural landscape and result in localised effects on landscape character within LLCA 06. Elsewhere woodland would be retained and protected.

7.9.18 In addition, night time lighting to illuminate the works and construction compounds would be conspicuous in this sparsely settled area which is relatively dark compared to the landscape to the north. These activities would be a focus for the full duration of the construction period and would involve temporary land take for construction compounds, topsoil storage and haul routes.

7.9.19 During construction, there would be further structures under construction across the open countryside in this section of the Scheme. Between the ECML and the Cambridge Road roundabout these would include the Top Farm accommodation bridge, a bridge at Hen Brook, a Footbridge, a combined walkers, cyclists and horse riders' route and maintenance track and sections of the Cambridge Road junction. The activities associated with constructing these elements would result in additional temporary changes to landform and landcover patterns with a focus of activities within LLCA 06 and LLCA 08. This would result in adverse effects through alteration of topography, causing severance in the landscape and fragmentation of existing landscape elements such as woodland and hedgerows and diversions and stopping up access on PRoW.

7.9.20 The main construction compound for the Scheme would be located to the north side of the B1046 and to the west of the existing A428 to the east of St. Neots. It would be temporary and occupy a large area of farmland in LLCA 08 along with other construction activity which would be extensive across the western half of this character area. This activity would introduce a range of new temporary buildings, vehicle parking and materials storage and intense activity for the full duration of construction in an area planned for future employment land.

7.9.21 Within LLCA 08, some existing vegetation along watercourses and field boundaries within the Scheme would be removed to facilitate construction. This would reduce the landcover and increase the perception of the construction activity across the area. The construction within the western half of the LLCA would be in the context of construction associated with the new Wintringham development, which is changing the character of the landscape between the ECML and the existing A428.

7.9.22 The main construction compound within LLCA 08 would also be lit and lighting would also be used to illuminate the works at night. Whilst light spill from St. Neots and the existing A428 to the west is apparent, this would be a noticeable intrusion into darker areas further east.

Cambridge Road junction to the existing Caxton Gibbet roundabout

7.9.23 Within this section of the Scheme to the east of St Neots, there would be extensive construction activity with a key focus across the centre of LLCA 11 and LLCA 14. Effects to LLCA 12, LLCA 13, LLCA 15 and LLCA 16 would be more limited due to a combination of distance and intervening landscape features.

7.9.24 Within LLCA 11 and LLCA 14 construction activity would disrupt the landscape pattern and reduce tranquillity of the gently undulating landscape, away from the existing A428. Vegetation would be removed from hedgerows and woodland blocks which intersect the working areas within these two LLCA.

7.9.25 The activities associated with constructing these elements would result in additional temporary changes to landform and landcover patterns. The excavation and construction of the new road would be large in scale but generally at lower points in the landscape across LLCA 11. Within LLCA 14 the activities would be aligned more closely with the existing A428 but would temporarily increase the scale and intensity of activity.

7.9.26 Within the landscape to the north of the existing A428, construction of the Cambridge Road junction and the Caxton Gibbet junction would be a focus of construction activity for the full construction period. Construction effects at these locations would include temporary construction compounds and topsoil storage, with new haul routes between these. The excavation of borrow pits would also extend across the landscape to the north of the Cambridge Road junction towards Papworth Everard resulting in temporary changes to the landform and tranquillity.

7.9.27 Further elements of the Scheme would be under construction in the open countryside including the dual carriageway, accommodation overbridges and Toseland Road bridge. The activities associated with constructing these elements would result in additional temporary changes to landform and landcover patterns, related to the removal of existing vegetation, soil stripping and excavation. There would also be temporary diversion of local roads and PRoW, affecting movement across the area.

7.9.28 At night, lighting of the compounds and works would intrude into the open landscape and would be in contrast to the relatively dark character of LLCA 11. Around the Caxton Gibbet junction within LLCA 14, this would be in the context of the existing lighting around the Caxton Gibbet roundabout.

Effects on existing vegetation

7.9.29 Existing trees within the Order Limits, including the mature Elm trees at Wintringham and trees north of Croxton Park, would be retained and protected where practicable via the measures set out within the LEMP within the First Iteration EMP **[TR010044/APP/6.8]**.

7.9.30 There would be localised removal of existing vegetation within the Order Limits at the beginning of the construction phase. Trees that would need to be removed as part of clearance works are detailed in the Arboricultural Impact Assessment Report in **Appendix 7.5** of the Environmental Statement **[TR010044/APP/6.3]**.

Effects on tranquillity

7.9.31 There would be widespread construction activity within the Order Limits resulting in adverse effects on tranquillity. These effects would be most noticeable where construction activity occurs in more remote parts of the rural landscape, where the alignment of the new dual carriageway deviates from the existing A428, for example through Alington Hill. Effects would include noise and visual disturbance and an increase in human activity, but these effects would dissipate across the wider landscape. Where the new dual carriageway would be close to the existing A428, A1 or A421 (which would remain operational during the construction phase), adverse effects on tranquillity would be less noticeable.

Night time effects on landscape character

7.9.32 Temporary lighting to illuminate the works including site compounds and from construction vehicles would be introduced within the Order Limits.

7.9.33 In the sections of the Scheme which would be constructed in the open countryside, additional sources of high intensity lighting to illuminate the works would be prominent and would result in increased localised glare. This would draw attention to the works and would result in a slight reduction in darkness of the existing night sky, particularly across LLCA 06 Alington Hill Clay Farmland and to the east of St Neots within LLCA 11 Wintringham and Weald / Toseland Clay Farmland.

7.9.34 Lighting of the main construction compound would be in the context of sky glow from St. Neots to the east but would extend these effects further south to the existing A428 across land which is currently darker.

7.9.35 Best practice measures outlined in the First Iteration EMP **[TR010044/APP/6.8]** would be employed by the Principal Contractor to ensure the lighting design reduces potential glare and upwards or sideways emission of light as far as practicable.

7.9.36 The night time effects resulting from construction have been considered in relation to each LLCA as detailed in **Appendix 7.3** of the Environmental Statement **[TR010044/APP/6.3].**

Visual effects of construction

7.9.37 The following section provides a summary of the significant visual effects that would result from the construction of the Scheme. A detailed assessment of all visual effects, including those that are considered not significant, is reported in **Appendix 7.4** of the Environmental Statement **[TR010044/APP/6.3]**.

The existing Black Cat roundabout to the ECML

7.9.38 The main activity that would be visible within this section of the Scheme would be the excavation and transportation of material from the borrow pit located west of Roxton Road and the formation of the Black Cat junction embankments and associated infrastructure.

7.9.39 The excavation of the borrow pit would become a focal point in the foreground and middle-distance of views of residential receptors to the north, on the southern edge of Chawston and users of PRoW to the west. This element of construction would become a dominant feature, in contrast to the existing views of fields with glimpses of the existing road infrastructure in the background.

7.9.40 The alterations to the landform would remove the existing bunds along the A421 on the approach to the existing Black Cat roundabout. This would result in more open views of traffic on the existing A428 for residential receptors and users of PRoW in Chawston. Similarly, construction activity would become a focal point in views of residential receptors in Roxton compared to existing views where mature vegetation on top of the existing bunds screens the traffic on the existing A421. During construction, temporary lighting would be in place to illuminate the works but would be viewed in the context of existing lighting around the existing Black Cat roundabout.

7.9.41 Activity related to the Roxton Road link would include demolition of the existing bridge and construction of the new Roxton Road bridge slightly further to the west. This activity would be visible in close range views for the users of Roxton Road and National Cycle Network route 12. Equally, residential receptors and users of PRoW on the southern edge of Chawston would also have views of this activity in the middle distance. It would be visible above the skyline due to the height of plant demolishing the existing bridge and constructing the new Roxton Road bridge.

7.9.42 Views would include the movement of large amounts of material along haul roads to construct the embankments for the on- and off-slips of the Black Cat junction and to remove excavated material. The demolition of the Shell service station, the Travelodge hotel and the Grade II listed Brook Cottages and temporary traffic management and diversions, would be prominent across the middle-ground and background of views of residential receptors in Chawston, particularly on Chawston Lane. The flat landform and the proximity of residential receptors on the northern edge of Tempsford and Roxton mean that construction activity would also be noticeable in the background of their views but in the context of the existing A421 and A1.

7.9.43 Temporary offices, lighting, fencing and construction machinery in the compound at the Black Cat Quarry would be visible at short range for local residential receptors on the eastern edge of Roxton, users of PRoW in Tempsford, residents of Kelpie Marina and at Greenacres. The compound would be readily apparent in these views, including at night as it would be lit in comparison to the relatively dark baseline.

7.9.44 The construction of the Kelpie Marina access road would require the removal of existing vegetation, earthworks and cranes and other tall construction equipment. These activities would be readily apparent in close proximity to residential receptors of Kelpie Marina and in the middle distance from Roxton and Tempsford, and users of PRoW where views would be partially screened by intervening vegetation.

7.9.45 East of the existing Black Cat roundabout the construction of the new dual carriageway, the excavation of a borrow pit, removal and storage of material and associated vehicle movements would be visible in the middle ground of views of residential receptors from the rear of properties in Chawston. This would result in a notable change compared to existing views of the River Great Ouse but in the context of existing views of the Black Cat Quarry.

7.9.46 The removal of mature vegetation along South Brook to facilitate construction of the Roxton Road link would be apparent in views looking south for residents of properties on Chawston Lane. Construction of the section up to The Lane would require further vegetation removal, making it a dominant feature in the foreground to middle ground of views.

7.9.47 Residential receptors on Barford Road in proximity to the Scheme would have middle distance views of activity associated with construction of the River Great Ouse viaduct. This would be readily apparent including extensive earthworks, construction vehicles, a compound, stockpiles and tall lifting equipment across the background on the skyline. Additional lighting at night would illuminate parts of the background of the view associated with the works and in particular the construction compound at Black Cat Quarry.

7.9.48 Activities related to the construction of the River Great Ouse viaduct would also be visible, albeit at a greater distance, for visual receptors at Kelpie Marina, Tempsford and Roxton.

7.9.49 Earthworks and construction activities related to the realignment of Barford Road and the construction of the Barford Road bridge would be visible in close proximity to residential receptors on Barford Road from the front and rear of properties and in the background of views from Tempsford.

ECML to the Cambridge Road roundabout

7.9.50 Construction of the ECML underbridge and associated embankments would be noticeable in the background of views of residential receptors on Barford Road and on the southern edge of Little Barford, and north from Tempsford. Whilst some views would be partially screened by boundary vegetation, intermittent views would remain through gaps in vegetation. These activities would form a focal point in contrast with the rural character and against the backdrop of Alington Hill. The construction of embankments and the excavation of the cutting through Alington Hill would also be visible in the background beyond, above intervening vegetation and occasional woodland blocks.

7.9.51 The elevated nature of Alington Hill means that construction activity would be visible above the surrounding flat landscape, such that it would form a prominent feature in the background of views for residents and users of PRoW in Tempsford. This work would be noticeable in the distant background of views from the Everton Greensand Ridge but would occupy a small part of the wide panorama and would be largely screened by intervening vegetation and buildings.

7.9.52 Residents of properties located at the junction of Potton Road and the B1046 would experience wide ranging views of construction activity due to their close proximity to the works. Local road users east of St. Neots would experience disruption to views as a consequence of construction of the realigned Potton Road and the B1046 bridge over the ECML due to the elevated position of the works. This activity would be viewed against a baseline of arable fields and woodland.

7.9.53 Construction of the realigned Potton Road, the B1046 bridge, the crossings of Hen Brook and Wintringham Brook and the footbridge would be prominent in middle and long-distance views from surrounding PRoW and residential receptors on the eastern edge of Eynesbury and from Wintringham to the north.

7.9.54 The main construction compound would be visible in middle distance across the middle ground of views of a small number of residential receptors on the eastern edge of Eynesbury. This would include the upper parts of silos, offices and lighting visible above storage bunds. This is due to their close proximity and elevated position with, open views across the rural landscape, albeit in the context of the ECML in the foreground.

Cambridge Road junction to the existing Caxton Gibbet roundabout

7.9.55 Residents of properties on the existing A428 between the Cambridge Road roundabout and existing Caxton Gibbet roundabout would experience views of temporary traffic management. The excavation of material and construction of the Cambridge Road junction would be visible in close proximity for residents of Wintringham, including those located in the new development close to the existing Cambridge Road roundabout. There would also be oblique views north-west towards the realignment of the existing A428 due to vegetation clearance required to construct the on-slip and off-slip to the Cambridge Road junction South Roundabout. At night, lighting associated with the compound west of the Cambridge Road roundabout and to illuminate the works would be visible in the skyline, but in the context of existing street lighting.

7.9.56 Extensive construction activity related to the construction of the bridleway accommodation bridge would be visible across the background to the north and west in views of residents on the north of the existing A428. This would include vegetation clearance, earthworks, cranes and other tall plant and machinery in close proximity in an area which is currently open countryside crossed by pylons. Existing intervening vegetation on property boundaries would partially filter views.

7.9.57 Residents adjacent to the existing A428 at Croxton, including White Hall, and users of the public footpath leading north from Croxton would experience views of activity associated with the construction of Toseland Road Bridge in close proximity. This would include vegetation clearance and earthworks. Views of residents in properties south of the existing A428 in Croxton would be screened by existing, intervening vegetation. Views south from Toseland would be limited to distant glimpses of construction activity in the background, interrupted by landform and vegetation. Users of PRoW closer to the Order Limits would have more extensive views across agricultural fields of construction activities in close proximity. At more distant points along these routes existing vegetation including woodland blocks would substantially screen views of construction.

7.9.58 Receptors along the northern edge of Eltisley would have views looking north towards the realignment of the existing A428 in the middle ground and construction of the new dual carriageway in the background. Views would be substantially screened in most cases by vegetation lining the existing A428; however, some vegetation removal would be required to facilitate construction of the Eltisley link, opening up views from the north of Eltisley and allowing direct views of construction activities, particularly those associated with the Eltisley bridge. These works and activities would be dominant in views of residents from the rear of these properties and would include the tops of cranes and other tall construction equipment.

7.9.59 There would be views looking north-east from the rear of a small number of properties for residents on the eastern edge of Eltisley, broken up by intervening woodland blocks. Views over rear property boundaries would allow glimpses of the tops of construction equipment, lighting and signage. These elements would be temporary but noticeable elements within the views towards the construction of the Caxton Gibbet junction on the distant skyline.

7.9.60 Construction of the Eltisley bridge would be noticeable in the middle distance to people traveling south along the bridleway linking Yelling and Eltisley. Views of extensive construction activity within the rural landscape would be open close to the Order Limits, but generally partially filtered by intervening vegetation and against a wooded backdrop. Views of residents in the village of Yelling would largely be screened by intervening landform and vegetation, but some receptors may experience glimpsed views where existing vegetation is sparse.

7.9.61 The construction of the Caxton Gibbet junction would be visible in close and middle-distance views of residential receptors at Oak Tree Cottage, Swansley Wood Farm and Pastures Farm and people working at and visiting the services south of the existing Caxton Gibbet roundabout. Views would include the removal of existing roadside vegetation thereby increasing visibility of existing traffic, lighting columns and signage. Cranes and other tall construction plant and the movement of earth moving machinery would be visible above the skyline and against a wooded backdrop.

7.9.62 The borrow pit east of Ermine Street and drainage features north-east of the existing Caxton Gibbet roundabout would be visible in open views across the flat agricultural fields by residents of Common Farm Cottages. Residents of Common Farm Cottages would also experience views south of the construction compound and soil storage area north of the existing A428. Attention would also be drawn to the compound at night as it would be lit.

Winter year of opening: 2026

Landscape effects in year one of operation

7.9.63 The following section provides a summary of the significant landscape effects that would result from the operation of the Scheme in year one of opening.

7.9.64 A detailed assessment of all landscape effects, including those that are considered not significant, is reported in **Appendix 7.3** of the Environmental Statement **[TR010044/APP/6.3]**.

Black Cat junction to the ECML

7.9.65 The key focus of significant effects would be on localised sections of LLCA 02, LLCA 03, LLCA 04 and LLCA 05. Changes to the character in LLCA 01 would be more limited to the north eastern fringes of the LLCA.

7.9.66 Adverse effects on the character of LLCA 02, LLCA 03 and LLCA 04 would be associated with the substantial increase in the vertical and horizontal scale of highways infrastructure at the Black Cat junction to the north and east of Roxton. This would include the new circulatory, which would be substantially larger than the existing Black Cat roundabout and would extend further east. The Scheme would be elevated across the Black Cat junction and to the east where it would cross the River Great Ouse on a viaduct.

7.9.67 The A1 (ground -1) would be approximately 10 metres lower than existing ground levels which would introduce substantial new supporting structures and new approaches that would be at grade or slightly elevated. Further structures adding to the scale of infrastructure in this active landscape would include the Roxton Road bridge and link road and the Kelpie Marina access road.

7.9.68 While these changes would be extensive and change the existing pattern of landcover and landform, they would be localised in the context of the wider landscape. These effects would be limited to the northern fringes of LLCA 02, the southern sections of LLCA 03 and a small central section of LLCA 04 at points which are already strongly defined by range of urbanising influences.

7.9.69 These changes would not change or alter the existing landscape character to the south of Roxton within LLCA 02 and the pattern and characteristics associated with the semi-enclosed valley landscape would remain intact. This would also be the case for the pattern of characteristics within LLCA 03 to the north, where these changes would also be in the context of the busy, active landscape characterised by highways infrastructure.

7.9.70 The Scheme would add new road infrastructure across the centre of the LLCA 04 between the Black Cat junction and River Great Ouse. This section is defined by a legacy of mineral extraction and restored sand and gravel workings. At this location the Scheme would cut across the valley landscape from west to east with new elevated sections of dual carriageway on embankments to the west of the River Great Ouse and on the River Great Ouse viaduct across the river. These elements would introduce new structures in the context of large-scale open waterbodies and other restored landscape elements. Large flood compensation areas south of the Scheme would integrate the restored mineral extraction sites of the Black Cat Quarry into waterbodies which respond to the key characteristics of LLCA 04.

7.9.71 Further significant adverse landscape effects are likely in this section of the study area, where the new dual carriageway would divert from the existing A428 between the Black Cat junction and the ECML. This includes the northern sections of LLCA 05.

7.9.72 The principal effects within LLCA 05 would be associated with the addition of new elevated road infrastructure within the northern sections of the LLCA and the resulting alterations to underlying landform patterns across the gently undulating vale landscape to the north of Tempsford. This would contribute to north-south severance in addition to the east-west severance of the ECML. The ECML underbridge would introduce a further elevated structure into the gently undulating medium scale landscape although this would be at a relatively contained point at the base of Alington Hill, with the land rising up to the east.

ECML to the Cambridge Road roundabout

7.9.73 To the east of the ECML, the dual carriageway will remain on elevated embankments within LLCA 05 cutting across the existing landscape pattern of fields bounded by hedgerows towards Alington Hill. It would introduce traffic into an area of landscape which is currently remote and relatively tranquil compared to other parts of the study area.

7.9.74 Within LLCA 06 there would be significant adverse effects where the Scheme would cut across Alington Hill disrupting the existing landform and introducing further movement into a landscape where human activity is currently limited. However, the alignment of the Scheme would be at a point where the landform rises more gradually across the northern and southern fringes of the LLCA rather than across the more pronounced western slopes and the more distinctive hill top features associated with the adjacent LLCA 06 to the north. The top of cutting slopes and earthworks across Alington Hill would be contoured to assist in integrating the new route into the sloping ridge landform.

7.9.75 The Scheme would also interrupt and sever existing landcover patterns of mature field boundaries within the LLCA but the Scheme has been aligned to avoid but also make use of valued, distinctive woodland blocks which are prominent features on the skyline to aid landscape integration.

7.9.76 Operation of the Scheme would also introduce lighting from traffic into an area which is progressively darker to the east with few other sources of artificial lighting.

7.9.77 Significant adverse effects are also likely within sections of LLCA 08. The Scheme would cross the rolling landscape on a series of embankments and cuttings, reflecting the character of the existing A428 which would be parallel to the west. This would alter the pattern of landform and fields and introduce additional crossings of Hen Brook and Wintringham Brook. The route would be elevated on embankments, culverts and bridges across the valleys of these brooks.

7.9.78 The new Footbridge would introduce a prominent, elevated feature but would be located where the natural landform is slightly higher than the surrounding landscape, with earthworks shaped to minimise its impact. It would link with the track on the eastern side of the Scheme and with footpaths along Hen Brook to the south to enhance connectivity across the Scheme and to the eastern fringes of St Neots. These new footpaths would be located within new areas of landscape and enhancements along watercourses to help integrate the proposals into this section of the landscape. A new footpath along the eastern edge of the Scheme would create opportunities for circular walks from the eastern edge of St. Neots.

7.9.79 There would be reductions in tranquillity in the western sections of LLCA 08 caused by the presence of new infrastructure in the landscape and vehicles travelling along the Scheme.

7.9.80 At night vehicle headlights would introduce sources of light into an area of relatively dark landscape, albeit in the context of the existing A428 to the west.

Cambridge Road junction to Caxton Gibbet junction

7.9.81 There are likely to be significant adverse effects on landscape where the new dual carriageway diverts from the alignment of the existing A428. This would include sections of LLCA and LLCA 14.

7.9.82 Within LLCA 11 the new dual carriageway would cut across the gently undulating landscape, introducing larger scale road infrastructure to the north of the existing A428, albeit at a slightly lower elevation than the existing A428. Also, to the south western sections of LLCA 11, the footprint of the Cambridge Road junction would be located across the existing A428, east of the existing Cambridge Road roundabout but it would be substantially larger than the existing Cambridge Road roundabout and it would introduce larger road infrastructure elements into the open elevated plateau landscape alongside the existing A428.

7.9.83 This would also be the case for the Caxton Gibbet junction which would extend the footprint of the existing Caxton Gibbet roundabout further north into currently open fields. It would also move the alignment of the A428 to the south of the existing A428, which would be retained and realigned as a local road.

7.9.84 The open landscape within LLCA 11 and LLCA 14 with a pattern of large arable fields with sparsely scattered mixed woodland blocks would be affected, with the additional scale, height and extent of road infrastructure conspicuous across most of the area, particularly at the two junctions.

7.9.85 The bridleway accommodation bridge (Bridleway 1/18) north-east of Wintringham and Toseland Road Bridge would also be elevated above the surrounding landscape, introducing new vertical features into the landscape. However, the bridleway accommodation bridge would be located between two blocks of existing woodland to reduce its impact on the landscape.

7.9.86 The design of the earthworks through LLCA 11 and LLCA 14, would aid in integrating the Scheme into the existing landscape, with the dual carriageway at grade, on slight embankments or in slight cutting for the majority of the route through this area. This would limit the extent of landscape effects further north as the route would be largely concealed by intervening topography or vegetation. The exceptions to this would be the embankments around the new junction and bridges.

7.9.87 The existing A428 between the Cambridge Road roundabout and the existing Caxton Gibbet roundabout would be de-trunked and become a local road. As a result, levels of traffic along this road would reduce substantially compared to the baseline. This would enhance tranquillity and landscape character locally, particularly in LLCA 12 and the registered Croxton Park.

7.9.88 In the context of Eltisley, the existing A428 defines the northern boundary of the LLCA and the Scheme would be located approximately 300 metres further to the north and in a slight cutting beneath the realigned B1040. This would improve the setting, tranquillity and sense of arrival to the village as well as the pattern of landscape features and character along the northern boundary of the LLCA.

7.9.89 The elevated sections of the Caxton Gibbet junction on embankments would also be prominent in the otherwise generally flat landscape and would further increase its distinction as a focus of activity. Associated elements including lighting, new embankments and flood attenuation features would extend the adverse effects of the Scheme.

7.9.90 At night light from vehicle headlights would intrude further north into what is currently farmland, but this would be in the context of traffic on the existing A428. Night time lighting of the Caxton Gibbet junction would be more extensive than the existing roundabout, extending the effect of lighting further north. In addition, the headlights of vehicles traveling across the Caxton Gibbet junction on the elevated section of the new dual carriageway would be prominent locally due to the increased elevation compared to the baseline.

Visual effects in year one of operation

7.9.91 The following section provides a summary of the significant visual effects that would result from the operation of the Scheme in year one of opening.

7.9.92 A detailed assessment of all visual effects, including those that are considered not significant, is reported in **Appendix 7.4** of the Environment Statement **[TR010044/APP/6.3]**.

Black Cat junction to the ECML

7.9.93 Residents and users of PRoW in southern parts of Chawston would have views of the Roxton Road bridge with recently planted embankments in the background. The earth bunds introduced along the realigned A421 would be prominent in views as planting would not have yet established, and the tops of high sided passing vehicles would be visible above.

7.9.94 The Black Cat junction would be visible on the skyline in views of residents and users of PRoW leading south from Chawston and north and east from Roxton. Traffic on the existing A1 would be visible in views of residents from the rear of properties on the eastern side of Roxton until it descends into the A1 (ground -1) where it would be screened. Traffic would also be visible on the approach to and on the Black Cat junction circulatory, extending further east than in the existing view. The Black Cat junction would form a new element on the skyline, with lighting columns and signage being particularly prominent. At night, new lighting associated with the Black Cat junction would extend further east than the existing roundabout and the headlights of vehicles would be noticeable at a higher elevation where the Scheme would cross the circulatory on embankments and bridges.

7.9.95 The Kelpie Marina access road would be visible in the middle distance and central to views of residents from the rear of properties on the eastern side of Roxton, in the context of the existing A1. It would form a dominant feature in views of residents of Kelpie Marina to the north.

7.9.96 The Roxton Road link would be prominent in views of residents south of South Brook, adjacent to the A1, with views west including the new carriageway, lighting columns and signage. This would be in contrast to the baseline view to the west, which is largely of mature vegetation with heavily filtered views of fields behind.

7.9.97 The River Great Ouse viaduct would be particularly noticeable in the background of views of residential receptors at Kelpie Marina, Tempsford and on Barford Road in particular. Views would be partially screened by intervening landform and vegetation but in the context of the river and restored gravel workings.

7.9.98 The Barford Road bridge would similarly form a dominant feature within views of residential receptors along Barford Road, Rectory Farm and Home Farm at Little Barford. Its position at the top of a localised ridge would make it and traffic crossing it prominent on the skyline, but the cutting through this ridge would partially screen traffic on the Scheme beneath.

7.9.99 The new dual carriageway would pass through the open landscape from the River Great Ouse viaduct to the ECML underbridge. It would be prominent in views of residents of Barford Road, Rectory Farm and Home Farm at Little Barford but would recede more into the background of views of residential receptors in Tempsford and users of PRoW heading north. Existing mature boundary vegetation in the intervening landscape would partially screen these views.

7.9.100 The VMS on the A1 northbound carriageway would be visible through existing vegetation to a small number of residents living adjacent to the A1 at Tempsford. This would form an additional detracting feature against the background of the existing footbridge across the A1. This would be lit but in the context of existing street lighting along this section of the A1.

ECML to the Cambridge Road roundabout

7.9.101 The embankments and cutting through Alington Hill would be prominent in the background in views of residential receptors along Barford Road due to its elevation, beyond and in the context of the ECML and regular passing trains. This section of the Scheme would be visible in the background in views of residential receptors and users of PRoW north of Tempsford. It would be particularly prominent at night where vehicle headlights would be visible in what is currently a darker area of landscape.

7.9.102 The new dual carriageway would form a dominant feature in the foreground of views for residents of Potton Road at the crossing of Potton Road and the B1046. This would be in contrast to existing views of an open rural landscape to the south and in the context of the settlement of St. Neots to the north.

7.9.103 There would be middle distance and long-distance views of the B1046 bridge on the skyline to the west from PRoW east of St. Neots and for residential receptors on the eastern edge of St Neots and Wintringham to the north. It would be noticeable in these views due it its location on the ridgeline. The Cambridge Road junction would be visible to the north, as would traffic traveling around the Cambridge Road. Traffic on the new dual carriageway would be partially concealed from view due to the route being in cutting beneath the junction. Lighting around the junction would extend further east than in existing views, forming a noticeable change in night-time views of residents on Cambridge Road and at Wintringham.

Cambridge Road junction to Caxton Gibbet junction

7.9.104 The carriageway, traffic and the bridleway accommodation bridge at Wintringham would form noticeable features of views of residents from the rear of properties adjacent to the existing A428 at Wintringham and for users of the PRoW north of Wintringham. There would also be a noticeable reduction in traffic in views of the A428 to the south with the urban edge of St Neots visible in the background to the west.

7.9.105 The Toseland Road Bridge, and traffic crossing it, would be visible to users of PRoW south of Toseland on the skyline in the background. The Scheme would be closer than the existing A428 and would form a noticeable feature across the middle ground in views from these routes in close proximity to the Scheme. Views of residents south from Toseland and Yelling would be largely screened by intervening landform and vegetation along field boundaries and north from Croxton by vegetation along the existing A428 and within Croxton Park. Residents of Croxton would also experience a reduction in traffic on the existing A428 in views to the north.

7.9.106 Extensive new earthworks, embankments and structures associated with the Eltisley link would be visible to residential receptors on the northern edge of Eltisley where existing vegetation would have been removed to facilitate construction. Views of the carriageway would remain screened or heavily filtered by intervening vegetation. Users of the bridleway leading north from Eltisley to Yelling would experience more open views of the Scheme on a short section in close proximity, but views would be heavily filtered at more distant points along the route by intervening vegetation. Although the Scheme would pass closer to Eltisley than the existing A428 for a short section to the north east of the village, the route would descend into cutting, partially screening passing traffic in views of residents on the eastern side of Eltisley.

7.9.107 Views further east from a small number of properties on the eastern edge of Eltisley, south from the southern edge of Papworth Everard and north from the bridleway linking Eltisley and Caxton would include the elevated sections of the Caxton Gibbet junction in the distant background. These elements would also be visible in short and middle-distance views of residential receptors at Oak Tree Cottage, Swansley Wood Farm and Pastures Farm. The junction and vehicles traveling along the new dual carriageway, signage and lighting columns would be prominent, above existing vegetation in places. New lighting would extend further north than the baseline and vehicle headlights of traffic crossing the junction on the A428 would also be prominent in these views.

Operation: summer year 2041

Landscape effects of year 15 of operation

7.9.108 The following section provides a summary of the significant landscape effects that would result from the operation of the Scheme in year 15 of opening.

7.9.109 A detailed assessment of all landscape effects, including those that are considered not significant, is reported in **Appendix 7.3** of the Environmental Statement **[TR010044/APP/6.3]**.

Black Cat junction to the ECML

7.9.110 The key focus of significant effects in this section at year 15, would be on localised sections of LLCA 02 to the north east of Roxton, with effects reduced and not significant in LLCA 03, LLCA 04 and LLCA 05.

7.9.111 Around the Black Cat junction and A1 (ground -1) planting on embankments, principally to the west of the Kelpie Marina access road, and to the south of the realigned A421, would have established to restore and reinforce the existing landscape pattern and character. This planting would assist in partially enclosing most sections of the A421 and A1 and in integrating the elevated section of the new dual carriageway across the Black Cat junction, reducing the perceived scale of new road infrastructure in the area. However, the scale of Black Cat junction would remain apparent in the surrounding landscape, principally across the north eastern sections of LLCA 02.

7.9.112 Tree and shrub planting on the embankments either side of the River Great Ouse viaduct and within the restored quarry west of the River Great Ouse would help integrate the Scheme with the surrounding landscape. This would include landscape features around modified waterbodies and associated with the restored quarry workings and reflecting the character of the existing vegetation which lines the river.

ECML to the Cambridge Road roundabout

7.9.113 Within this section of the Scheme the focus of significant effects at year 15 would remain on localised sections of LLCA 06 and LLCA 08.

7.9.114 While proposed planting would have established to assist in integrating the Scheme with the surrounding landscape in LLCA 06, the proposed woodland blocks would still be maturing. However, they would reflect and enhance the pattern of scattered woods across the slopes up to the plateau and reduce the prominence of the Scheme, whilst the changes to landform would remain.

7.9.115 Further north within LLCA 08, towards the Cambridge Road junction, new hedgerows, woodland and grassland along the road and around the flood attenuation features to the east of the Scheme would have established, reflecting and reinforcing the existing landscape pattern, and reducing the apparent scale of the Scheme. These areas would also have established to provide amenity for the footpath connections and links to circular walks from the eastern edge of St. Neots, linking with the existing network of PRoW to the east and west.

7.9.116 Further areas of proposed planting alongside Hen Brook and Wintringham Brook would have also established to help integrate the Scheme with the surrounding landscape. The planting along Hen Brook and Wintringham Brook would reinforce the green corridors along these watercourses which lead north-west through the Wintringham development to the eastern edge of St. Neots, enhancing opportunities for recreation.

Cambridge Road junction to Caxton Gibbet junction

7.9.117 The key focus of significant effects in this section at year 15, would be on localised sections of LLCA 11 with effects reduced and not significant in LLCA 14.

7.9.118 The scale of the Cambridge Road junction and Caxton Gibbet junction, including its traffic lights and other road infrastructure, would be lessened by the establishment of the tree planting bordering the junction, along with the extent of hedgerows and woodland areas adjacent to the junctions, however, these elements would remain as new larger scale elements in the surrounding landscape.

7.9.119 Within LLCA 11, the new road infrastructure would remain a dominant feature through the centre of the LLCA due to its scale, the severance it would cause in the landscape and on tranquillity with the addition of traffic.

7.9.120 The beneficial effect to tranquillity and landscape character as a result of reduced activity on the existing A428 within the setting of the Croxton Park RPG would remain at year 15, given that the new dual carriageway would take traffic away from the setting of the RPG to a low lying point within LLCA 11 to the north and the additional improvements to tree and hedgerow planting in leaf.

Visual effects of year 15 of operation

7.9.121 The following section provides a summary of the significant visual effects that would result from the Scheme in year 15 of operation.

7.9.122 A detailed assessment of all visual effects, including those that are considered not significant, is reported in **Appendix 7.4** of the Environment Statement **[TR010044/APP/6.3]**.

Black Cat junction to the ECML

7.9.123 Planting along the western boundary of the A1 and on the embankments to the Kelpie Marina access road would have established to heavily filter views from Roxton. Planting along the southern part of Black Cat junction would combine with the existing vegetation around Roxton Garden Centre to reduce the visibility of new road infrastructure. Lighting columns, signage and traffic would remain perceptible above vegetation in places for residents of some properties on the eastern side of Roxton.

7.9.124 Views of the elevated part of the Black Cat junction and the Roxton Road bridge would remain visible on the skyline in residents' views from properties on the south edge of Chawston and users of PRoW to the south of Chawston. Planting on the western side of the junction, the A421, A1 and Roxton Link Road will have established to substantially screen the elements of the Scheme and traffic at ground level.

7.9.125 The establishment of planting on the embankments of the realigned Barford Road, River Great Ouse viaduct and the Black Cat junction would assist in integrating these features into the landscape and would break up views of traffic and infrastructure in the background. The impact on views of residents from the rear of properties on the eastern side of Wyboston and Chawston would be reduced by hedgerows and trees on field boundaries, although views of traffic on the low embankments would remain for residents of Barford Road.

7.9.126 Planting would have established, screening or filtering views of new infrastructure and traffic. Glimpsed views south and east towards the Roxton Road link and the Black Cat junction and traffic moving on the elevated section of the new dual carriageway would be available in the background, but these would be largely screened by vegetation along South Brook. Some of these residents would have views of the Scheme but these would be limited to the tops of vehicles, lighting columns and signage visible over the top of the existing boundary features.

7.9.127 The River Great Ouse viaduct and traffic passing across it would remain partially visible in the background of views of residents in properties on the northern side of Tempsford, Kelpie Marina and Barford Road and users of PRoW in the intervening landscape. Planting to the embankments and east of the river would assist in screening the ends of the structure and the Scheme on embankment leading up to the ECML underbridge.

ECML to the Cambridge Road roundabout

7.9.128 The ECML underbridge would be mostly screened in views of residents of Tempsford and Barford Road by dense planting which would have established on the embankments of the new dual carriageway either side and rising up Alington Hill to the east. This planting would also assist in screening long distance views of users of the Greensand Ridge Walk across the Everton Greensand Ridge to the south-east.

7.9.129 At the new B1046 bridge, planting would have established to combine with existing vegetation to reduce visibility of the new dual carriageway for residents on Potton Road. However, their proximity coupled with the undulating nature of the landscape means that open, some oblique views would remain to the north extending along the Scheme into the distance.

7.9.130 Existing vegetation and proposed planting would limit views of the new dual carriageway east and north for residents of properties on the eastern edge of Eynesbury. This vegetation would screen or filter views of the new dual carriageway and traffic in the background, beyond the existing A428. The tops of high sided vehicles are likely to remain visible in places in the distance.

7.9.131 Planting would have established along the embankments of the new dual carriageway across the valleys of Hen Brook and Wintringham Brook. This would largely conceal traffic from users of PRoW to the west of Abbotsley, which pass south of Wintringham. Closer to the new dual carriageway, users would experience more open views from sections of these PRoW that run beneath the new road, where the road and traffic would be on the highest points over Hen Brook and the new B1046 bridge would remain prominent on the skyline to the south. Infrastructure and traffic would remain visible in places across views to the north, towards the Cambridge Road junction, but in the context of new development at Wintringham east of St. Neots.

7.9.132 Views south of residents of properties north of the Cambridge Road junction at Loves Farm and Wintringham would be substantially screened by planting along the new dual carriageway. Glimpses of traffic and taller elements including the Footbridge may remain evident through gaps or above vegetation.

Cambridge Road junction to Caxton Gibbet junction

7.9.133 Residents would experience glimpsed views to the north and west from the rear of properties on the northern side of the existing A428 at Wintringham. Traffic would be visible in the background passing beneath the bridleway accommodation bridge, which would be visible in a wooded context with proposed planting established to partially screen the structure.

7.9.134 Planting would have established along the new dual carriageway to the east of Wintringham and on the embankments of the Toseland Road Bridge, limiting views of receptors traveling along PRoW south of Toseland and north of Croxton. Views in proximity to the new dual carriageway on these PRoW would be more open, through gaps in vegetation but closer to these settlements, views would be substantially screened.

7.9.135 The section of the Scheme north of Eltisley, including the realigned B1040, Eltisley link and Eltisley bridge would be largely screened in views of residents on the northern edge of the village. There may be occasional glimpses through gaps in intervening vegetation. Views of users of the bridleway linking Eltisley with Yelling to the north would experience more open views where the new dual carriageway is on embankment across fields west of the B1040. Planting on these embankments will heavily filter views from more distant points closer to Yelling in the north.

7.9.136 There would be glimpses of tops of high sided vehicles on a short section of the route east of the Eltisley bridge in views of residents on the eastern edge of Eltisley. These views would be similar to the baseline. Taller elements of the Caxton Gibbet junction, including lighting columns and traffic crossing the junction would remain visible in distant views of people using the bridleway linking Eltisley and Croxton to the south and to residents and users of the footpath on the southern edge of Papworth Everard to the north. Proposed planting and existing vegetation in leaf would substantially screen views of traffic at ground level.

Summary of significant effects

7.9.137 This section provides a summary of significant landscape and visual effects during construction, and at year one and year 15 of operation.

7.9.138 Detailed descriptions of landscape and visual effects, including those which are not significant, are presented in **Appendix 7.3 and Appendix 7.4** of the Environmental Statement **[TR010044/APP/6.3]** respectively.

Significant landscape effects during construction

7.9.139 Significant landscape effects during construction are presented in **Table 7-2**.

Table 7-2: Significant landscape effects during construction

Local Landscape Character Area	Sensitivity	Magnitude of effect	Significance of effects
LLCA 02: Settled Ouse Valley	Medium	Major	Large adverse (significant)
LLCA 03: Wyboston and Chawston	Low	Major	Moderate adverse (significant)
LLCA 04: Ouse Valley Lakes	Medium	Major	Moderate adverse (significant)
LLCA 05: Biggin Wood Clay Vale	Medium	Moderate	Moderate adverse (significant)
LLCA 06: Alington Hill Clay Farmland	High	Major	Very large adverse (significant)
LLCA 08: Settled Clayland Valley	Medium	Major	Large adverse (significant)
LLCA 11: Wintringham and Weald Clay Farmland	Medium	Major	Large adverse (significant)
LLCA 14: Western Claylands	Medium	Major	Moderate adverse (significant)

7.9.140 In summary, eight of the 16 LLCAs identified would experience significant landscape effects during construction. These effects would relate to the presence of large scale construction plant, compounds, materials storage and construction activity. However, these effects would be temporary, limited to the four year construction period and localised. The remaining eight LLCAs would experience landscape effects which are not considered significant.

Significant visual effects during construction

7.9.141 Significant visual effects during construction are presented in **Table 7-3**.

Table 7-3: Significant visual effects during construction

Visual receptor group	Sensitivity	Magnitude of effect	Significance of effects
C01	Low	Major	Moderate adverse (significant)
C02	Low	Major	Moderate adverse (significant)
C03	Low	Major	Moderate adverse (significant)
C04	Low	Major	Moderate adverse (significant)
C14	Medium	Major	Large adverse (Significant)
C18	Low	Major	Moderate adverse (significant)
C27	Low	Major	Moderate adverse (significant)
C29	Medium	Major	Moderate adverse (significant)
H03	Low	Major	Moderate adverse (significant)
H05	Low	Major	Moderate adverse (significant)
H06	Low	Moderate	Moderate adverse (significant)
H07	Low	Moderate	Moderate adverse (significant)
P02	Medium	Major	Large adverse (significant)
P03	Medium	Major	Large adverse (significant)
P04	Medium	Major	Large adverse (significant)
P06	Medium	Major	Large adverse (significant)
P07	Medium	Major	Large adverse (significant)
P08	Medium	Major	Large adverse (significant)

Visual receptor group	Sensitivity	Magnitude of effect	Significance of effects
P09	Medium	Moderate	Moderate adverse (significant)
P10	Medium	Moderate	Moderate adverse (significant)
P13	Medium	Major	Large adverse (significant)
P14	Medium	Major	Large adverse (significant)
P15	Medium	Major	Large adverse (significant)
P16	Medium	Major	Large adverse (significant)
P17	Medium	Moderate	Moderate adverse (significant)
P18	Medium	Moderate	Moderate adverse (significant)
P19	Medium	Major	Large adverse (significant)
P20	Medium	Moderate	Moderate adverse (significant)
P21	Medium	Moderate	Moderate adverse (significant)
P22	Medium	Major	Large adverse (significant)
P23	Medium	Major	Large adverse (significant)
P24	Medium	Moderate	Moderate adverse (significant)
P25	Medium	Major	Large adverse (significant)
R01	Medium	Moderate	Moderate adverse (significant)
R05	Medium	Major	Large adverse (significant)
R06	Medium	Major	Large adverse (significant)
R07	Medium	Major	Large adverse (significant)
R08	Medium	Major	Large adverse (significant)
R09	High	Moderate	Large adverse (significant)
R10	High	Major	Large adverse (significant)
R11	High	Major	Very large adverse (significant)
R14	High	Minor	Moderate adverse (significant)

Visual receptor group	Sensitivity	Magnitude of effect	Significance of effects
R15	Medium	Major	Large adverse (significant)
R16	Medium	Major	Large adverse (significant)
R17	Medium	Major	Large adverse (significant)
R18	High	Major	Large adverse (significant)
R19	Medium	Major	Large adverse (significant)
R20	Medium	Major	Large adverse (significant)
R21	Medium	Major	Large adverse (significant)
R22	Medium	Major	Moderate adverse (significant)
R24	Moderate	Moderate	Moderate adverse (significant)
R25	Medium	Moderate	Moderate adverse (significant)
R27	Medium	Major	Large adverse (significant)
R28	High	Moderate	Moderate adverse (significant)
R35	High	Moderate	Moderate adverse (significant)
R36	High	Major	Very large adverse (significant)
R37	High	Major	Very large adverse (significant)
R38	Medium	Moderate	Moderate adverse (significant)
R39	High	Moderate	Large adverse (significant)
R40	High	Moderate	Large adverse (significant)
R41	High	Moderate	Large adverse (significant)
R42	High	Moderate	Large adverse (significant)
R43	High	Minor	Moderate adverse (significant)
R44	High	Moderate	Large adverse (significant)
R45	High	Minor	Moderate adverse (significant)
R46	High	Moderate	Large adverse (significant)

Visual receptor group	Sensitivity	Magnitude of effect	Significance of effects
R48	High	Moderate	Moderate adverse (significant)
R50	High	Moderate	Moderate adverse (significant)
R51	High	Major	Large adverse (significant)
R52	High	Major	Very large adverse (significant)
R53	High	Major	Large adverse (significant)
R54	High	Major	Large adverse (significant)
R56	Medium	Moderate	Moderate adverse (significant)
R57	Medium	Major	Large adverse (significant)
R58	Medium	Major	Large adverse (significant)
R59	Medium	Moderate	Moderate adverse (significant)
R61	Medium	Major	Large adverse (significant)
R62	Medium	Major	Large adverse (significant)
R63	Medium	Major	Moderate adverse (significant)
R66	High	Moderate	Large adverse (significant)
R80	Medium	Major	Large adverse (significant)
R81	Medium	Major	Large adverse (significant)
R82	Medium	Moderate	Moderate adverse (significant)
R91	High	Moderate	Moderate Adverse (significant)
R95	Medium	Moderate	Moderate adverse (significant)
R97	Medium	Moderate	Large adverse (significant)
R98	High	Moderate	Large adverse (significant)
R100	High	Moderate	Large adverse (significant)
R102	Medium	Moderate	Moderate adverse (significant)
R104	Medium	Moderate	Moderate adverse (significant)

Visual receptor group	Sensitivity	Magnitude of effect	Significance of effects
R105	Medium	Moderate	Moderate adverse (significant)
R106	High	Moderate	Moderate adverse (significant)
R107	High	Moderate	Moderate adverse (significant)
R108	High	Moderate	Large adverse (significant)
R113	High	Major	Large adverse (significant)
R114	High	Moderate	Moderate adverse (significant)

7.9.142 In summary, 96 of the 183 visual receptor groups identified would experience significant visual effects during construction in winter. Of these, 64 would be residential visual receptor groups, generally on the edges of existing settlements or in the rural landscape. The remainder would largely be associated with users of public rights of way (21) but also commercial receptors (7) and users of existing roads (3). Significant adverse effects would arise from views of construction activity in close proximity, particularly where there is limited existing vegetation or existing vegetation would be removed to facilitate construction. These effects would be temporary and may be lower than reported during summer, when existing vegetation would be in leaf, or outside of the peak construction period. The remaining visual receptors groups would experience visual effects during construction which are not considered significant.

Significant landscape effects during year one operation

7.9.143 Significant landscape effects during year one of operation are presented in **Table 7-4**.

Table 7-4: Significant landscape effects during year one of operation

Local Landscape Character Area	Sensitivity	Magnitude of effect	Significance of effect
LLCA 02: Settled Ouse Valley	Medium	Major	Moderate adverse (significant)
LLCA 03: Wyboston and Chawston	Low	Major	Moderate adverse (significant)
LLCA 04: Ouse Valley Lakes	Medium	Moderate	Moderate adverse (significant)

Local Landscape Character Area	Sensitivity	Magnitude of effect	Significance of effect
LLCA 05: Biggin Wood Clay Vale	Medium	Moderate	Moderate adverse (significant)
LLCA 06: Alington Hill Clay Farmland	High	Major	Large adverse (significant)
LLCA 08: Settled Clayland Valley	Medium	Major	Large adverse (significant)
LLCA 11: Wintringham and Weald Clay Farmland	Medium	Major	Large adverse (significant)
LLCA 14: Western Claylands	Medium	Major	Moderate adverse (significant)

7.9.144 Whilst landscape effects would remain significant for eight out of the 16 LLCAs identified, significance would reduce for two of these receptors (LLCA 02 and LLCA 06). These effects would remain significant because of the permanent changes to the pattern and character of the landscape through the introduction of new major infrastructure, before planting proposed as mitigation has established. Significance of effects would be highest where the Scheme diverts from the existing road corridor. Landscape effects for the remaining eight LLCA would not be significant.

Significant visual effects during construction

7.9.145 Significant visual effects during year one of operation are presented in **Table 7-5**.

Table 7-5: Significant visual effects during year one of operation

Receptor number	Sensitivity of visual receptor	Magnitude of effect in winter year one	Significance of effect in winter year one
C03	Low	Major	Moderate adverse (significant)
C14	Medium	Moderate	Moderate adverse (Significant)
C18	Low	Major	Moderate adverse (significant)
C29	Medium	Moderate	Moderate adverse (significant)
H03	Low	Major	Moderate adverse (significant)
P02	Medium	Moderate	Moderate adverse (significant)
P03	Medium	Moderate	Moderate adverse (significant)
P04	Medium	Moderate	Moderate adverse (significant)
P06	Medium	Moderate	Moderate adverse (significant)
P07	Medium	Major	Large adverse (significant)
P08	Medium	Major	Moderate adverse (significant)
P10	Medium	Moderate	Moderate adverse (significant)
P13	Medium	Major	Large adverse (significant)
P14	Medium	Major	Large adverse (significant)
P15	Medium	Major	Large adverse (significant)
P16	Medium	Major	Large adverse (significant)
P17	Medium	Moderate	Moderate adverse (significant)
P18	Medium	Moderate	Moderate adverse (significant)
P19	Medium	Moderate	Moderate adverse (significant)
P20	Medium	Moderate	Moderate adverse (significant)
P22	Medium	Moderate	Moderate adverse (significant)
P23	Medium	Moderate	Moderate adverse (significant)

Receptor number	Sensitivity of visual receptor	Magnitude of effect in winter year one	Significance of effect in winter year one
P24	Medium	Moderate	Moderate adverse (significant)
P25	Medium	Moderate	Moderate adverse (significant)
R05	Medium	Major	Large adverse (significant)
R06	Medium	Moderate	Moderate adverse (significant)
R07	Medium	Major	Large adverse (significant)
R08	Medium	Large	Large adverse (significant)
R09	High	Minor	Moderate Adverse (significant)
R10	High	Moderate	Moderate Adverse (significant)
R11	High	Major	Large adverse (significant)
R15	Medium	Major	Moderate adverse (significant)
R16	Medium	Major	Large adverse (significant)
R17	Medium	Minor	Moderate adverse (significant)
R18	High	Major	Large adverse (significant)
R20	Medium	Moderate	Moderate adverse (significant)
R21	Medium	Moderate	Moderate adverse (significant)
R22	Medium	Moderate	Moderate adverse (significant)
R24	Moderate	Moderate	Moderate adverse (significant)
R27	Medium	Major	Moderate adverse (significant)
R28	High	Moderate	Moderate adverse (significant)
R35	High	Moderate	Moderate adverse (significant)
R36	High	Major	Large adverse (significant)
R37	High	Major	Very large adverse (significant)
R38	Medium	Moderate	Moderate adverse (significant)

Receptor number	Sensitivity of visual receptor	Magnitude of effect in winter year one	Significance of effect in winter year one
R39	High	Moderate	Moderate adverse (significant)
R40	High	Moderate	Moderate adverse (significant)
R41	High	Moderate	Moderate adverse (significant)
R42	High	Moderate	Moderate adverse (significant)
R43	High	Minor	Moderate adverse (significant)
R44	High	Minor	Moderate adverse (significant)
R46	High	Moderate	Moderate adverse (significant)
R48	High	Moderate	Moderate adverse (significant)
R50	High	Moderate	Moderate adverse (significant)
R51	High	Major	Large adverse (significant)
R52	High	Major	Large adverse (significant)
R53	High	Major	Large adverse (significant)
R54	High	Major	Large adverse (significant)
R57	Medium	Minor	Moderate adverse (significant)
R61	Medium	Major	Large adverse (significant)
R62	Medium	Major	Large adverse (significant)
R63	Medium	Moderate	Moderate adverse (significant)
R66	High	Moderate	Moderate adverse (significant)
R80	Medium	Moderate	Moderate adverse (significant)
R81	Medium	Major	Large adverse (significant)
R97	Medium	Moderate	Moderate Adverse (significant)
R98	High	Moderate	Moderate adverse (significant)
R100	High	Moderate	Moderate adverse (significant)

Receptor number	Sensitivity of visual receptor	Magnitude of effect in winter year one	Significance of effect in winter year one
R102	Medium	Moderate	Moderate adverse (significant)
R104	Medium	Moderate	Moderate adverse (significant)
R108	High	Moderate	Moderate adverse (significant)
R113	High	Major	Large adverse (significant)
R114	High	Moderate	Moderate adverse (significant)

7.9.146 The number of visual receptors groups likely to experience significant effects would reduce from 96 during construction to 73 from 183 during year one of operation. Of these, 50 would be residential receptor groups with the remaining receptors compromising users of public rights of way (19), commercial receptors (3) and users of existing roads (1). Significant effects would generally occur where the Scheme would be in close proximity or occupy a large part of the view. Planting proposed as mitigation would not have established to mitigate these effects. The remaining receptor groups (110) would experience visual effects which are not considered significant.

Significant landscape effects during year 15 operation

7.9.147 Significant landscape effects during year 15 of operation are presented in **Table 7-6**.

Table 7-6: Significant landscape effects during year 15 of operation

Local Landscape Character Area	Sensitivity	Magnitude of effect	Significance of effect
LLCA 02: Settled Ouse Valley	Medium	Moderate	Moderate adverse (significant)
LLCA 06: Alington Hill Clay Farmland	High	Moderate	Moderate adverse (significant)
LLCA 08: Settled Clayland Valley	Medium	Moderate	Moderate adverse (significant)
LLCA 11: Wintringham and Weald Clay Farmland	Medium	Moderate	Moderate adverse (significant)

7.9.148 By the summer of year 15 of operation planting proposed as mitigation would have established to limit significant effects to four of the 16 LLCAs identified. Significant effects relating to these receptors would remain due to the permanent changes to landform and landcover patterns and the presence of major infrastructure locally altering the character and reducing the tranquillity of generally more rural, less settled areas. Planting in these areas would assist in limiting the scale of these effects. Landscape effects relating to the 12 other LLCAs would not be significant. Beyond year 15 of operation planting would continue to mature to reflect and reinforce the character of the existing landscape.

Significant visual effects during year 15 of operation

7.9.149 Significant visual effects during year 15 of operation are presented in **Table 7-7**.

Table 7-7: Significant visual effects during year 15 of operation

Receptor number	Sensitivity of visual receptor	Magnitude of effect in summer year 15	Significance of effect in summer year 15
P07	Medium	Moderate	Moderate adverse (significant)
P08	Medium	Moderate	Moderate adverse (significant)
P13	Medium	Moderate	Moderate adverse (significant)
P14	Medium	Moderate	Moderate adverse (significant)
P15	Medium	Moderate	Moderate adverse (significant)
P22	Medium	Moderate	Moderate adverse (significant)
P23	Medium	Moderate	Moderate adverse (significant)
R05	Medium	Moderate	Moderate adverse (significant)
R06	Medium	Moderate	Moderate adverse (significant)
R07	Medium	Moderate	Moderate adverse (significant)
R08	Medium	Moderate	Moderate adverse (significant)
R11	High	Moderate	Moderate adverse (significant)
R15	Medium	Moderate	Moderate adverse (significant)
R16	Medium	Moderate	Moderate adverse (significant)
R18	High	Moderate	Moderate adverse (significant)

Receptor number	Sensitivity of visual receptor	Magnitude of effect in summer year 15	Significance of effect in summer year 15
R20	Medium	Moderate	Moderate adverse (significant)
R21	Medium	Moderate	Moderate adverse (significant)
R27	Medium	Moderate	Moderate adverse (significant)
R36	High	Moderate	Moderate adverse (significant)
R37	High	Moderate	Large adverse (significant)
R51	High	Moderate	Moderate adverse (significant)
R52	High	Moderate	Moderate adverse (significant)
R53	High	Moderate	Moderate adverse (significant)
R54	High	Moderate	Moderate adverse (significant)
R61	Medium	Moderate	Moderate adverse (significant)
R62	Medium	Moderate	Moderate adverse (significant)
R81	Medium	Moderate	Moderate adverse (significant)
R113	High	Moderate	Moderate adverse (significant)

7.9.150 By summer of year 15 of operation, 30 of the 184 visual receptor groups identified would experience significant visual effects, reducing from 73 in year one of operation. The majority of visual receptors would experience a reduction in the significance of effect as a result of proposed planting, which would have established, and existing vegetation in leaf assisting in screening views of the Scheme. Significant adverse effects would remain for 22 residential receptor groups, generally where there would be views of the Scheme in close proximity or where a larger proportion of the view would be altered compared to the baseline. The remaining visual receptor groups which experience significant effects at year 15 of operation would comprise users of public rights of way (7) and commercial receptors (1). All other receptor groups would experience visual effects which are not considered significant.

7.10 Monitoring

Construction

7.10.2 As significant effects on landscape and visual receptors would occur during construction of the Scheme, monitoring of these effects would be undertaken.

7.10.3 The implementation of the landscape mitigation planting presented on **Figure 2.4** of the Environmental Statement **[TR010044/APP/6.2]** would be monitored by the Principal Contractor during the works to ensure that best practice relating to ground preparation, plant handling and planting techniques is followed. This monitoring would be undertaken in accordance with the measures set out within the Second Iteration EMP, the content of which would be based on the framework measures contained in the First Iteration EMP **[TR010044/APP/6.8]**.

Operation

7.10.4 As significant effects on landscape and visual receptors would result from the operation of the Scheme during the 15 year period between the year of opening and the design year, monitoring of these effects would be undertaken.

7.10.5 Monitoring of the growth and maintenance of planting would be undertaken by the Principal Contractor during the first five years (the contract period) to ensure its successful establishment. All planting incorporated into the design of the Scheme would be routinely inspected, managed and maintained during the contract period in accordance with the requirements as stipulated within the Principal Contractor's LEMP, the content of which would be based on the LEMP contained in the First Iteration EMP **[TR010044/APP/6.8]**. Such maintenance and management practices would include inspecting and, where necessary, replacing defective plants to ensure that all planting establishes and achieves its intended environmental functions and objectives, as illustrated by the Environmental Masterplan on **Figure 2.4** of the Environmental Statement **[TR010044/APP/6.2]**.

7.10.6 After the establishment period, the longer-term maintenance and management responsibilities relating to the planting would transfer to Highways England, the requirements of which would be set out within the Third Iteration EMP prepared by the Principal Contractor prior to handover of the Scheme.

7.10.7 During year 15, a monitoring visit would be made by Highways England to each viewpoint identified within the LVIA predicted to experience significant visual effects to ensure that the planting has established and is delivering its intended screening and integration objectives. Should the landscape planting be found not to have established as intended or be insufficient to provide the required level of screening and integration, remedial works would be undertaken as necessary. These works could, for example, include establishing further planting within the Order Limits to augment that already in place.

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