The London Resort Development Consent Order

BC080001

Environmental Statement
Volume 1: Main Statement

Chapter 11 – Landscape and visual effects

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Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
Regulation 5(2)(a)
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
Regulation 12(1)

Chapter Eleven ◆ Landscape and visual effects

INTRODUCTION

11.1 This chapter sets out the assessment of the potential landscape and visual effects, mitigation measures and residual effects of the Proposed Development (as described in ES Chapter five Law and Relevant policy (Document Reference 6.1.5).

11.2 The assessment is informed by a Landscape and Visual Impact Assessment (LVIA) baseline report (Document Reference 6.2.11.1), which should be read in conjunction with this chapter.

11.3 Landscape and visual effects are independent but related issues. Landscape effects relate to changes to the landscape fabric and the features contributing to the landscape character and quality. Visual effects relate to the appearance of such changes within views and the resulting effect on visual amenity.

11.4 This chapter describes the assessment methodology, the baseline conditions at the Project Site and surroundings, the likely significant landscape and visual effects, the mitigation measures required to prevent, reduce or offset any significant adverse effects and the likely residual effects after these measures have been employed.

11.5 This chapter should be read in conjunction with the following ES Appendices and other pertinent documents submitted with the DCO application:

- Appendix 11.1 – Landscape and Visual Baseline Report (Document Reference 6.2.11.1), which includes full details of survey methods, methodology and associated drawings;
- Appendix 11.2 – Schedule of Construction Effects (Document Reference 6.2.11.2), which sets out a detailed assessment of likely significant effects upon landscape and visual receptors during the construction phases of the Proposed Development;
- Appendix 11.3 – Schedule of Operational Effects (Document Reference 6.2.11.3), which sets out a detailed assessment of likely significant effects upon landscape and visual receptors during the Operational Phase of Development at Year 1, when the scheme will be a new feature, and at Year 15 by when landscape mitigation, weathering of building materials and other factors may have resulted in a reduction of effect;
- Appendix 11.4 – Consultee Responses to the 2020 EIA Scoping Report (Document Reference 6.2.11.4);

- Appendix 11.5 – Statutory Consultee Responses to the Preliminary Environmental Information Report (Document Reference 6.2.11.5);

- Appendix 11.6 – Schedule of Cumulative Effects (Document Reference 6.2.11.6), which sets out a detailed assessment of likely significant effects upon landscape and visual receptors;

- Appendix 11.7 – Landscape Strategy (Document Reference 6.2.11.7), provides the overall landscape design principles for the Proposed Development covering a number of elements such as accessibility, habitat creation and ecology, hydrology and public facilities, and provides the basis for a fully detailed Soft Landscaping Scheme (SLS) to be prepared post consent;

- Appendix 11.8 – Landscape Management Plan (Document Reference 6.2.11.8);

- Appendix 11.9 – Public Rights of Way Assessment and Strategy (Document Reference 6.2.11.9);

- Figure 11.1 – Site Location and Site Boundaries (Document Reference 6.3.11.1);

- Figure 11.2 – Landscape Designations and Other Considerations (Document Reference 6.3.11.2);

- Figure 11.3 – Other Environmental Considerations (Document Reference 6.3.11.3);

- Figure 11.4 – National Character Areas (Document Reference 6.3.11.4);

- Figure 11.5 – Published Landscape Character Areas (Document Reference 6.3.11.5);

- Figure 11.6 – Local Landscape Character Areas (Document Reference 6.3.11.6);

- Figure 11.7 – Topography (Document Reference 6.3.11.7);

- Figure 11.8 – ZTV of the Site in its current form (Document Reference 6.3.11.8);

- Figure 11.9 – ZTV of Proposed Parameters (Document Reference 6.3.11.9);

- Figure 11.10 – Photoviewpoint Locations (Document Reference 6.3.11.10);

- Figure 11.11 – Night Photoviewpoint Locations (Document Reference 6.3.11.11);

- Figure 11.12 – Representative Views (Document Reference 6.3.11.12);

- Figure 11.13 – Representative Night Views (Document Reference 6.3.11.13);

- Figure 11.14 – Accurate Visual Representations (Document Reference 6.3.11.14);

- Figure 11.15 – Landscape Masterplan (Document Reference 6.3.11.15);
- Figure 11.16 – Existing Public Rights of Way (Document Reference 6.3.11.16);
- Figure 11.17 – Public Rights of Way Assessment (Document Reference 6.3.11.17);
- Figure 11.18 – Public Rights of Way and Public Access Strategy (Document Reference 6.3.11.18);
- Ecological Mitigation and Management Framework (Document Reference 6.2.12.3); and
- Arboricultural Impact Assessment (Document Reference 6.2.12.9).

METHODOLOGY AND DATA SOURCES

EIA scoping

11.6 An EIA Scoping Report was submitted to the Secretary of State (SoS) in June 2020. A Scoping Opinion was subsequently received from the SoS in July 2020, and the comments received have been used to inform the assessment. Table 11-1 includes the Planning Inspectorate's (PINS; the Inspectorate) comments from the 2020 EIA Scoping Opinion in relation to landscape and the actions taken.

Table 11-1: PINS comments from EIA Scoping Opinion in relation to landscape (July 2020)

Paragraph	Inspectorate's comments	Action taken
4.4.1	No matters have been proposed to be scoped out of the assessment.	N/A
4.4.2 / 10.82	The Scoping Report states that further refinement of the scope to the Landscape and Visual impact assessment will take place. The Inspectorate refers the Applicant to paragraph 3.1.3 of this Opinion.	In accordance with the recommendation of PINS, there has been further consultation with DBC, GBC, TC, EDC, NE and Kent Downs AONB Unit to scope in/out elements as appropriate.
4.4.3 / 10.4-10.13, 10.61	The Scoping Report does not mention guidance such as the Landscape Institute and IEMA's Guidelines for Landscape and Visual Impact Assessment (3rd edition) (2013), NE's An Approach to Landscape Sensitivity Assessment (2019), Historic England's Understanding Place: Historic Area Assessments (2017), and Standards for Highways' DMRB – LA 104 Environmental Assessment and Monitoring	GLVIA3 was referred to in para 10.61, whilst there is further detail within the Landscape baseline report (Document Reference 6.2.11.1) submitted. The other mentioned documents have been considered within Document Reference 6.2.11.1.

Paragraph	Inspectorate's comments	Action taken
	(2019). The Applicant should make efforts to agree applicable guidance for the assessment with relevant consultation bodies.	
4.4.4 / 10.21, Table 10.1, 3.17; 10.22; 10.53, Table 10.3	In response to the original 2014 Scoping, the Planning Inspectorate advised that efforts should be made to agree the location of viewpoints and photomontages with relevant consultation bodies. The Scoping Report identifies up to 50 representative Photoviewpoints and Night Photoviewpoints. The Inspectorate considers that appropriate viewpoints and photomontages should be included within the ES. The Applicant should make effort to agree the locations and number of viewpoints and photomontages applicable to the assessment with relevant consultation bodies.	Viewpoints have been agreed with DBC, GBC, ThC, EDC, NE and Kent Downs AONB Unit.
4.4.5 / 10.21, Table 10.1, 3.18	The Scoping Report identifies up to 50 representative Photoviewpoints and Night Photoviewpoints. The Inspectorate considers that appropriate viewpoints and photomontages should be included within the ES. The Applicant should make effort to agree the locations and number of viewpoints and photomontages applicable to the assessment with relevant consultation bodies. However, the Inspectorate notes the lack of proposed viewpoints from Tilbury Docks and Tilbury itself facing west and south-west towards the Proposed Development. There are also no viewpoints from Gravesend on the south bank of the Thames facing north to the Proposed Development on the Essex Project Site. The Inspectorate considers that these viewpoints should be included in the ES.	Viewpoints have been consulted with DBC, GBC, TC, EBD, NE and Kent Downs AONB Unit. Viewpoints from Tilbury Docks and Tilbury itself facing west and south-west towards the Proposed Development and from Gravesend on the south bank of the Thames facing north to the Proposed Development on the Essex Project Site have been included within Figure 11.12, Document Reference 6.3.11.12) New viewpoints have been included within a revised photoviewpoint plan (Figure 11.10, Document Reference 6.3.11.10) agreed with ThC, EDC, GBC, NE and Kent Downs AONB Unit. No comment received from TC or GBC.

Paragraph	Inspectorate's comments	Action taken
4.4.6 / 10.21, Table 10.1, 3.19; 10.59 – 10.60	These sections of the Scoping Report consider potential effects on the metropolitan Green Belt by the southern boundary of the Proposed Development along the A2, concerns over which were raised in the 2014 Scoping by the Planning Inspectorate and Gravesham Borough Council. The Inspectorate does not consider that the Scoping Report provides a clear description of the likely impacts to the Green Belt or how they will be assessed in the ES. The ES should fully assess impacts to the Green Belt from the Proposed Development where significant effects are likely to occur.	Consideration has been given (in landscape and visual terms) to the Green Belt within the ES (para 11.293).
4.4.7 / 10.23, Table 10.2	The Scoping Report does not mention the potential for visual impacts from the Proposed Development on the existing High Speed (HS) 1 infrastructure particularly receptors at Ebbsfleet Station. The Inspectorate consider that the ES should include an assessment of the impacts to these receptors where significant effects are likely to occur.	Impacts upon HS1 and the other rail networks passing near the DCO site are considered in the ES (paras 11.119-11.120, 11.168, 11.227 and 11.287).
4.4.8 / 10.23, Table 10.2	The Marine Management Organisation requested that 'seascapes' should be included in consideration of landscape and visual impacts. There is no specific consideration of this in the 2020 Scoping Report. Although located on the River Thames rather than the sea, part of the Proposed Development is situated within the Swanscombe Marine Conservation Zone, and the 'riverscape' of the Thames is very much part of its historic and contemporary experience. The ES should therefore include an assessment of impact to views from the river to the land and views along the river, cross-referenced with the heritage section as relevant.	The Applicant has chartered a boat to obtain 'river views' and has included six additional views along the Thames. The ES takes into account the published 'Reach Character Areas' (RCAs) which set out the character along the Thames (para 11.55). The ES also includes the Thames within the Local Landscape Character Areas and provides an assessment of these in relation to the construction and completion of the Proposed Development Appendices 11.2 and 11.3 (Document References 6.2.11.2 and 6.2.11.3).
4.4.9 / 10.24	The Scoping Report refers to a 6km search area. Given the scale of the Proposed	The ZTV has been refined using the proposed parameters (Document

Paragraph	Inspectorate's comments	Action taken
	Development, the Inspectorate considers that this may not be sufficiently broad and should be increased. The Applicant should take care to ensure that the search area is sufficient and applicable to the extent of the likely impacts. For some receptors the range should be increased to up to 10km, in order to confirm the precise visual envelope where it is no longer possible to have views of the proposal. The ES should explain how the search area relates to the ZTV for the Proposed Development.	Reference 6.3.11.9) and a digital surface data which takes into account existing vegetation, built form and terrain. Consultation with NE and Kent Downs AONB has resulted in an agreed 8km study area to include some further areas of the Kent Downs AONB.
4.4.10 / 10.39	The Scoping Report notes how the skyline of the Swanscombe Peninsula is dominated by overhead power lines and pylons in many views. The Inspectorate also notes that there are chalk ridgelines with trees visible to the south which also form an important part of the visual experiences of these landscapes. The ES should acknowledge these features and reflect their importance within the assessment.	The chalk cliffs are acknowledged within the baseline report (Document Reference 6.2.11.1, that supports this ES Chapter.
4.4.11 / 10.41	The Scoping Report notes that a small number of public footpaths cross the Kent Project Site. The likely significant landscape and visual effects include potentially adverse visual effects on numerous public rights of way, but do not include the adverse landscape effects on those PRoWs which cross the site, both at construction and operational stages. The ES will need to consider in detail the visual impacts on PRoWs crossing the site during both the construction and operational phases.	The ES has assessed the visual impact upon these routes at construction, Year 1 of Operation and Year 15 of Operation and these assessments are included within Appendix 11.2 and 11.3 (Document References 6.2.11.2 and 6.2.11.3). The summary of these assessments are contained within paras 11.136 to 11.292 of this Chapter. A PRoW Assessment has been undertaken which also includes a Public Rights of Way and Public Access Strategy (Appendix 11.9, Document Reference 6.2.11.9)

Paragraph	Inspectorate's comments	Action taken
4.4.12 / 10.45	The description of the Essex Project Site in the Scoping Report omits reference to salt marsh and mud flats, which are present albeit not to the same extent as on the Kent Project Site. The ES should ensure the description of the receiving environment is accurate and up to date.	The Order Limits have been amended and exclude areas of salt marsh and mud flat.
4.4.13 / 10.72	The Scoping Report states that future assessment of landscape effects for London Resort will include a full tree survey and report, and an Arboricultural Impact Assessment appended to the Landscape and Visual Chapter of the ES. The Inspectorate welcomes this, though the ES should explain how this information has been used to inform the assessment of landscape receptor value (e.g. Ancient Woodland). The ES should also cross-refer to the assessment of ecological impact.	An Arboricultural Impact Assessment (AIA) is included as Appendix 12.9, (Document Reference 6.2.12.9) to ES Chapter 12 Terrestrial Ecology and Biodiversity. There will be no loss of Ancient Woodland as a result of the development. The AIA has informed and has been informed by the Landscape Strategy at Appendix 11.7 (Document Reference 6.2.11.7). Cross-references to Chapter 12 (Document Reference 6.1.12) are also included
4.4.14 / 10.75-10.76	The Scoping Report lists a series of possible avoidance and mitigation measures. 'Green infrastructure' in the form of hedgerow and woodland planting and creation of public open space is proposed, along with ecological enhancements of the existing marshland. The ES should also address the potential for such measures to mitigate landscape and visual effects.	Appendix 11.7 (Document reference 6.2.11.7) includes a Landscape Strategy for the Proposed Development, with particular focus on the Swanscombe Peninsula of the Kent Project Site. The landscape and visual assessments contained within Appendices 11.2 and 11.3 (Document Reference 6.2.11.2 and 6.2.11.3) take into consideration such mitigative measures.
4.4.15 / 10.77	The Inspectorate welcomes the proposal to assess lighting impacts during operation and construction. The assessment should also cross- refer to effects on ecological receptors and assess impacts on existing residents to the south, west and east of the Kent Project Site, and residents on the northern side of the River Thames. No	Narrative is provided for in the ES with regard to potential lighting impacts, based on the Lighting Strategy (Document Reference 7.9) for the Proposed Development.

Paragraph	Inspectorate's comments	Action taken
	details are provided of light effects generated by proposed rides and entertainment, or by events that might utilise lasers, projections, fireworks, flames, thunder flashes, dry ice and smoke, or other visual effects. Although the Inspectorate appreciates that many such details are uncertain at this stage, a 'Rochdale Envelope' approach to the possible impacts of such lighting and special effects must also feature in the assessment of landscape and visual effects within the ES.	
4.4.16 / 10.84	The Scoping Report states that 'There are no significant constraints to development in landscape, visual and arboricultural terms'. The ES should provide sufficient detail to support the veracity of such statements. The ES should also cross-refer to constraints relating to the visual safety of diurnal and nocturnal river navigation, and the presence of areas of Ancient Woodland within or adjacent to the Proposed Development area.	A significant constraint in landscape and visual terms would be a development located within a designated landscape such as an Area of Outstanding Natural Beauty (AONB) or National Park, or landscapes designated at a local scale, such as Special Landscape Areas (SLAs), Areas of Great Landscape Value (AGLV) etc. The Project Site is not located within a nationally or locally designated landscape. There is no Ancient Woodland within the Project Site boundary nor any direct impacts on Ancient Woodland as a result of the Proposed Development.
4.4.17	In addition to views towards the Proposed Development, the landscape and visual effects assessment could also consider views out for visitors, from within the completed park and also on its rail, road and river approaches. This would allow elements of the design to enhance visitors' visual experience and appreciation of the scheme and the wider landscape setting	The design of views in and out of the Proposed Development has been considered in the masterplanning process, informing layout and design. The Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) provides the overall landscape design principles for the Proposed Development covering a number of elements such as

Paragraph	Inspectorate's comments	Action taken
		accessibility, habitat creation and ecology, hydrology and public facilities, and provides the basis for a fully detailed Landscaping Scheme (SLS) to be prepared post consent.
4.4.18	The Inspectorate reminds the Applicant that the landscape and visual effects chapter of the ES must also be adequately cross-referenced with consideration of visual impact on other environmental receptors including transport, heritage and archaeology, and ecology.	This has been reflected within this ES Chapter.

11.7 The comments received from statutory consultees formally consulted by PINS in preparing the 2020 Scoping Opinion, and how the comments have been taken into consideration, are provided in Appendix 11.4, (Document Reference 6.2.11.4).

Assessment methodology and significance criteria

11.8 Provided within this section is an abridged methodology for the LVIA. An unabridged version can be found within Appendix 11.1 (Document Reference 6.2.11.1), along with a glossary of terms used within the assessment.

11.9 The assessment methodology for assessing landscape and visual effects is based on the following best practice guidance:

- Guidelines for Landscape and Visual Impact Assessment – Third Edition (LI/IEMA, 2013);
- An Approach to Landscape Character Assessment (NE, 2014);
- Landscape Institute Technical Guidance Note (TNG) 06/19 Visual Representation of Development Proposals (17 September 2019);
- Design Manual for Roads and Bridges: LA 107 (Revision 2) – Landscape and visual effects (February 2020); and
- PINS Advice Note 6: Preparation and submission of application documents (November 2019).

11.10 Other reference documents used to understand the baseline position in landscape terms comprise published landscape character assessments appropriate to the Project Site's location and the nature of the Proposed Development.

11.11 The nature of landscape and visual assessment requires both objective analysis and subjective professional judgement. Accordingly, the following assessment is based on the best practice guidance listed above, information and data analysis techniques. It uses quantifiable factors wherever possible and subjective professional judgement where necessary, and is based on clearly defined terms (see Glossary, Appendix 11.1: Annex 2.0)

Assessment methodology

11.12 Tables 2.1–2.8 within Annex 2.0 of Appendix 11.1 (Document Reference 6.2.11.1) offer a template for assessing the overall sensitivity of any landscape or visual receptor, as determined by combining judgements of their susceptibility to the type of change or development proposed and the value attached to the landscape or view as set out at paragraph 5.38 of GLVIA 3rd Edition (2013).

11.13 However, the assessment of overall sensitivity can change on a case-by-case basis. For example, a high susceptibility to change and a low value may result in a medium overall sensitivity, unless it can be demonstrated that the receptor is unusually/not as susceptible or is in some particular way more/less valuable. A degree of professional judgment applies in arriving at the overall sensitivity for both landscape and visual receptors.

Significance of effect

11.14 The purpose of the EIA process is to identify the likely significant environmental effects (both beneficial and adverse) of development proposals. Schedule 4 to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('2017 EIA Regulations) specifies the information to be included in all environmental statements, which should include a description of:

'The likely significant effects of the development on the environment … should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.'

11.15 To assess the likely significance of any effect, the sensitivity of each receptor is combined with the predicted magnitude of change to determine the significance of effect, with reference also made to the geographical extent, duration and reversibility of the effect within the assessment. Having taken such a wide range of factors into account when assessing sensitivity and magnitude at each receptor, the significance of effect can be derived by combining the sensitivity and magnitude in accordance with the matrix in Table 11-2 below.

Table 11-2: Level of effects matrix

Overall Sensitivity	Overall Magnitude of Change				
	Very High	**High**	**Medium**	**Low**	**Very Low**
Very High	**Substantial**	**Major**	**Major/-Moderate**	**Moderate**	Moderate/-Minor
High	**Major**	**Major/-Moderate**	**Moderate**	Moderate/-Minor	Minor
Medium	**Major/-Moderate**	**Moderate**	Moderate/-Minor	Minor	Minor/-Negligible
Low	**Moderate**	Moderate/-Minor	Minor	Minor/-Negligible	Negligible
Very Low	Moderate/-Minor	Minor	Minor/-Negligible	Negligible	Negligible/-None

11.16 Each effect is described and evaluated individually through the combination of all of the relevant factors and assessed as either significant or not significant. For landscape and visual effects, those effects identified at a substantial, major, major/moderate or moderate level (bold type within matrix above) are generally considered to be significant and those effects assessed at a moderate/minor, minor, minor/negligible or negligible level are considered to be not significant.

11.17 In certain cases, where additional factors may arise, a further degree of professional judgement may be applied when determining whether the overall change in the view will be significant or not and, where this occurs, this is explained in the assessment.

Cumulative effects

11.18 Cumulative effects generally occur where there may be simultaneous or sequential visibility of two or more developments of the same type and scale, or where the consideration of other schemes would increase an effect identified. Where other similar schemes are in the planning system or are under construction, and the information is publicly available, these are considered in conjunction with the Proposed Development.

11.19 Chapter 21 of the ES (Document Reference 6.1.21) describes the methodology used to identify a short list of cumulative sites for consideration.

Field surveys

11.20 A field assessment of local site circumstances, including a photographic survey of the character and visual context of the Project Site and its surroundings, and an analysis of Rights of Way, was undertaken between January and November 2020 to gather robust baseline information. Field assessments were undertaken, as far as is practicable, in accordance with best practice guidance which states that such assessments should be undertaken when the leaves are absent from the majority of trees/vegetation and visibility is at its greatest. As such the vast majority of Photoviewpoints were taken in

winter conditions, whilst additional views that have been requested by various LPAs and consultees were taken in late summer/autumn due to project timescale constraints. Assessments upon summer/autumn views are still assessed in consideration of the worst case (winter) scenario.

11.21 These field-based assessments were undertaken by qualified landscape architects, during good weather conditions.

Study areas

11.22 As a result of baseline analysis, together with an understanding of the nature and scale of the Proposed Development, and the likely extent and distribution of effects, the assessment defines the following study areas, as represented on Figure 11.1 (Document Reference 6.3.11.1):

- Broad Study Area – set at 8km distance from the Project Site (providing the broad geographical context); and

- Detailed Study Area – set at 2km from the Project Site (the area within which any significant effects are likely to fall).

11.23 A broad study area of 8km was revised from 6km at the 2020 statutory consultation stage and agreed with NE and Kent Downs AONB Unit, as shown on Figure 11.1 (Document Reference 6.3.11.1), enabling the geographical scope of the assessment to be defined and to provide the wider geographical context of the study. The search focussed on the local planning policy context, on identifying national and local landscape and other associated designations (e.g. Areas Of Outstanding Natural Beauty (AONB), historic parks and gardens) and providing a general geographical understanding of the Project Site and its broader context (for example, in relation to landform, transport routes and the distribution and nature of settlement).

11.24 Following initial analysis and subsequent field work, and having an appreciation of the Proposed Development , a refinement of the study area has been undertaken that focuses on those areas and features that are likely to be affected by the Proposed Development. A Zone of Theoretical Visibility (ZTV) for the proposal was produced across the 8km study area to aid understanding of the potential geographical extent of visual effects and help define a more detailed study area. The extent of this detailed study area is 2km from the Project Site, although occasional reference may be made to features beyond this area where appropriate. This detailed study area is illustrated on Figure 11.1 (Document Reference 6.3.11.1).

Limitations and assumptions

11.25 Baseline conditions have been established using existing assessments, available documentation and field assessment; it is important to note that these baseline conditions may change between submission of the application for the Proposed Development and

before or during the construction of the Proposed Development. This could be, for example, because of other developments going ahead that are currently unknown.

11.26 Within reasonable limits, the assessment is undertaken in consideration of the 'worst case' scenario for the Proposed Development, i.e. those potential outcomes, situations or location that would result in the most elevated effect on landscape and visual receptors. It therefore identifies the greatest degree of change likely to accrue and may be subject to mitigating factors or alternative conditions that might reduce those effects. For example, visual effects are considered in both summer and winter context; although the magnitude of change and effect is expressed for winter landscape conditions when trees are bare of leaf cover and the visibility of development is at its greatest. Where this is the case, the assessment identifies alternative conditions or further mitigation which might result in impacts being less pronounced.

11.27 The assessment applies a pre-determined methodology to arrive at conclusions which are detailed in Appendix 11.2 (Schedule of Construction Effects, Document Reference 6.2.11.2) and Appendix 11.3 (Schedule of Operational Effects, Document Reference 6.2.11.3) and summarised in this Chapter at para 11.126 onwards. This procedure brings a degree of objective, procedural rigor into what otherwise might be judged to be 'personal opinion'. Professional judgement still plays its part, but the purpose of adopting a methodology is to make the process as clear and logical as possible.

11.28 This assessment has been undertaken with regard to the phases of the Proposed Development and assumed build rate therein. The Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) submitted as part of the DCO application, illustrates a proposed illustrative strategy for planting, hard surface treatments and habitat creation within other open areas. This will be accompanied by an appropriate Landscape Management Plan (Appendix 11.8, Document Reference 6.2.11.8) that will be secured as a requirement of the DCO.

CONSULTATION

Preliminary Environmental Information Report (PEIR)

11.29 As part of its pre-application duties, the Applicant held a statutory consultation in Summer 2020. A Preliminary Environmental Information Report (PEIR) was prepared in support of this process to assist consultees in understanding the potential environmental effects of the Proposed Development and to enable consultees to develop an informed view of the project, ahead of a DCO application being made.

11.30 Comments received on the PEIR, in relation to landscape and visual effects, from relevant consultees, and how these have been addressed, are provided in Appendix 11.5 (Document Reference 6.2.11.5).

Consultation meetings and correspondence

11.31 In addition to the above consultation has been held with parties with an interest in landscape and visual matters. Table 11-3 provides a summary of the meetings and/or email/telephone correspondence with relevant consultees.

Table 11-3: Summary of consultation meetings and correspondence

Consultee	Details
NE, Environment Agency, KCC, DBC, GBC, Marine Management Organisation,	Environmental Liaison Group meeting on 18 May 2020. Introductory meeting to re-introduce consultees to the proposals and the scope of survey and assessment to be undertaken to inform the DCO application.
NE, Environment Agency	Marsh management meeting on 24 August 2020 to discuss surface water drainage proposals, and proposed wetland creation, enhancement and management.
Kent Downs AONB, NE	Landscape and Visual Assessment Consultation on 22 September 2020 to agree Photoviewpoint locations.
EDC	Masterplanning Workshop on 24 September 2020 to discuss approach to masterplan and green infrastructure.
EDC	Landscape and Visual Assessment Consultation on 06 August 2020 to consult and agree Photoviewpoint based upon suggestions made in the scoping response.
EDC, GBC, DBC, KCC	Built Form, Landscape and Public Realm Workshop on 26th November to discuss urban and landscape design principles across various topic areas.
DBC	Landscape and Visual Assessment Consultations via email on 09 July 2020, 21 July 2020, 06 August 2020 and 16 August 2020 to consult and agree upon Photoviewpoint locations.
GBC	Landscape and Visual Assessment Consultation via phone call on 06 August 2020 and emails on 11 August 2020 and 24 August 2020 to consult and agree upon Photoviewpoint locations.
ThC	Landscape and Visual Assessment Consultation on 11 August 2020 and 08 September 2020 to consult and agree upon Photoviewpoint locations.

RELEVANT LAW, POLICY AND GUIDANCE

Legislative and policy context

European Landscape Convention 2000

11.32 The European Landscape Convention (ELC), which was signed by the UK in February 2006 and became binding in 2007, is the first international convention to focus specifically on landscape issues and aims to protect and manage landscapes in Europe and to plan positively for change within them. The ELC highlights the importance of developing landscape policies dedicated to the protection, management and creation of landscapes, and establishing procedures for the general public and other stakeholders to participate in policy creation and implementation.

11.33 The ELC defines landscape as *'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'* (Council of Europe, 2004).

Policy framework

National Policy Statements

11.34 National Policy Statements (NPS) set out the need for and government's policies to deliver Nationally Significant Infrastructure Projects (NSIPs) in England. Chapter three of this ES explains that there is no NPS for business and commercial NSIP projects. However, to the extent that the Proposed Development includes transport and highways infrastructure, regard has been had to relevant policy in the NPS for National Networks, including:

- Environmental and social impacts (NPS paragraphs 3.2-3.5);
- Criteria for '*good design'* for national network infrastructure (NPS paragraphs 4.28-4.35);
- Climate change adaptation (NPS paragraphs 4.36-4.47);
- Landscape and visual impacts (NPS paragraphs 5.143-5.161); and
- Land use including open space, green infrastructure and Green Belt (NPS paragraphs 5.162-5.185).

National Planning Policy Framework 2019 (NPPF)

11.35 At the heart of the National Planning Policy Framework (NPPF) is a presumption in favour of sustainable development, this being the key principle running throughout the document and the development of NPPF policies. Considering this broad aim alongside the three dimensions of sustainable development, in particular that relating to

environmental matters, the role of LVIA is key in the creation of successful places in which to live and work.

11.36 For landscape, this means recognising the intrinsic beauty of the countryside (NPPF paragraph 170) and balancing any 'harm' to the landscape resource with the benefits of the scheme in other respects.

11.37 With regards to statutory landscape designations, paragraph 172 states that:

'Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues' and the '*scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest*'.

11.38 No part of the DCO Order Limits falls within or adjacent to the above specified statutory landscape designations.

11.39 In consideration of the landscape and visual impacts of light pollution, paragraph 180 bullet point c states that new development should *'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation'*.

11.40 National planning policy with regard to the protection of Green Belt land is set out in Section 13 of the NPPF, with paragraph 133 stating that: *"The Government attaches great importance to Green Belts. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the essential characteristics of Green Belts are their openness and their permanence"*. Paragraph 134 goes on to describe the five purposes of Green Belt, which are:

a) *"to check the unrestricted sprawl of large built-up areas;*

b) *to prevent neighbouring towns merging into one another;*

c) *to assist in safeguarding the countryside from encroachment;*

d) *to preserve the setting and special character of historic towns; and*

e) *to assist in urban regeneration, by encouraging the recycling of derelict and other urban land."*

11.41 In terms of proposals affecting the Green Belt, paragraph 143 states that, *"Inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances"*.

11.42 The vast majority of the DCO Order Limits is not located within the Green Belt, with the

Swanscombe Peninsula entirely excluded from this designation. Similarly the vast majority of the access corridor (A2(T) and A296 main roads) is also excluded from the Green Belt, however a small strip of land within the DCO Order Limits and south of the A2(T) main road falls within the Green Belt (see Figure 11.2).

11.43 However, paragraph 146 states *"Certain other forms of development are also not inappropriate in the Green Belt provided they preserve its openness and do not conflict with the purposes of including land within it. These are: [inter alia]*

c) "…local transport infrastructure which can demonstrate a requirement for a Green Belt location;…"

11.44 The fundamental aim of the Green Belt policy is to prevent urban sprawl by keeping land permanently open; the essential characteristics of green belts are their openness and their permanence. As such, green belt is a spatial planning policy designation rather than a landscape designation based on landscape character and value (i.e. green belts are not automatically of high landscape value). Whilst green belt has been used to control all development, the focus of the designation is essentially to control the sprawl and creep of urban areas and settlements.

Local Plan Policy

11.45 The Project Site falls within four Local Planning Authority (LPA) areas: Dartford Borough, Gravesham Borough and Ebbsfleet Development Corporation in Kent and Thurrock, a unitary authority on the Essex side of the river. The relevant adopted local statutory planning documents include:

- Dartford Borough Core Strategy (adopted 2011);
- Dartford Borough Development Policies Plan (adopted 2017);
- Gravesham Borough Local Plan Core Strategy (adopted 2014); and
- Thurrock Core Strategy and Policies for Managing Development (adopted 2015).

11.46 A summary of the landscape and visual amenity relevant policy contained within the above documents and how it has been addressed by the Proposed Development is provided in Table 11-4 below.

Table 11-4: Summary of landscape and visual amenity relevant policy

Policy	Summary of policy requirement	How addressed in the scheme
Dartford Borough Core Strategy (Adopted 2011)		
Policy CS6 – Thames	Protecting and enhancing Black Duck Marsh and Dartford Marshes	Mitigation and enhancement measures have been identified to

Policy	Summary of policy requirement	How addressed in the scheme
Waterfront Priority Area	as areas of biodiversity value and public recreational areas for quiet enjoyment, to the extent that the ecological protection of the area permits. New development will be expected to include connecting corridors of natural habitat along the river to enhance biodiversity linkages and to protect s41 species and other species of local ecological value.	contribute to policy objectives as set out in the Landscape Strategy at Appendix 11.7 (Document Reference 6.2.11.7)
Policy CS14 – Green Belt	Preserve the openness of the Green Belt, maintain its national and local planning purposes and protect it from inappropriate development.	A2(T) works only within the Green Belt with minimal change. Considered exceptional circumstances in the case of an NSIP.
Dartford Borough Development Policies Plan (Adopted 2017)		
Policy DP22 – Green Belt in the Borough	Preserve the openness of the Green Belt, maintain its national and local planning purposes and protect it from inappropriate development.	A2(T) works only within the Green Belt with minimal change, Considered exceptional circumstances in the case of an NSIP.
Policy DP25 – Nature Conservation and Enhancement	Proposals should seek to avoid any significant adverse impact on existing biodiversity features. In all development proposals existing trees should be retained wherever possible.	Where significant adverse impact is unavoidable, mitigation is provided as set out within Chapter 12 of the ES. Some tree loss is unavoidable and mitigation in the form of a tree planting strategy is set out in the Arboricultural Impact Assessment (Appendix 12.9 of Chapter 12 of the ES) and Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7)
Gravesham Borough Local Plan Core Strategy (Adopted 2014)		
Policy CS12 – Green Infrastructure	Policy seeks to restore, protect, enhance and where appropriate create green assets. Connectivity between urban and rural areas in the borough will be encouraged to ensure that such green assets are multi-functional in use. Opportunities to increase green infrastructure will be pursued in new developments through the incorporation of features such as green roofs, green walls and other	A comprehensive Green Infrastructure Network is proposed as set out within the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) This includes green and brown roofs, green walls and an extensive habitat creation and enhancement strategy.

Policy	Summary of policy requirement	How addressed in the scheme
	habitat/wildlife creation and also innovative technology.	
Policy CS19 – Development and Design Principles	New development will be visually attractive, fit for purpose and locally distinctive. It will conserve and enhance the character of the local built, historic and natural environment, integrate well with the surrounding local area and meet anticrime standards	The Resort will be designed to a high standard and in accordance with the principles set out within the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) that ensure it relates well to the Marsh character of the peninsula and the distinctive character of the chalk pits as well as the Ebbsfleet Valley.
Thurrock Core Strategy and Policies for Managing Development (Adopted 2015)		
Policy CSTP18 – Green Infrastructure	Policy seeks to restore, protect, enhance and where appropriate create green assets. Connectivity between urban and rural areas in the borough will be encouraged to ensure that such green assets are multi-functional in use. Opportunities to increase green infrastructure will be pursued in new developments through the incorporation of features such as green roofs, green walls and other habitat/wildlife creation and also innovative technology.	A comprehensive Green Infrastructure Network is proposed as set out within the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7). Within Thurrock this includes habitat creation and enhancement within the Tilbury Ferry Terminal Area including roadside verges and public realm.
Policy CSTP23 – Thurrock Character and Distinctiveness	The policy seeks to protect, manage and enhance the character of Thurrock to ensure improved quality and a strengthened sense of place.	The Resort will be designed to a high standard and in accordance with the principles set out within the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) that ensure it relates well to the character of Tilbury Docks, preserving historic and locally distinctive features to enhance the sense of place.
Policy CSTP28 – River Thames	New development will maintain or enhance views, particularly of key features including heritage and landscapes, and will improve recreational interaction with the river and its setting	The development provides opportunity to celebrate the listed Riverside Station and provide public education on its history.
Policy PMD2 – Design and Layout	The Council requires all design proposals to respond to the sensitivity of the site and its	Landscape features at the Essex Site are relatively limited but the development provides opportunity

Policy	Summary of policy requirement	How addressed in the scheme
	surroundings, to optimise the potential of the site to accommodate development, to fully investigate the magnitude of change that would result from the proposals, and mitigate against negative impacts. With regard to landscape: Features contributing to the natural landscape in the Borough, such as woods, hedges, specimen trees, unimproved grassland, ponds and marshes, will be protected and where appropriate enhanced to maintain their landscape and wildlife value. Provision and enhancement of landscape features will also be required to contribute to multiple uses and/or eco-system services, including amenity, recreation, flood alleviation and Sustainable Urban Drainage Systems	to provide additional features such as trees within the public realm and highway verges.

BASELINE CONDITIONS

11.47 A summary of relevant designations is provided below and illustrated in Figure 11.2 (Document Reference 6.3.11.2):

- There is one statutory landscape designation within the 8km search area. The Kent Downs Area of Outstanding Natural Beauty (AONB) lies approximately 5.1km south-east of the Kent Project Site;
- No non-statutory landscape designations exist within the 8km search area;
- The southern area of the Kent Project Site, south of the A2(T) main road, is in the metropolitan green belt;
- A small number of public rights of way (PRoW) cross the Project Site including Footpath DS1, DS2, DS3, DS5, DS12, DS17, DS20, DS30, DS31, NU1, NU7A, NU14, NU47, DR19, DR20, DR128, Restricted Byway DR129 and Footpath 193;
- A very small section of the northern extent of 'The Thrift' Ancient Woodland, south of the A2 lies within the DCO Order Limits amounting to c.0.25ha. In addition, three

blocks of Ancient Woodland fall adjacent to the southern part of the Kent Project Site, one of which lies south of the A2(T), whilst the westernmost extent of the DCO Order Limits abuts two small sections of Darenth Wood (see Document Reference 2.7);

- Botany Marsh Local Wildlife Site lies within the Swanscombe Peninsula area of the Kent Project Site and part of the Ebbsfleet Marshes Local Wildlife Site which includes wet woodland and reed beds, is located in the Ebbsfleet Valley section of the Kent Project Site (see Document Reference 2.7); and

- There are three listed buildings within the Project Site, namely the Grade II* listed Riverside Station including floating landing stage, the Grade II listed Boundary Stone at Ingress Park and the Grade II listed Swanscombe Cutting Footbridge Crossing A2(T) east of A296 Junction.

Landscape character

National character areas

11.48 At a national level the Project Site lies in a transitional zone between NE's National Character Areas (NCA). The Swanscombe peninsula area of the Kent Project Site and Tilbury Ferry Terminal part of the Essex Project Site are located within NCA 81[1] 'Greater Thames Estuary'. The southern parts of the Kent Project Site, including the existing quarries, land around Ebbsfleet International and the A2(T) road corridor, are located in NCA 113[2] 'North Kent Plain'. Just north of the northern bank of the River Thames and the Essex Project Site lies NCA 111[3], the 'Northern Thames Basin', whilst to the south of the Kent Project Site lies NCA 119[4], 'North Downs', which is broadly associated with the higher wooded ground of the Kent Downs AONB. These NCAs are illustrated in Figure 11.4 (Document Reference 6.3.11.4).

11.49 The following subsections identify the county and borough published landscape character areas within the near vicinity of the Project Site, whilst a more detailed narrative is included in the LVIA (Appendix 11.1, Document Reference 6.2.11.1). Figure 11.5 (Document Reference 6.3.11.5) illustrates the location of Landscape Character Areas (LCAs) in relation to the Project Site. It should be noted that where borough level information is not present, the next best available data is used, i.e. county level.

[1] *NCA Profile: 81 Greater Thames Estuary (NE, 2013)* *http://publications.naturalengland.org.uk/publication/4531632073605120*
[2] *NCA Profile: 113 North Kent Plain (NE, 2012)* *http://publications.naturalengland.org.uk/publication/2900242*
[3] *NCA Profile: 111 Northern Thames Basin (NE, 2013)http://publications.naturalengland.org.uk/publication/4721112340496384*
[4] *NCA Profile: 119 Northern Downs (NE, 2013)* *http://publications.naturalengland.org.uk/publication/7036466*

Kent Landscape Character Assessment (2004)

11.50 A review of the Kent Landscape Character Assessment (KLCA) finds that the Kent Project Site is located in four Landscape Character Areas (LCAs). The northern parts of the Kent Project Site (Swanscombe Peninsula) lie within the 'Western Thames Marshes' LCA, whilst the majority of the southern portions of the Kent Project Site are in the 'Dartford and Gravesend Fringes' LCA, with sections of the A2(T) road within the DCO boundary partially lying within the 'Darenth Downs' LCA and 'Southfleet Arable Lands' LCA.

Gravesham Landscape Character Assessment (2009)

11.51 The Gravesham Landscape Character Assessment (GLCA) finds that the Kent Project Site overlaps with two LCAs. The eastern part of the Kent Project Site on Swanscombe Peninsula is in the Botany Marshes LCA, whilst a small section of the A2(T) at the south-eastern extent of the Kent Project Site is located in the 'Southern Gravesend Fringes' LCA. Within the 2km detailed study area is also the 'Istead Arable Farmland' LCA which comes to within 80 metres of the southern boundary of the Kent Project Site.

Gravesham Townscape Appraisal (2008)

11.52 According to the Gravesham Townscape Appraisal (GTA), the Kent Project Site is partially within the 'Industrial Hinterland' Townscape Character Area (TCA). Elsewhere, the Kent Project Site also abuts the 'Northfleet' TCA and 'Modern Suburbs' TCA.

Thurrock Landscape Capacity Study (2005)

11.53 With regard to the Thurrock Landscape Capacity Study (TLCS), the Essex Project Site is determined as falling within the 'Tilbury and Docks Urban Area' LCA and 'Tilbury Marshes' LCA.

Thames Strategy East (2008)

11.54 A review of the Thames Strategy East (TSE) locates the Kent Project Site in the Reach Character Areas (RCA), the 'Long Reach and Fiddler's Reach' RCA and the 'Northfleet Hope' RCA. The Essex Project Site similarly falls within two RCAs, namely the 'Northfleet Hope' RCA and 'Gravesend Reach' RCA.

Landscape character of the project site itself

11.55 Whilst the above published assessments provide a helpful contextual appreciation of the wider landscape, none provide a sufficiently site-specific assessment to allow a full assessment to be made of the effects of the Proposed Development on the landscape.

11.56 An appropriately detailed assessment of the Project Site itself and its immediate surroundings has been undertaken. This is described in detail in Appendix 11.1 (Document Reference 6.2.11.2) and section 2 of the Landscape Strategy (Document Reference

6.2.11.7) and summarised below.

11.57 Site visits have taken place throughout 2020 in good to excellent weather conditions. The visits were complemented by a review of aerial photography, mapping and field assessments from publicly accessible locations (e.g. from local roads and PRoW).

11.58 Appendix 11.1 (Document Reference 6.2.11.1) identifies the variation in landscape across the Project Site and its immediate context. Due to the lack of local published landscape character assessments at the sub-county level (namely Dartford Borough) to assist with the LVIA, the LVIA baseline (Appendix 11.1, Document Reference 6.2.11.1) has identified 32 Local Landscape Character Areas (LLCAs) which are illustrated on Figure 11.6 (Document Reference 6.3.11.6). These LLCAs have been based upon review of published national and county level landscape character assessments, site visits and desk study exercises. The boundaries of these LLCAs are in reality, gradual and not fixed, and have been illustrated in line form on plan to provide an understanding of the broad changes in settlement and landscape local to the Project Site.

11.59 The LLCAs covering or bounding the Kent Project Site include:

- 1. Marshland LLCA;
- 2. Chalk Pits LLCA;
- 3. International LLCA;
- 4. Northfleet LLCA;
- 5. Northfleet Industrial LLCA;
- 7. Swanscombe LLCA;
- 8. Swanscombe Heritage Park LLCA;
- 9. Ingress Park LLCA;
- 18. Gravesend Southern Fringe LLCA;
- 19. Springhead LLCA;
- 20. Wombwell Park LLCA;
- 21. Southfleet and Istead Arable Lands LLCA;
- 22. Darenth Downs LLCA;

- 23. Ebbsfleet LLCA;
- 25. Long Reach and Fiddler's Reach LLCA; and
- 26. Northfleet Hope LLCA;

11.60 The LLCAs covering or bounding the Essex Project Site include:

- 26. Northfleet Hope Reach LLCA;
- 27. Gravesend Reach LLCA;
- 28. Tilbury Marshes LLCA; and
- 30. Tilbury Docks LLCA.

11.61 Taking the above LLCAs into account, the Project Site and its surroundings varies considerably in character and cannot be ascribed an overarching character, value or sensitivity. The below paragraphs provide a brief narrative summary of the Kent and Essex Project Sites, informed by the character area study and site visits.

Kent Project Site

11.62 The focus of the Kent Project Site is the Swanscombe Peninsula which comprises a large area of open and industrialised land in a low-lying riverside landscape beside the River Thames, between the Queen Elizabeth II Bridge and Gravesend. To the south a series of chalk pits, landfill areas and infrastructure associated with Ebbsfleet International Station dominate the Ebbsfleet Valley down to the A2.

11.63 The Swanscombe Peninsula is predominantly a medium to large scale landscape with a generally open, low-lying and windswept character, retaining extensive areas of marshland including Black Duck Marsh, Botany Marsh and Broadness Marsh as well as existing industrial uses and derelict former industrial land.

Cultural associations and historic landscape

11.64 The historic and cultural associations of the Landscape of the Kent project Site are described in Section 2.2 of the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) and in more detail in ES Chapter 14 (Document Reference 6.1.14) where the pre-medieval and prehistoric significance of the Project Site is also described.

11.65 The Swanscombe Peninsula has a long industrial history relating to the manufacture of cement and paper and the majority of the area is a brownfield site comprising previously developed land, some of which contains contaminated landfill (see ES Chapter 18, Document Reference 6.1.18).

11.66 Prior to its use for quarrying and industrial purposes, the Swanscombe Peninsula was principally marshland, comprising a mix of salt marsh (Broadness Salt Marsh) and grazing marsh. The rectilinear drainage ditches on historic mapping indicate that much of land (Black Duck Marsh, Swanscombe Marshes and Botany Marshes) was subject to a grazing regime for summer use. Broadness Salt Marsh now has a raised terrain as a result of Cement Kiln Dust (CKD) tipping and the deposition of river dredging.

11.67 The Pilgrim's Way public footpath (DS12) across the Swanscombe Peninsula was a 'Manorway', used from medieval times as a pilgrim's route from the Thames ferry crossing to Swanscombe Church and the shrine of St Hildefirth. The ferry ceased operation in the mid-19th century but the footpath remains.

11.68 South of the Swanscombe Peninsula, the land was largely in agricultural use with scattered village settlements, more extensive woodland and orchard plantings as well as watercress beds along the River Ebbsfleet. Small scale gravel, clay and chalk pits were present up until the C19th when industrial development led to a significant increase in excavation of materials and larger pits being dug.

11.69 There are two listed buildings in the Kent Project Site, the A2 footbridge which is of modern architectural interest and the Ingress park boundary stone which marked the edge of the Ingress Park estate which included a historic parkland designed by 'Capability' Brown.

Topography, geology and soils

11.70 The Swanscombe Peninsula has an irregular topography (see Landscape Strategy, Appendix 11.7, Section 2.6, Document Reference 6.2.11.7) particularly because of historical CKD tipping activities and the deposition of dredging from the River Thames. Notably, two raised areas of tipped material rise to over 12-13m above Ordnance Datum (aOD) which creates an unnatural topography across what was traditionally a level floodplain. In addition, flood defences create an undulating topography along the edge of the Swanscombe Peninsula, particularly north of Black Duck Marsh.

11.71 To the south the topography is complex, due to a series of chalk pit excavations and landfills. The pit extractions immediately to the south of the peninsula have left low lying 'pits' divided by a significant chalk 'spine' which supports the A226, Galley Hill Road and London Road. This chalk spine has been tunnelled in various locations to facilitate road and rail connections. South of the 'pits' a landfill area creates an unnaturally high valley side opposite Ebbsfleet International Station, the land then dropping down quite significantly to the lower lying land around Springhead adjacent to the River Ebbsfleet.

11.72 The geology and soils of the Kent Project Site is described in Section 2.5 of the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) and in more detail in ES chapter 18: Soils (Document Reference 6.1.18). Unsurprisingly the underlying geology of the Swansombe Peninsula is alluvium whilst, chalk, sand and gravel underlie most of the land to the south.

Hydrology and water features

11.73 The hydrology of the Kent Project Site is described and illustrated in the Landscape Strategy, (Appendix 11.7 Section 2.7, Document Reference 6.2.11.7) and ES Chapter 15 (Document Reference 6.1.15). In summary, The River Thames and River Ebbsfleet form the main drainage channels associated with the Kent Project Site, together with an unnamed EA Main River referred to as 'Swanscombe Channel' in Chapter 15 (Document Reference 6.1.15). Drainage ditches across the peninsula serve to carry surface water to outflow pipes which discharge into the Thames and Black Duck Marsh.

11.74 A number of ponds and areas of standing water occur across the site including a pond in Bamber Pit, an area of open water in Black Duck Marsh and ponds within Botany Marsh.

11.75 A system of drains and filtration ponds are also present across the Swanscombe Peninsula to manage the leachate seeping from the landfill.

Habitats and planting

11.76 The habitats across the Kent Project Site are extremely varied and include grazing marsh, semi-improved calcareous and neutral grassland, amenity grassland, semi-mature woodland and scrub, reed beds, bare ground and open mosaic habitat on previously developed land. These are described and illustrated in Section 2.8 of the Landscape Strategy (Document Reference 6.2.11.7) and in more detail in ES Chapter 12 (Document Reference 6.1.12) and the Habitats of Protected Species plans (Document Reference 2.8 and 2.9).

11.77 Notably, much of the Kent Project Site has re-vegetated naturally over the past 10-20 years following restoration and is a very 'young' landscape, much of which is in transition from bare ground to grassland, grassland to scrub and scrub to woodland. In contrast to the majority of the 'restored' landscapes which are largely unmanaged (except for flood embankment management), Botany Marsh (east) is managed for wildlife and public access and the amenity grassland and planting areas around Ebbsfleet International Station and access road are well maintained.

Built features

11.78 Much of the Kent Project Site has been subject to a long history in the mineral extraction, cement and paper mill industries as well as still containing an active industrial estate, business park and international railway station. As a result, there are many buildings across the Kent Project Site of varying condition, ranging from the derelict industrial units south of Black Duck Marsh through to the modern glass and steel architecture of the Ebbsfleet International Station with the majority being functional industrial units in active use, particularly within the Northfleet Industrial Estate and Manor Way Business Park.

11.79 A number of industrial relics are scattered across the Kent Project Site including concrete hardstanding, security fencing and gates, remnant tram lines from the former cement

works, disused pylons, concrete blocks, a former sewage treatment plant, disused tunnels between chalk pits

11.80 There is also an amalgam of features related to the use of the site for quarrying and industrial landfill as well as construction storage and access for HS1 and Ingress Park such as a haul road along the northern edge of Black Duck Marsh and leachate collection ponds and treatment lagoons within Broadness Marsh as well as Bell Wharf and White's Jetty.

11.81 In terms of vertical elements, the skyline is dominated by overhead power lines and pylons in many views that cross the Peninsula on a south-east to north-westerly alignment, and include the 190 m tall 'super pylon' that lifts the transmission lines over the Thames to a similar tower on the northern bank. These lattice towers are the UK's tallest electricity pylons (and the third largest in Europe) and are prominent local landmarks.

11.82 Other utility features include a series of smaller electricity pylons on the Swanscombe Peninsula, to the north and west of Ebbsfleet International station and to the north of the A2(T) Ebbsfleet junction as well as an electricity sub-station, north of the A2 at Springhead, a radar station north of Broadness Creek and a maintenance building west of HS1 to the south of the A2260.

11.83 Considering the Swanscombe Peninsula/River Thames interface of the Kent Project Site, the river bank features Bell Wharf and the derelict White's Jetty, a small lighthouse jetty and an inlet known as Broadness Creek that has a number of moorings and boat sheds varying in character and maintenance.

11.84 Major infrastructure such as the A2(T), A2260, HS1 and the North Kent Line Railway are significant built features in the Kent Project Site. The most notable of which is the HS1 railway's Thames tunnel portal is situated on the Swanscombe Peninsula and continues south in cutting. Ebbsfleet International station also has extensive associated surface car parking, access roads and security fencing. A pumping station that serves to lower ground water adjacent to the tunnel is located to the north-east of the tunnel portal. A section of the North Kent Line also falls within the DCO order limits as it crosses the HS1 line and passes between Bamber Pit and the Sportsground. The A2(T) dominates the southern extent of the DCO Order limits with the junction slip roads and roundabouts.

Perceptual and sensory aspects

11.85 The Kent Project Site lies within a very busy urban, estuarine landscape which is active throughout the day and night with transportation and movement and industrial activities all taking place during the hours of darkness as well as during the day. The criss-crossing of rail and road traffic through tunnels and cuttings and over bridges and chalk spines combined with the noise and movements of the industrial activities create a real sense of a complex urban environment. This is combined with the awareness of the activities on the north bank of the Thames, Tilbury Docks being visually present at both day and night with the tall gantry cranes and significant flood lighting to facilitate loading and off-loading.

11.86 These 'busy' areas lie in close proximity to other abandoned and quiet areas, including the marshes on the Swanscombe Peninsula, the chalk pits and landfill sites and to some extent the Ebbsfleet International station car parks which are only particularly active at certain times of the day. Whilst there is a relative tranquillity and sense of openness on some parts of the Swanscombe Peninsula, the visual presence of pylons and chimneys, security fencing and warnings, abandoned buildings and graffiti all combine with the noises from the adjacent industrial activities to reduce the tranquillity and the sense of personal security in the area. Similarly the overgrown vegetation and tight security fencing along pathways limit the sense of openness and security one might experience in a more cared for setting.

Essex Project Site

11.87 The Essex Project Site was found to be generally consistent with the character described in the 'Tilbury and Docks Urban Area' LCA of the Thurrock Landscape Character Assessment. The area is a low-lying and level landscape, similar to that of the Kent Project Site which is not surprising given the Thameside location. Large commercial warehouses, cranes and dockland buildings front onto the Thames and are located throughout the area which dominate the skyline throughout the nearby area. Where the area has not been developed for warehouses or dockside uses, it is mostly hard-surfaced and used for the storage of vehicles, containers or bulk materials.

Cultural associations and historic landscape

11.88 The Essex Project Site has a similar history to the Kent Project Site in that it was part of the Tilbury Marshes prior to the development of the Tilbury Docks and the arrival of the railway junction and the Tilbury Riverside Station.

11.89 An historic 'Manorway' to guide pilgrims across the Tilbury Marsh existed between Tilbury ferry and the village of West Tilbury although this has largely been lost as a route due to the urban expansion of Tilbury and diversion of the footpath to Tilbury Fort.

11.90 The Essex Project Site contains the Grade II* listed Tilbury Riverside Station and floating Landing Stage which includes the railway station, baggage hall, and ticket office. This listed building was erected in 1924 to accommodate an expanded station building and floating landing stage that served the Passenger Ship Terminal as well as the Gravesend Ferry. The station allowed passengers to connect to the Gravesend Ferry for onward travel and served as an interchange with Tilbury Docks. The Terminal is notable in history for the docking of the SS Empire Windrush in 1948.

11.91 The Railway station closed in 1992 after a long decline in passenger and freight numbers with the rise of car ownership and HGV use. The railway line remained in use by the container terminal to the north as a rail connected unit until 2019 when it was removed and the land reappropriated for car storage. The Gravesend Ferry Terminal and London International Cruise Terminal remain in full operation. Fort Road has been realigned in front of the Station, running through the site of the southern section of platforms and is

served by a bus connection to Tilbury Town Station.

Topography, geology and soils

11.92 The level topography of the Essex project site can be seen on Figure 12 of the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7).

11.93 The geology and soils of the Essex Project Site is unsurprising given its location, loamy and clayey coastal flat soil overlaid on alluvium as illustrated in Figures 10 and 11 of Appendix 11.7 (Document Reference 6.2.11.7). However, as with the Kent Project Site, the Essex project site has been subject to landfill in the past and soils are likely to have been largely replaced with contaminated material.

Hydrology and water features

11.94 The hydrology of the Essex Project Site is described and illustrated in the Landscape Strategy, (Appendix 11.7 Section 2.7, Document Reference 6.2.11.7), the River Thames being the only feature of note.

Habitats and planting

11.95 The habitats across the Essex Project Site are limited to hardstanding and buildings together with some semi-improved grassland and scrub on the roadside verges along Fort Road and the A1089 with Amenity Grassland and scattered trees in the central area of the Asda roundabout. These are described and illustrated in section 2.8 of the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) and in more detail in ES chapter 12 (Document Reference 6.1.12) and the Habitats of Protected Species plans (Document Reference 2.8 and 2.9).

Built features

11.96 The former Tilbury Riverside Station as described above is the principal building in the Essex Project Site. The only other buildings within the Essex Project Site are within the logistics centre to the north. Other notable built features for their scale and size are the extensive area of level hard-surfaced land (approximately 11.75 hectares in area) currently used for vehicle storage to the north of the Riverside Station and any cruise ships that dock at the Terminal (typically 1-2 a week. During COVID-19 Pandemic a cruise ship has more or less been permanently moored here). Highways infrastructure and fencing are the only other built features.

11.97 The character of the Essex Project Site is also heavily influenced by built features beyond the boundary including dockside warehousing and the four wind turbines that dominate the skyline to the east.

Perceptual and sensory aspects

11.98 Like the Kent Project Site, the Essex Project Site lies within a very busy urban, estuarine landscape which is active throughout the day and night with transportation and movement, industrial and docking activities all taking place during the hours of darkness as well as during the day. The activities within Tilbury Docks are visually present at both day and night with the tall gantry cranes and significant flood lighting to facilitate loading and off-loading. Thus, this is a stimulating landscape with minimal opportunity to find relative tranquillity in open or natural spaces.

11.99 The Essex Project Site and its immediate context is dominated by transportation and security with limited amenity value and legibility for pedestrians.

Visual amenity

11.100 Using landform data in a Geographical Information System (GIS), two Zone of Theoretical Visibility (ZTV) plans have been prepared. The ZTVs have been generated using surface and landform data, taking into account other landscape features that might limit the extent of theoretical visibility, such as vegetation and buildings. The ZTVs are based on:

- The Project Site in its current form. See Figure 11.8 (Document Reference 6.3.11.8); and

- The Project Site with Proposed Development at the height parameters (see document reference 2.19) across the Project Site. See Figure 11.9 (Document Reference 6.3.11.9).

11.101 The ZTVs illustrates the theoretical visibility based on a 5m digital surface model (DSM) data, assuming excellent visibility with no atmospheric attenuation.

11.102 As Figure 11.9 (Document Reference 6.3.11.9) demonstrates, the visual influence of the Project Site will increase with development. The visual assessment process determines the extent of the increase in visual influence as well as the magnitude of any visual effects that arise.

11.103 Open views of the Project Site are largely limited to those from roads and PRoW as they pass through the Project Site, although roadside vegetation provides some interruption but the speed and nature of travel limit the availability of views.

11.104 Figure 11.10 (Document Reference 6.3.11.10) includes 74 representative views that have been identified in the ZTV (Figure 11.9, Document Reference 6.3.11.9) of the Proposed Parameters of the Proposed Development and agreed through consultation. These views are at locations where there are likely to be sensitive visual receptors, including receptors in designated landscapes such as Kent Downs AONB and those on PRoW and at residential properties. These views form the basis of the visual assessment, the significance of any effect being assessed in terms of the magnitude of change in the view and the sensitivity of the visual receptor. The location of these views is set out in the Table 11-5. In keeping

with good practice, the proposed viewpoints, including accurate visual representation viewpoints and night-time viewpoints have been agreed with DBC, GBC, ThC, EDC, NE and Kent Downs AONB Unit with those requested additionally noted in Table 11-5 below.

Table 11-5: Proposed viewpoint locations
(the following acronyms correspond to additional form of presentation: AVR = Accurate Visual Representation; NV = Night View)

PVP. No.	Location	Grid Reference	Distance	Borough	Reason(s) for Selection
1	Footpath DS1 Swanscombe Peninsula	560043, 175925	0m	Dartford	Recreational users
2 (AVR)	Footpath DS1, Black Duck Marsh	559507, 175419	15m	Dartford	Recreational users
3	Footpath DS1 and NU1, Green Manor Way	560763, 175814	0m	Dartford/ Gravesham	Recreational users
4	Footpath DS2, Swanscombe Peninsula	560399, 176033	0m	Dartford	Recreational users
5 (AVR)	Galley Hill Road opposite Grade II* Listed Former Church of All Saints	560574, 174879	0m	Dartford	Road users; Recreational users; Residents
6	St Peter and St Paul Church Swanscombe	560366, 174004	504m	Dartford	Recreational users; Residents
7	Leonard Avenue	560195, 173769	743m	Dartford	Residents
8 (AVR + NV)	Rear of Leonard Avenue	560318, 173705	657m	Dartford	Recreational users; Residents
9 (AVR)	Swanscombe Heritage Park	559681, 174390	496m	Dartford	Recreational users;
10	Outside Grade II Listed 1, Knockhall Road	559593, 174893	216m	Dartford	Residents
11	Ingress Abbey	559129, 175077	390m	Dartford	Residents
12 (AVR + NV)	Greenhithe Riverfront, Sara Crescent	558597, 175225	893m	Dartford	Residents
13 (AVR)	A2260 looking south	561420, 173368	0m	Dartford	Road users;
14 (AVR)	A2260 looking north	561402, 173374	0m	Dartford	Road users

PVP. No.	Location	Grid Reference	Distance	Borough	Reason(s) for Selection
15 (AVR)	Bakers Hole SSSI and Scheduled Monument near Ebbsfleet International	561349, 174055	0m	Dartford	Road users; Railway users
16	Ebbsfleet International Car Park	561222, 174164	0m	Dartford	Road users
17 (AVR)	Rosherville Quays, Gravesend Riverfront	563707, 174481	721m	Gravesham	Recreational users
18	North Kent Avenue	562092, 174170	162m	Gravesham	Residents
19	Footpath NU3/NU42 within former Northfleet Cement Works	562221, 174787	697m	Gravesham	Recreational users; Employees
20	London Road viewpoint opposite Rosherville Primary School	563050, 174075	1km	Gravesham	Road users; Residents; Students
21 (AVR + NV)	Stonebridge Road B2175	561570, 174605	200m	Gravesham	Road users; Residents;
22 (AVR + NV)	Footpath NU1 Botany Marshes near Britannia Refined Metals Ltd	561163, 175615	3m	Gravesham	Recreational users; Employees
23 (AVR)	Footpath NU1, Botany Marshes near CEMEX	561169, 175799	15m	Gravesham	Recreational users; Employees
24 (AVR)	Thames Path Promoted Route near Charles Park	557883, 175300	1.6km	Dartford	Recreational users; Employees
25	High House, Production Park, Purfleet	556435, 178079	3.87km	Thurrock	Employees; Recreational users
26 (AVR)	Footpath 170 south of Proctor and Gamble	559266, 177023	1km	Thurrock	Recreational users
27 (AVR)	Footpath 141 Stone Ness	558780, 176348	956m	Thurrock	Recreational users
28	Opposite Devonshire Place, Devonshire Road	560223, 178167	1.36km	Thurrock	Road users; Residents;
29 (AVR + NV)	The Promenade, Grays	560533, 177531	697m	Thurrock	Residents
30 (AVR)	Timber Court and Coal Court	561216, 177456	761m	Thurrock	Recreational users; Resident

PVP. No.	Location	Grid Reference	Distance	Borough	Reason(s) for Selection
31 (AVR)	South of Footpath 177, and Grays Beach Riverside Park	561641, 177222	807m	Thurrock	Recreational users;
32	Footpath 186, Tilbury and Grays	562501, 177474	1.62km	Thurrock	Recreational users
33 (NV)	B149, Chadwell Bypass	563892, 178502	2.7km	Thurrock	Road users; Residents
34	South of Thames View, Chadwell St Mary	564383, 178178	2.4km	Thurrock	Residents; Recreational users
35	South of Coalhouse Fort on circular path	569143, 176627	4.4km	Thurrock	Recreational users; Visitors of local attraction
36	Footpath 68, West Tilbury	566014, 177878	2.3km	Thurrock	Recreational users
37 (AVR)	Byway 98, Tilbury Fort	564812, 175217	140m	Thurrock	Recreational users; Visitors of local attraction
38	Fort Road, Tilbury	565088, 175793	282m	Thurrock	Recreational users
39 (AVR)	Sea Wall, Fort Road, Tilbury	564503, 175208	0m	Thurrock	Recreational users; Commuters; International Cruise Ship passengers; Visitors of local attraction
40	Railway Street, Northfleet	561515, 174545	141m	Gravesham	Residents
41 (AVR + NV)	Footpath NS177, Cobham, Kent Downs AONB	566820, 168917	5.26km	Gravesham	Recreational users
42 (PM)	A227 Wrotham Road	564006, 170460	2.12km	Gravesham	Road users; Recreational users
43 (AVR)	New Barn Road, Scadbury Manor	561996, 171519	666m	Dartford	Road users
44 (AVR)	Footpath DR126, Park Corner Road, Northend	560702, 172012	523m	Dartford	Recreational users; Employees

PVP. No.	Location	Grid Reference	Distance	Borough	Reason(s) for Selection
45 (AVR + NV)	Restricted Byway DR129	561320, 171977	498m	Dartford	Recreational users; Road users
46 (AVR + NV)	Candy Dene, Castle Hill, Ebbsfleet	561083, 173372	0m	Dartford	Residents
47	Hall Road Bridge, B262	562127, 172293	0m	Dartford/ Gravesham	Road users
48 (AVR)	A2260 at Junction with International Way	561655, 173769	0m	Dartford	Road users
49 (NV)	Windmill Hill Park, Gravesend	564849, 173390	1.63km	Gravesham	Recreational users
50 (AVR)	Between Gravesend and Tilbury	563051, 174916	970m	Gravesham/ Thurrock	Commuters; International Cruise Ship passengers
51	Gravesend Promenade/Saxon Shore Way/-Wealdway	565402, 174390	870m	Gravesham	Requested by EDC
52	Footpath N129/-Wealdway	564630, 170436	2.2km	Gravesham	Requested by EDC
53	Undesignated path within south Botany Marsh	561030, 175144	0m	Gravesham	Requested by EDC
54	Undesignated path within west Botany Marsh	561165, 175628	0m	Gravesham	Requested by EDC
55	Footpath DS17, HS1 overbridge	561207, 174595	0m	Dartford	Requested by EDC
56	Footpath DR1 near Dartford Crossing	556856, 176065	2.7km	Dartford	Requested by EDC
57 (AVR)	High Street, Swanscombe, looking north	560561, 174759	2m	Dartford	Requested by EDC
58	Galley Hill Road	560616, 174866	0m	Dartford	Requested by EDC
59	Footpath NG1/Saxon Shore Way	568035, 174447	4.37km	Gravesham	Requested by EDC
60	Footpath DS12/Pilgrims Way	560259, 175410	0m	Dartford	Requested by EDC
61	Footpath DR26 near Bean	558355, 172097	620m	Dartford	Requested by EDC
62	View from A2 flyover Wrotham Road (A227)	564163, 171146	1.84km	Gravesham	Requested by DBC

PVP. No.	Location	Grid Reference	Distance	Borough	Reason(s) for Selection
63	Bean Junction, B255/A296 slip road	558450, 173217	2.2km	Dartford	Requested by DBC; Road users; Recreational users
64	Anchor Field Park, Tilbury	564654, 176291	330m	Thurrock	Requested by TC
65 (NV)	King George's Playing Field, Tilbury	564486, 176820	860m	Thurrock	Requested by TC
66 (AVR)	River Thames, south of Stone Ness	558753, 175565	1.2km	Dartford/ Thurrock	Requested by GBC; River users
67 (AVR)	River Thames, south of Tilbury Docks	562727, 174951	1.2km	Gravesham/ Thurrock	Requested by GBC; River users
68 (AVR)	River Thames, north of Broadness Salt Marsh	560505, 177140	300m	Dartford/ Thurrock	Requested by GBC; River users
69 (AVR)	River Thames, Gravesend Reach	566696, 174885	2.2km	Gravesham/ Thurrock	Requested by GBC; River users
70 (AVR)	River Thames, Northfleet Hope	561862, 176143	600m	Gravesham/ Thurrock	Requested by GBC; River users
71 (AVR)	River Thames, Fiddler's Reach	559723, 176469	480m	Dartford/ Thurrock	Requested by GBC; River users
72	Footpath 117, Tilbury Docks	561977, 176853	850m	Thurrock	Requested by TC
73 (AVR + NV)	Pedham Place Golf Centre	553718, 166370	7.7km	Sevenoaks	Requested by Kent Downs AONB Unit and Natural England; Recreational users
74 (AVR + NV)	Layby on Camer Road, North Kent Downs AONB	565078, 167167	5.75km	Gravesham	Requested by Kent Downs AONB Unit and Natural England; Recreational users

Residences and settlements

11.105 Groups of residential receptors that are likely to experience some views towards the Project Site from their properties include areas of Swanscombe (represented by Photoviewpoints 5, 6, 7 and 8), dwellings along the waterfront and western edge of Kent Project Site at Ingress Park (represented by Photoviewpoints 2 and 11), riverside properties at Greenhithe (represented by Photoviewpoint 12), some dwellings on elevated ground at Gravesham (represented by Photoviewpoint 18), the Promenade at Gravesend (Photoviewpoint 51) and dwellings near the waterfront and on elevated

ground at Northfleet (Photoviewpoints 17, 20, 21 and 40) and Castle Hill (Photoviewpoint 46). With regard to the northern side of the River Thames, waterfront dwellings at Grays on the northern bank of the Thames opposite the Kent Project Site (represented by Photoviewpoints 29, 30 and 31) look south towards the Kent Project Site, dwellings at Chadwell St Mary (Photoviewpoints 33 and 34) and Tilbury (Photoviewpoints 64 and 65) look south west towards the Kent Project Site.

Public rights of way, national cycle routes and open access land

11.106 In terms of PRoW, Photoviewpoints 1, 2, 3, 4, 22, 23, 54, 55 and 60 represent views from the PRoW network within or adjacent to the Kent Project Site boundary. Views vary from relatively open views from PROW within the northern part of the Swanscombe Peninsula and Botany Marsh (Photoviewpoints 1, 2, 3, 4, 22 and 23) to more restricted views due to vegetation and infrastructure such as from Footpath DS17 in Photoviewpoint 55 and from Footpath DS12 in Photoviewpoint 60.

11.107 West of the Kent Project Site are a number of PRoWs within 2km with the potential to experience visual effects as a result of the Proposed Development including Footpath DR4 (Photoviewpoint 24), located on the Thames Path Promoted Route near Charles Park. However, existing built form in combination with the predominantly flat topography limit views towards the Project Site, whilst some cross-water views are possible to the northern tip of the Swanscombe Peninsula on the Kent Project Site.

11.108 To the north, there are a number of PRoW on the northern bank of the River Thames, and areas of public open space as well as an 'Other Route with Public Access' (ORPA) with the potential for views towards the Kent Project Site cross water. Photoviewpoints 26, 27, 29, 30, and 31 are all taken looking southwards directly towards Swanscombe Peninsula and the Kent Project Site and consist of open, bankside cross water views. The inner parts of the Swanscombe Peninsula of the Kent Project Site are filtered and screened by mature vegetation, whilst further south within the Kent Project Site, there is little to no intervisibility with the Ebbsfleet LLCA/Ebbsfleet Valley. Views from these Photoviewpoints towards the Essex Project Site are screened by the considerable number of industrial and commercial warehouses north-west of the Essex Project Site at Tilbury Docks. On slightly elevated ground is Photoviewpoint 32 on Footpath 186 between Tilbury and Grays, where the super pylon on Swanscombe Peninsula within the Kent Project Site can be distinguished in the view due to its tall vertical nature. The rest of the Project Site (Kent and Essex Project Sites) is generally screened by built form. Beyond 2km, Photoviewpoint 36 (Footpath 68, West Tilbury) illustrates views from PRoW on elevated ground to the north-east of the Kent Project Site and north of the Essex Project Site. Views are distant and in part screened by large built form at Tilbury Docks.

11.109 To the east of the Essex Project Site, views would be possible from within close range as represented by Photoviewpoint 37 (Byway 98, Tilbury Fort) which has open views from near Tilbury Fort to the Essex Project Site. Similarly, Photoviewpoint 38, taken from Footpath 146 has relatively open views west towards the Essex Project Site. Views from these two locations towards the Kent Project Site are limited by the large-scale built form

associated with Tilbury Docks which serve to screen views. Further east beyond 2km, views become far more limited due to the predominately flat topography associated with the edges of the Thames, such that representative Photoviewpoint 35, (taken from an informal footpath which connects to the nearby PRoW network) has little intervisibility due to mature vegetation and built form interrupting views. Photoviewpoint 49 is taken east of the Kent Project Site, and south of the Essex Project Site from a public park on elevated ground at Windmill Hill. Views west towards the Kent Project Site are filtered by mature vegetation, whilst views to the Essex Project Site on the northern bank of the Thames are far more open. Photoviewpoint 19 is taken from a footpath passing Northfleet Lighthouse and Bevan's War Memorial and looks north-west towards the Kent Project Site. However, views are characterised by the immediate industrial/commercial uses and views are interrupted by large-scale built form and subtle undulations in topography.

11.110 To the south, Photoviewpoints 43, 44 and 45 represent views from the PRoW network south of the A2(T). The context these PRoW are set within is far more agricultural in character with fairly open views northwards to the A2(T) section of the DCO Order Limits and beyond. Views further north are limited by a combination of subtle variations in topography, mature vegetation and the built form of the A2(T) itself.

11.111 Further south, Photoviewpoint 41 is taken from Footpath NS177 within Jeskyns Country Park and the Kent Downs AONB and provides elevated views northwards. However a combination of distance, topography and mature vegetation screens visibility with the Project Site. A similar situation is represented by Photoviewpoints 73 and 74 which are also both located within the Kent Downs AONB.

11.112 Photoviewpoint 6 represents available views from the recreation ground associated with St Peter and St Paul’s Church Swanscombe. Views northwards to Swanscombe Peninsula are predominantly screened by built form and vegetation, whilst the super pylon located on the Kent Project Site can be distinguished in the view. Photoviewpoint 8 represents views from a recently completed park between the new Castle Hill development and Leonard Avenue. Elevated open views over development are available from this location east to the Ebbsfleet Valley, whilst southward views to the A2(T) sections of the Kent Project Site are hindered by undulating topography from former quarrying, in combination with mature vegetation. In terms of users of Swanscombe Skull Site and National Nature Reserve, views are represented by Photoviewpoint 9 which look north to Swanscombe Peninsula, where the super pylon on the Kent Project Site dominates as a vertical feature.

Public highways

11.113 Although there are a number of minor roads within the study area, with the exception of those immediately adjacent to the site, only a few, if any, afford clear views of the Project Site. Due to a combination of existing built form, mature landscape features and localised changes in topography, views from roads are frequently contained to the immediate setting.

11.114 Roads passing through the Project Site itself will have close range, predominantly open

views of some form of the Proposed Development in close proximity. Representative views from Photoviewpoints within the DCO Order Limits include Photoviewpoints 5 and 58 (Galley Hill Road), 13 and 14 (A2260), 15, and 16 (International Way), 39 (Ferry Road), 47 (Hall Road Bridge, B262 and A2) and 48 (A2260).

11.115 The B2175 runs from Gravesend to Northfleet on a remnant chalk spine. Photoviewpoint 20 illustrates views from this route looking north-west towards Swanscombe Peninsula and the Kent Project Site, of which views are limited largely by large scale buildings including the Lidl Distribution Centre and Kimberley Clark Mill in the foreground whilst the super pylon features prominently above the general urban form. Further west the route drops in elevation to Northfleet Industrial Estate where Stonebridge Road provides elevated, funnelled views in the direction of the main body of Swanscombe Peninsula and Kent Project Site as illustrated by Photoviewpoint 21.

11.116 To the south, Photoviewpoints 43 and 44 and 45 represent views from the local road network and a restricted byway south of the A2. These routes have a more rural context than the majority in the near vicinity of the Project Site which are generally confined to the urban area. These routes have oblique, glimpsed views northwards to the A2(T) section of the DCO Order Limits and beyond. Views further north are limited by a combination of subtle variations in topography, mature vegetation and the built form of the A2(T) itself.

11.117 On the northern side of the River Thames, Photoviewpoint 28 represents elevated, funnelled views in a southerly direction towards the Kent Project Site. In comparison, Photoviewpoint 38 represents lower views on more level ground along Fort Road which links Tilbury Docks to Tilbury and West Tilbury to the north. Views from this route are relatively open towards the Essex Project Site in the west, although views towards the Kent Project Site are screened by the large scale buildings associated with Tilbury Docks. Further north on more elevated ground, distant views are available from Chadwell Bypass (Photoviewpoint 33) to the Project Site.

Railways

11.118 Other potential visual receptors include passengers on trains travelling on the HS1 route and North Kent Line, both of which pass through the Kent Project Site. HS1 is contained in cutting and a tunnel which precludes views of the Project Site. The North Kent Line is also largely contained by cutting and mature wooded vegetation with only glimpsed views during short sections such as at Northfleet Station and when the train is elevated over the HS1 line.

11.119 Vegetation and buildings along the route, largely prevent views of the Project Site from trains travelling on the London, Tilbury and Southend railway to the north of the Essex Project Site with potential for very limited, fleeting views of the Essex Project Site and the super pylon on the Kent Project Site.

Users of the Thames (recreational traffic, haulage, ferries and cruise ships)

11.120 Open views of the Project Site will also be available from river traffic travelling up and down the Thames towards the edges of the Kent and Essex Project Sites. Those using the river are likely to either be for work purposes, such as commuting, surveying, transportation of goods and resources, or for recreational purposes such as pleasure cruises. Those using the river for work are considered of a low sensitivity, whilst those using it for recreational purposes are considered of high sensitivity. Representative views from the Thames include Photoviewpoints 50, 66, 67, 68, 69, 70 and 71. As illustrated by these views, much of the Thames riverside throughout the area comprises considerable urban form which exerts a prevailing urban influence over the river itself. The area of the Essex Project Site itself is particularly influenced by large cruise ships and associated docklands infrastructure close by, including cranes, warehouses and a wind farm. The Kent Project Site does form a gap in continuous river frontage development along this part of the Thames although the super pylon has an urbanising influence as does the backdrop of development all around. Bell wharf and White's Jetty on the northern edge of the Swanscombe Peninsula provide a sense of previous industrial uses of the area.

Arboricultural baseline

11.121 BS5837:2012 Trees in Relation to Design, Demolition and Construction compliant survey of the trees within and immediately adjacent to the DCO Order Limits has been undertaken. The survey was undertaken by an appropriately qualified Arboriculturist in June and July 2020, and the survey recorded a total of 39 individual trees, 86 groups of trees and 10 Woodland areas, totalling 135 items. Of these 135 items, 2 have been categorised as A, of high quality, 73 have been categorised as B, of moderate quality, and 54 have been categorised as C, of low quality. In addition, 6 items have been categorised as U and are considered unsuitable for retention irrespective of development.

11.122 The Arboricultural Impact Assessment findings for the individual trees, groups of trees and hedgerows surveyed are included as Appendix 12.9 (Document Reference 6.2.12.9).

Future baseline

11.123 It is anticipated that, in the absence of the Proposed Development, the Essex Project Site would continue to operate as an International Cruise and Ferry Terminal with associated car park and storage areas, whilst the Kent Project Site would either continue as an area of previous industrial uses, existing commercial units and marshland or be redeveloped at least in part for other uses. Depending on the management regime, the landscape structure may change, particularly with regard to the Swanscombe Peninsula area of the Kent Project Site with continued recolonisation of vegetation leading to increased scrub and trees and continued water quality and water management issues.

11.124 Such variations are unlikely to be significant and would be considered as standard fluctuations. It is therefore likely that the existing baseline described above would therefore not appreciably change.

POTENTIAL SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROPOSALS

Potential effects

11.125 The potential effects of the Essex and Kent Project Sites are assessed together below, with specific reference made to each site where effects are directly relevant.

During construction

11.126 The landscape and visual assessment commenced in 2015 with further assessment work undertaken in 2020 and has examined the current landscape and visual baseline conditions within the Project Site and evaluated the broader context, including landscape related designations and other environmental considerations as illustrated in Figures 11.2 (Document Reference 6.3.11.2) and 11.3 (Document Reference 6.3.11.3).

11.127 The assessment process involves an iterative analysis of the likely landscape and visual effects of the development proposals. Where likely significant adverse effects have not been avoided through design, additional mitigation measures have been considered.

11.128 As a consequence of the change in land use, construction activities will result in adverse landscape and visual effects on the fabric and character of the landscape, and on visual amenity within the local area. Whilst construction activities introduce direct and indirect disturbance to both the fabric of the landscape and the surrounding area, which can be perceived by people living, working or travelling through it, these effects are temporary in nature and can be partially mitigated.

11.129 Likely construction methods and timescales are set out in chapter three, and this has formed the basis of the worst case scenario presented in this ES chapter.

11.130 The main elements of the construction operations, considered to be of importance to the landscape and visual assessment, are described below:

- Construction-related traffic. This includes vehicle and boat movements associated with the import of building materials, machinery and labour using local roads (see chapters 9: Land Transport and 10: River Transport for further details);

- Construction activities. Subject to the preferences of individual contractors, it is expected that generic methods will be employed in the implementation of the scheme. The use of large cranes and construction platforms (rising above the height of the proposed buildings) will be necessary as will drilling, excavating and compacting machinery; and

- Lighting required for construction activities (see Lighting Statement, document reference 7.9). The Lighting Strategy (will be secured as a requirement of the DCO) forms the basis, of which the final designs and implementation of the artificial lighting are to be addressed. The lighting strategy sets out the recommendations, applicable

regulations and best practice, to be adopted for the Proposed Development.

11.131 The main potential landscape and visual effects of the Proposed Development associated with construction activities are anticipated to include:

- Security set-up activities;
- Removal of trees/scrub vegetation associated with site clearance and construction works throughout the Project Site;
- Ground treatment and CKD remediation activities as well as soil investigation work and treatment;
- Land re-profiling and re-grading;
- Tunnel construction through chalk spines and vehicular haulage route construction;
- Laydown, storage compound and welfare area construction;
- Establishment of batching plant on-site;
- Identification, relocation and re-provision of utility infrastructure, including potential diversion of some existing drainage features and new drainage works;
- Haulage and movements of construction vehicles both on and off site, including on the River Thames;
- Construction of transport infrastructure elements, events spaces, attractions, hotels, parking structures, other buildings and hard landscaped areas; and
- Enhancements to the existing wharf on the River Thames to facilitate access by boat for the delivery of construction materials.

11.132 Landscape and visual amenity effects resulting from the construction stages are considered to be consistently adverse, as there are few, if any, aspects of the process which could be considered positive in terms of promoted landscape strategies or in visual terms.

11.133 Whilst on the whole, construction may appear to provide an adverse effect, there will be some improvement in appearance for some elements, such as through land remediation and the general 'clearing up' of past uses on the Swanscombe Peninsula, including removal of dilapidated and obsolete urban form such as fences and derelict buildings.

11.134 These effects will, however, be temporary and consistent with the phased nature of the Proposed Development (see chapter 3: Project Description, Document Reference 6.1.3).

The effects of the construction phase of the Proposed Development on landscape character and visual amenity respectively are contained within Appendix 11.2 (Document Reference 6.6.2.11.2) and are summarised below. Effects on PRoW, other recreational routes, public highways and residential areas are also described below with reference to the assessed representative views. Detailed effects are described and assessed against each landscape character area and representative views as detailed within Appendix 11.2 (Document Reference 6.2.11.2).

Landscape character and landscape features

Landscape character and features of the Project Site

11.135 Clearly, in terms of the Project Site itself, the construction of the Proposed Development would constitute a notable alteration to the existing character and features of the Project Site.

Table 11-6: Potential construction effects on the Kent and Essex Project Sites

	Sensitivity	**Effect**
Kent Project Site		
Historic Landscape and Cultural Associations	Medium	Moderate (Adverse) Significant
Topography, geology and Soils	Medium	Moderate (Adverse) Significant
Hydrology and Water Features	High	Major/Moderate (Adverse) Significant
Habitats and Planting	High	Major/Moderate (Adverse) Significant
Built Features	Low	Moderate/Minor (Adverse) Not Significant
Perceptual and Sensory Aspects	Medium	Moderate (Adverse) Significant

Essex Project Site		
Historic Landscape and Cultural Associations	High	Moderate/Minor (Adverse) Not Significant
Topography, geology and Soils	Very Low	Negligible (Adverse) Not Significant
Hydrology and Water Features	Low	No Effect (Neutral) Not Significant
Habitats and Planting	Very Low	Negligible (Adverse) Not Significant
Built Features	Medium	Minor (Adverse) Not Significant
Perceptual and Sensory Aspects	Low	Minor (Adverse) Not Significant

Kent Project Site

11.136 Historic landscape and cultural associations: A number of historic features relating to the former industrial uses on the site such as tram lines and derelict buildings would be lost as a result of the construction process but these features are not considered to add particular value to the landscape, nor be important from a historic perspective. Some features, such as the tram lines, once lifted, could be re-incorporated into the detailed design for the resort. The loss of the grazing marsh at Botany Marsh is a notable loss from a historic landscape perspective. The historic route of the Pilgrim's Way would have to be closed during the initial construction period, with an alternative route provided until the diverted route can be made safe. Overall there would be a high magnitude of change, meriting a moderate, adverse, temporary significant effect.

11.137 Topography, geology and soils: There would be some topographical change during construction of the Proposed Development across the Kent Project Site and the Swanscombe Peninsula in particular, due to ground remodelling for the creation of development plateaus, saltmarsh habitat and reed beds as described in the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) ES chapter 18: Soils, Hydrology and Ground Conditions (Document Reference 6.1.18). Six additional tunnels are likely to be needed to cut through the chalk spine within the Kent Project Site to facilitate the Resort Access Road and the people mover route. Topsoil will be stripped and cleaned as a beneficial part of the construction process as set out in the Contaminated Land Strategy (Appendix 18.9, Document Reference 6.2.18.9). There would be a high magnitude of change to this medium sensitivity receptor, meriting a moderate, adverse, temporary and

significant effect.

11.138 Hydrology and water features: On the Kent Project Site there would be a direct loss of approximately nine standing water bodies including the pond within Bamber Pit, the attenuation basin within the central part of the peninsula and the pond and ditch network within Botany Marsh west during the construction process. In addition, the stream which currently runs north through the centre of the peninsula (an EA defined unnamed Main River referred to as Swanscombe Channel in ES chapter 17: Water Resources and Flood Risk, Document Reference 6.1.17) will be diverted to flow north west and drain into Botany Marsh. The changes in topography will also result in changes to the surface water drainage catchments throughout the construction process with new drainage channels being added to the existing retained network and a need to be aware of changing patterns in run-off throughout the construction period. The River Ebbsfleet will be retained on its existing course but will experience some changes to the hydrological regime as a result of increased surface water run-off during construction. In consideration of the above there will be a high magnitude of change, leading to a major/moderate effect which will be adverse, temporary and significant.

11.139 Habitats and planting: As a result of construction there would be some direct loss of scrub and woodland habitat, particularly on the Kent Project Site (as described in ES chapter 12: Terrestrial Ecology and Biodivesity, Document Reference 6.1.12) including disturbance and degradation of habitat through deposition of materials. There will also be a direct loss of grazing marsh, poor semi improved grassland, semi-improved neutral and calcareous grassland, open mosaic on previously developed land, salt marsh, reed beds and bare ground. As well as likely physical disturbance to some areas which will be undeveloped through movements of machinery and workers there will also be degradation through the deposition and storage of construction materials. During construction and demolition, trees to be retained would be protected in accordance with the measures outlined in the Arboricultural Impact Assessment (Appendix 12.9, Document Reference 6.2.12.9) and habitats to be retained would be similarly protected. As a result no additional tree stock nor habitat identified for retention would be lost due to the construction or demolition practices. The chalk pits and tunnels would be retained throughout the construction process and would also require appropriate protection of habitats within them, where those are to be retained. The gateway landscape planting within the Ebbsfleet Valley section of the Kent Project Site would be subject to some loss and alteration throughout the construction of the Resort Access Road as well as the A2 Ebbsfleet junction reconfiguration. Overall there would be a high magnitude of change, meriting a temporary, adverse, major/moderate significant effect.

11.140 Built features: A number of industrial relics that are scattered across the Kent Project Site would be lost during construction including derelict industrial buildings, concrete hardstanding, security fencing and gates, remnant tram/railway lines from the former cement works and disused pylons. There is also an amalgam of features related to the use of the site for quarrying and industrial landfill as well as construction storage and access for HS1 and Ingress Park including a haul road along the northern edge of Black Duck Marsh. Other features include leachate collection ponds and treatment lagoons within

Broadness Marsh as well as Bell Wharf and White's Jetty all of which will be either retained or altered/moved and upgraded within the construction period as appropriate. In addition, the Kent Project Site contains a former Sewage Treatment Plant, Springhead Nursery and the Manor Way Business Park which would be lost. Other features such as the HS1 Thames Crossing Tunnel and portal, the superpylon and a series of smaller electricity pylons and a radar station, will be retained and protected throughout the construction process (see outline Construction Method Statement, Document Reference 6.2.3.1). The fabric of boats, pontoons, boardwalk jetties and sheds at Broadness Creek will be protected throughout the construction process through to completion. As a result of the above, there would be a high magnitude of change upon this low sensitivity receptor, leading to a moderate/minor effect which is adverse, temporary and not significant.

11.141 Perceptual and sensory aspects: Construction activity would reduce the relative tranquillity of some parts of the Kent Project Site, particularly the central areas within the peninsula and western residential edge where proximity to industrial activity and noise is less than on the eastern and southern boundaries of the peninsula. There would also be some loss of the sense of openness within the peninsula due to the construction activities taking place and restrictions on access and movement. The same is true for the Ebbsfleet Valley areas and the chalk pits. However, these areas have all been subject to construction activities in the recent past or at present (A2 Bean to Ebbsfleet junction works) which reduces the sensitivity, although the change would inevitably result in a high magnitude of change. The overall medium sensitivity of the perceptual and sensory dimension of the Project Site would therefore yield a moderate, short-term, adverse and temporary level of effect, which is significant.

Essex Project Site

11.142 Historic landscape and cultural associations: The Tilbury Riverside Station and landing stage would be retained and protected throughout the construction process whilst renovations occur. For full details of effects upon Listed assets themselves in heritage terms, please refer to the ES chapter 14: Cultural Heritage and Archaeology (Document Reference 6.1.14). There would be a low change upon this high sensitivity receptor, leading to a moderate/minor, adverse, temporary effect which is not significant.

11.143 Topography, geology and soils: There are no topographical changes anticipated for the Essex Project Site. There would be some removal of soil to facilitate the car park development and public realm improvements which would require treatment for contaminants. Overall there is expected to be a very low change to this very low sensitivity receptor, such that the effect would be negligible/none, adverse, temporary and not significant.

11.144 Hydrology and water features: Other than the River Thames which will remain unaltered from a hydrological perspective, there are no water features on the Essex Project Site to be considered as part of this assessment. As such there would be no change and no effect which is not significant.

11.145 Habitats and planting: The road verge scrub and amenity grass habitats within the Essex Project Site would be partially lost and impacted by deposition during the construction process. There would be a low change during construction to this very low sensitivity receptor, meriting a negligible, adverse, temporary effect which is not significant.

11.146 Built features: The Riverside Station will be retained and refurbished as part of the construction works. The buildings on the Logistics Centre to the north would be removed. There would be a low change to this medium sensitivity receptor, leading to a minor, adverse, temporary effect which is not significant.

11.147 Perceptual and sensory aspects: Construction processes including topsoil removal, scaffolding, cranes and construction traffic would be visible and audible across the Essex Project Site during the construction phase. As an industrial area which has undergone nearby and recent change as a result of construction processes, these would not be perceived as unusual or out of character for a busy port area. As a result there would be a medium change to this low sensitivity receptor, meriting a minor, adverse, temporary effect which is not significant.

Local landscape character

11.148 Invariably, a mixed-use development on a scale such as the Proposed Development across the Project Site will result in the unavoidable (at least partial) removal of landscape features (as detailed in the previous sub-section) at a level which materially alters the character of the receiving environment. Table 11-7 summarises the potential construction effects upon LLCAs, with the full detail contained within Appendix 11.2 (Document Reference 6.2.11.2).

Table 11-7: Potential construction effects on LLCAs

	Sensitivity	**Effect**
1. Marshland LLCA	Medium	Major/Moderate (Adverse) Significant
2. Chalk Pits LLCA	Low	Moderate (Adverse) Significant
3. International LLCA	Low	Moderate/Minor (Adverse) Not Significant
4. Northfleet LLCA	Very Low	Negligible (Adverse) Not Significant
5. Northfleet Industrial LLCA	Very Low	Minor/Negligible (Adverse)

	Sensitivity	Effect
		Not Significant
6. Northfleet Suburbs LLCA	Very Low	No Effect (Neutral) Not Significant
7. Swanscombe LLCA	Very Low	Negligible (Adverse) Not Significant
8. Swanscombe Heritage Park LLCA	Medium	Minor (Adverse) Not Significant
9. Ingress Park LLCA	Low	Minor/Negligible (Adverse) Not Significant
10. Greenhithe Village LLCA	Medium	No Effect (Neutral) Not Significant
11. Knockhall LLCA	Very Low	No Effect (Neutral) Not Significant
12. Stone Town LLCA	Very Low	No Effect (Neutral) Not Significant
13. Stone Marshes Riverside and Crossways Business Park LLCA	Very Low	No Effect (Neutral) Not Significant
14. Gravesend Town Centre and Riverside LLCA	Medium	Minor/Negligible (Adverse) Not Significant
15. Gravesend Victorian/Edwardian Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
16. Gravesend Inter/Post War Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
17. Gravesend Modern Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
18. Gravesend Southern Fringe LLCA	Very Low	Negligible/None (Adverse) Not Significant

	Sensitivity	**Effect**
19. Springhead LLCA	Very Low	Negligible (Adverse) Not Significant
20. Wombwell Park LLCA	Low	Negligible (Adverse) Not Significant
21. Southfleet and Istead Arable Lands LLCA	Medium	Minor/Negligible (Adverse) Not Significant
22. Darenth Downs LLCA	Medium	Minor/Negligible (Adverse) Not Significant
23. Ebbsfleet LLCA	Very Low	Negligible (Adverse) Not Significant
24. Bluewater LLCA	Very Low	Negligible/None (Adverse) Not Significant
25. Long Reach and Fiddler's Reach LLCA	Low	Minor (Adverse) Not Significant
26. Northfleet Hope Reach LLCA	Low	Minor (Adverse) Not Significant
27. Gravesend Reach LLCA	Low	Minor/Negligible (Adverse) Not Significant
28. Tilbury Marshes LLCA	Medium	Minor/Negligible (Adverse) Not Significant
29. Tilbury Urban Area LLCA	Very Low	Negligible/None (Adverse) Not Significant
30. Tilbury Docks LLCA	Very Low	Negligible (Adverse) Not Significant
31. Grays/Chadwell St Mary Urban Area LLCA	Very Low	Negligible/None (Adverse) Not Significant
32. West Thurrock LLCA	Very Low	Negligible/None (Adverse) Not Significant

11.149 With regard to the Kent Project Site, there would be a very high magnitude of change and major/moderate significant temporary effect upon the Marshland LLCA which makes up the majority of the Swanscombe Peninsula area. That being said, those areas of ecological value such as Botany Marsh East, Black Duck Marsh and Broadness Salt Marsh will be protected from construction and future development, such that the most valuable assets of the LLCA are retained. Construction will be undertaken in accordance with the outline Construction Method Statement (Document Reference 6.2.3.1) whilst the long term management is regards to landscape and ecology is contained within the Landscape Management Plan (LMP) in Appendix 11.8 (Document Reference 6.2.11.8) and Ecological Mitigation Management Framework (EMMF) (Document Reference 6.2.12.3).

11.150 The Chalk Pits LLCA would also experience a very high magnitude of change and moderate, significant temporary adverse effect. The vast majority of the Chalk Pits LLCA would be affected by construction of the Kent Project Site, in particular the construction of staff accommodation, back-of-house and the Resort Access Road, whilst the quarried chalk cliffs would remain and contain any construction works.

11.151 With regard to the other LLCAs covering or within the Kent Project Site's immediate context, whilst there will be changes (some of which are of high magnitude) as a result of construction, none of the effects upon these LLCAs are considered to be significant.

11.152 Within the Essex Project Site, it is expected there will be low change, and negligible effect to the character of the Tilbury Docks LLCA during the construction stage. In terms of the adjacent Gravesend Reach LLCA, there would be a low change and minor/negligible effect during the construction stage.

Landscape character areas

11.153 With regard to published landscape character, the construction effects predicted upon those areas which cover or lie in close proximity to the Project Site are detailed in Table 11-8 below with the full assessment detail contained within Appendix 11.2 (Document Reference 6.2.11.2).

Table 11-8: Potential construction effects on published landscape character areas

	Sensitivity	**Effect**
Kent Landscape Character Areas		
Western Thames Marshes LCA	Medium	Moderate (Adverse) Significant
Dartford and Gravesend Fringes LCA	Low	Minor (Adverse) Not Significant
Darenth Downs LCA	Medium	Minor/Negligible

	Sensitivity	**Effect**
		(Adverse) Not Significant
Southfleet Arable Lands LCA	Medium	Minor/Negligible (Adverse) Not Significant
Gravesham Landscape Character Areas		
Botany Marshes LCA	High	Major/Moderate (Adverse) Significant
Gravesend Southern Fringe LCA	Low	Negligible (Adverse) Not Significant
Istead Arable Farmland LCA	Medium	Minor/Negligible (Adverse) Not Significant
Gravesham Townscape Appraisal		
Industrial Hinterland TCA	Very Low	Negligible (Adverse) Not Significant
Northfleet TCA	Low	Negligible (Adverse) Not Significant
Modern Suburbs TCA	Low	Negligible (Adverse) Not Significant
Thurrock Landscape Character Areas		
Tilbury and Docks Urban Area LCA	Very Low	Negligible (Adverse) Not Significant
Tilbury Marshes LCA	High	Moderate/Minor (Adverse) Not Significant
Thames East Strategy Character Areas		
Long Reach and Fiddler's Reach RCA	Low	Minor (Adverse) Not Significant
Northfleet Hope Reach RCA	Low	Minor (Adverse)

	Sensitivity	Effect
		Not Significant
Gravesend Reach RCA	Low	Minor/Negligible (Adverse) Not Significant

Visual amenity

11.154 Locations of representative receptor photoviewpoints are illustrated in Figure 11.10 (Document Reference 6.3.11.10) whilst night photoviewpoint locations are illustrated on Figure 11.11 (Document Reference 6.3.11.11). The photoviewpoints themselves are provided as Figure 11.12 (Document Reference 6.3.11.12) with the night views provided in Figure 11.3 (Document Reference 6.3.11.13). Receptor sensitivity is described in Table 11-9 below with the sensitivity of visual receptors varying according to category, context of the view and susceptibility to change. Of the 74 photoviewpoints in total, 25 are considered to experience significant effects, whilst the rest would not be significant. Table 11.9 provides a summary of the more detailed assessment of construction effects upon visual receptors contained in Table A11.2.2 within Appendix 11.2 (Document Reference, 6.2.11.2).

Table 11-9: Potential construction effects on visual receptor groups

Photoviewpoint numbers	Receptor and location	Sensitivity	Effect
Residences and Settlements			
5, 7	Swanscombe	High	Major (Adverse) to Major/Moderate (Adverse) Significant
2, 11	Ingress Park	High	Major (Adverse) to Major/Moderate (Advese) Significant
12	Greenhithe	High	Moderate (Adverse) Significant
18	Gravesham	High	Moderate/Minor (Adverse) Not Significant
17, 20, 40	Northfleet	High	Moderate/Minor (Adverse)

Photoviewpoint numbers	Receptor and location	Sensitivity	Effect
			Not Significant
29, 30	Grays	High	Moderate (Adverse) Significant
46	Castle Hill	High	Moderate/Minor (Adverse) Not Significant
64, 65	Tilbury	High	Moderate/Minor (Adverse) Not Significant
34	Chadwell St Mary	High	Moderate/Minor (Adverse) Not Significant
Public rights of way, national cycle routes and open access land			
1, 2, 3	Footpath DS1	High	Major (Adverse) Significant
4	Footpath DS2	High	Major (Adverse) Significant
60	Footpath DS12	High	Major (Adverse) Significant
55	Footpath DS17	Medium	Moderate (Adverse) Significant
5	Footpath DS31	High	Major (Adverse) Significant
56	Footpath DR1	High	Moderate/Minor (Adverse) Not Significant
61	Footpath DR26	High	Moderate/Minor (Adverse) Not Significant
22, 23, 53, 54	Footpath NU1	High	Major (Adverse) Significant
59	Footpath NG1	High	Minor (Adverse) Not Significant
52	Footpath N129	High	Moderate/Minor (Adverse)

Photoviewpoint numbers	Receptor and location	Sensitivity	Effect
			Not Significant
36	Footpath 68	High	Minor (Adverse) Not Significant
72	Footpath 117	Medium	Moderate (Adverse) Significant
27	Footpath 141	Medium	Moderate/Minor (Adverse) Not Significant
26, 29	Footpath 170	Medium	Moderate/Minor (Adverse) Not Significant
31	Footpath 177	Medium	Moderate/Minor (Adverse) Not Significant
32	Footpath 186	Medium	Minor (Adverse) Not Significant
41	Footpath NS177 / Jeskyns Country Park	Very High	Moderate/Minor (Adverse) Not Significant
36	Byway 98	Medium	Minor (Adverse) Not Significant
44	Restricted Byway DR126	High	Minor (Adverse) Not Significant
2, 13, 14, 17, 48	NCR 1	Medium	Major/Moderate (Adverse) Significant to Minor/Negligible (Adverse) Not Significant
29, 30, 31, 37	NCR 13	Medium	Moderate/Minor (Adverse) Not Significant
9	Swanscombe Heritage Park	High	Major/Moderate (Adverse) Significant
29, 30, 31	Grays Riverside Park and water's edge public spaces	Medium	Moderate/Minor (Adverse)

Photoviewpoint numbers	Receptor and location	Sensitivity	Effect
			Not Significant
35	Coalhouse Fort	High	Minor (Adverse) Not Significant
37	Tilbury Fort	High	Moderate (Adverse) Significant
64	Anchor Field Park	Medium	Minor (Adverse) Not Significant
65	King George's Playing Field	Medium	Minor (Adverse) Not Significant
73	Pedham Place Golf Course	Very High	No Effect (Adverse) Not Significant
74	Camer Country Park	Very High	Moderate/Minor (Adverse) Not Significant
Public highways			
5, 58	Galley Hill Road	Low	Moderate (Adverse) Significant to Minor (Adverse) Not Significant
57	High Street	Low	Moderate/Minor (Adverse) Not Significant
10	Knockhall Road	Low	Minor/Negligible (Adverse) Not Significant
28	Devonshire Road	Low	Minor/Negligible (Adverse) Not Significant
43	New Barn Road	Low	Negligible (Adverse) Not Significant
44	Park Corner Road	Low	Negligible (Adverse) Not Significant
15, 16	Ebbsfleet International	Very Low	Moderate/Minor (Adverse)

Photoviewpoint numbers	Receptor and location	Sensitivity	Effect
			Not Significant
21	Stonebridge Road/B2175	Low	Minor/Negligible (Adverse) Not Significant
47	Hall Road Bridge/B262	Very Low	Minor/Negligible (Adverse) Not Significant
33	Chadwell Bypass	Low	Minor/Negligible (Adverse) Not Significant
42	A227	Low	Negligible (Adverse) Not Significant
13, 14	A2260	Low	Moderate (Adverse) Significant
47, 62	A2(T)	Very Low	Minor/Negligible (Adverse) to Negligible/None (Adverse) Not Significant
63	B255	Very Low	Negligible (Adverse) Not Significant
Railways			
-	London to Southend mainline	Very Low	Negligible (Adverse) Not Significant
-	North Kent railway line	Very Low	Negligible (Adverse) Not Significant
-	HS1	Very Low	Negligible (Adverse) Not Significant
Users of the Thames (recreational traffic, haulage, ferries and cruise ships)			
50	Between Gravesend and Tilbury	Low	Negligible (Adverse) Not Significant
66	South of Stone Ness	High	Major/Moderate (Adverse) Significant
67	South of Tilbury Docks	High	Moderate/Minor (Adverse)

Photoviewpoint numbers	Receptor and location	Sensitivity	Effect
			Not Significant
68	North of Broadness Salt Marsh	High	Major (Adverse) Significant
69	Gravesend Reach	High	Moderate/Minor (Adverse) Not Significant
70	Northfleet Hope	High	Major (Adverse) Significant
71	Fiddler's Reach	High	Major (Adverse) Significant

Residences and settlements

11.155 The Project Site's immediate and near context is largely surrounded by a prevalence of urban form, comprising a mosaic of dwellings to extensive industrial units. Residential receptors are usually considered of 'very high' sensitivity, however, it is acknowledged that the prevalence of urban form largely de-sensitises the area and leads to a reduced susceptibility to change to development. As such this also reduces the sensitivity of residential receptors.

11.156 There would be significant effects from areas of Swanscombe (represented by Photoviewpoints 5 and 7) along Galley Hill Road and Leonard Avenue, dwellings along the waterfront and western edge of Kent Project Site at Ingress Park (represented by Photoviewpoints 2 and 11), riverside properties Greenhithe (represented by Photoviewpoint 12 at Sara Crescent) and waterfront dwellings at Grays on the northern bank of the Thames opposite the Kent Project Site (represented by Photoviewpoints 29 (Promenade), 30 (Timber Court and Coal Court).

11.157 However, it is important to note that the effects would only be apparent for certain parts of certain properties where views of construction would be available, while some dwellings would have no visibility of the Project Site at all. The worst of the effects during construction (i.e. the movement and activity of construction vehicles and operations) would be short term in duration, reversible and local. These effects would be short-term on the basis that in any one location the construction would be apparent for a limited time, before construction moved to another part of the Project Site.

Public rights of way, national cycle routes and open access land

11.158 As illustrated on Figure 11.2 (Document Reference 6.3.11.2), a small number of PRoW

traverse the Project Site and the broad study area. Figure 11.10 (Document Reference 6.3.11.10) illustrates the locations of the Photoviewpoints. Photoviewpoints 1, 2, 3, 4, 5, 19, 22, 23, 24, 26, 27, 31, 32, 36, 37, 38, 41, 42, 43, 44, 45, 51, 52, 54, 55, 56, 59, 60, 61 and 73 illustrate views from sections of PRoW (Document Reference 6.3.11.12).

11.159 Footpath DS1 (Photoviewpoints 1, 2 and 3), Footpath DS2 (Photoviewpoint 4), Footpath DS12 (Photoviewpoint 60), Footpath DS17 (Photoviewpoint 55), Footpath DS31 (Photoviewpoint 5), Footpath DR1 (Photoviewpoint 56) Footpath NU1 (Photoviewpoints 22, 23 and 54) and Footpath 117 (Photoviewpoint 72) would experience potential significant effects during the construction period. The full assessment is contained within Appendix 11.2 (Document Reference 6.2.11.2)

11.160 In terms of Open Access Land and areas of Public Open Space (POS), there would be potential significant effects from Swanscombe Heritage Park (Photoviewpoint 9).

11.161 With regard to National Cycle Routes (NCRs), potential significant effects are likely from sections of NCR 1 which passes east-west through the study area and through parts of the Kent Project Site (representative views illustrated by Photoviewpoints 2, 13, 14, 17 and 48). There would also be potentially significant effects along sections of NCR 13 which passes east-west through the study area on the northern bank of the Thames, passing through the Essex Project Site (representative views illustrated by Photoviewpoints 29, 30, 31, 37 and 39). The full assessment is contained within Appendix 11.2 (Document Reference 6.2.11.2)

11.162 No significant effects are predicted upon public rights of way within the Kent Downs AONB as represented by Photoviewpoints 41, 73 and 74 during construction.

11.163 As detailed and illustrated within the Public Rights of Way Assessment (Appendix 11.9, Document Reference 6.2.11.9), the vast majority of routes within the study area and within or adjacent to the Project Site will remain unaffected in terms of their defined route. However, some routes within the Swanscombe Peninsula are likely to be diverted, upgraded and enhanced, including provision of boardwalk jetties, viewing platforms and boardwalks. Those routes passing across the course of the proposed Resort Access Road are to be retained and accommodated using traffic crossing measures.

Public highways

11.164 Those local road network receptors that have the greatest potential to be affected by the Proposed Development are set out Section 4 of Appendix 11.1 (Document Reference 6.2.11.1).

11.165 The assessment has shown that during the construction phase there would be potential (worst case) moderate (significant) level adverse effects on the local road network. These routes include Galley Hill Road (Photoviewpoint 5), the A2260 (Photoviewpoints 13, 14 and 48) which passes east west through the Kent Project Site. The changes would see a revision from their baseline views to one characterised by extensive construction activities

and operations in very close range. Effects would be adverse in nature, short term and local. Whilst most effects would be short term, there may be instances where access points will be used throughout the construction period.

11.166 However, with regard to these effects, it should be noted that the level of effect would diminish with distance on these routes and level of intervening screening element such as vegetation, built form and topography. Views to the Kent Project Site will be limited to infrequent, glimpsed, oblique views. Effects at this level are not surprising; any major development of this scale would yield such an outcome and this is not a reflection on the quality of the scheme masterplan, but of the process that requires an assumption to be made that most people would see the visual and sensory change as adverse during construction.

Railways

11.167 No potential significant effects are predicted upon the railway network passing through or within close proximity to the Project Site, primarily due to the containment of the routes through deep cuttings within the landscape and mature vegetation and built form which serves to screen views. Train drivers on the HS1 northbound would have views of the back of buildings, such that they would not be distracted by rides and attractions.

Users of the Thames (recreational traffic, haulage, ferries and cruise ships)

11.168 With regard to users of the Thames, there will be significant effects experienced by vessels travelling directly past the Swanscombe Peninsula where the most substantial quantum of construction works would be apparently visible as illustrated by Photoviewpoints 66, 68, 70 and 71.

11.169 Photoviewpoint 50 illustrates views from between Gravesend and Tilbury, of which effects of minor and not significant are predicted as a result of the construction of the Proposed Development at the Essex Project Site.

11.170 Photoviewpoint 67 illustrates views from the stretch of river just south of Tilbury Docks which would experience moderate/minor effects that would not be significant.

11.171 Photoviewpoint 69 illustrates views from the approach along Gravesend Reach towards the Project Site, of which effects of minor and not significant are predicted. The full assessment of construction effects upon users of the Thames are contained within Appendix 11.2 (Document Reference 6.2.11.2).

During operation

Post completion stage effects on the landscape resource

11.172 The following is an assessment of the post-completion (i.e. at Year one, before the full effects of mitigation measures are realised) on the landscape resource; visual effects are

considered separately, below. This section describes the anticipated effects of the Proposed Development during its operational lifetime and assesses the significance of those effects in landscape and visual amenity terms. Detailed effects are described and assessed against each landscape character area, site feature and each of the representative viewpoints within Appendix 11.3 (Document Reference 6.2.11.3)

11.173 In practical terms, the 'operational lifetime' of the Proposed Development is measured in decades, as it would result in a permanent change to the character of the Project Site. Given that the Proposed Development includes landscape proposals, which would in any event take time to mature, and that all new development can seem 'raw' until it has 'settled' into its landscape context, the assessment of operational effects for specific areas and views would consider the effects at two distinct points in time:

- At the completion of the Proposed Development (referred to here as Year one); and
- 15 years after completion of the Proposed Development (such that mitigation planting may have matured and/or materials weathered). This is set out at paragraph 11.159 onwards, taking into account the implementation of all mitigation measures.

11.174 It is often the case that initial (Year one) effects would be more considerable than those at Year 15 due to the limited initial effect of the landscape proposals incorporated into the Proposed Development during the design process.

Landscape character

Landscape character of the project site itself

Table 11-10: Potential effects on landscape character of the Kent and Essex Project sites at Year 1 of completion

	Sensitivity	**Effect**
Kent Project Site		
Historic Landscape and Cultural Associations	Medium	Moderate (Beneficial) Significant
Topography, geology and Soils	Medium	Moderate (Adverse) Significant
Hydrology and Water Features	High	Moderate (Beneficial) Significant
Habitats and Planting	High	Major/Moderate (Adverse)

	Sensitivity	**Effect**
		Significant
Built Features	Low	Moderate/Minor (Adverse) Not Significant
Perceptual and Sensory Aspects	Medium	Moderate/Minor (Beneficial) Not Significant
Essex Project Site		
Cultural Associations and Historic Landscape	High	Moderate (Beneficial) Significant
Topography, geology and Soils	Low	Negligible (Neutral) Not Significant
Hydrology and Water Features	Low	No Effect (Neutral) Not Significant
Habitats and Planting	Low	Minor/Negligible (Beneficial) Not Significant
Built Features	High	Moderate (Beneficial) Significant
Perceptual and Sensory Aspects	Low	Minor (Beneficial) Not Significant

Kent Project Site

11.175 Cultural association and historic landscape: The marshland history of the peninsula would be celebrated through the retention and enhancement of the Black Duck and Botany Marsh (east) and the Broadness Salt Marsh and grasslands where existing and additional access will be provided for recreational purposes, whilst information boards, viewing platforms and boardwalks will be strategically located throughout, as is illustrated in the Landscape Strategy (Appendix 11.7, document 6.2.11.7, that will be secured as a requirement of the DCO). There would be re-routing and screening of existing PRoW to avoid sensitive areas, and creation of new bird hides at key observation locations to reduce disturbance impact.

11.176 The fluvial nature of the landscape would be reflected throughout the entire completed

Project Site, from the Resort Areas and (but not limited to) access corridor, A2(T) corridor, Ebbsfleet Central and Ebbsfleet International Terminal.

11.177 The chalk cliffs throughout the Kent Project Site, would be retained and celebrated where possible throughout the Proposed Development. The Pilgrim's Way would be retained and views opened, removing overgrown vegetation, allowing for panoramic views over the Resort Area from near the Visitors Centre. Overall there would be a moderate, beneficial, permanent effect which would be significant.

11.178 Topography, geology and soils: With regard to topography, there would be some topographical change upon completion of the Proposed Development across the Kent Project Site and the Swanscombe Peninsula in particular, due to ground remodelling for the creation of development plateaus, saltmarsh habitat and reed beds as described in the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7).

11.179 At the completed London Resort ferry terminal/wharf area, the existing flood defence would be raised to a new crest level approximately 1m higher.

11.180 The chalk cliff at the southern end of the Swanscombe Peninsula on which Galley Hill Road is elevated, would be cleaned and managed to remain as an exposed chalk face, proving a striking backdrop to the resort, a guide to orientation and a strong sense of place. It is envisaged that the chalk could be used as a 'display' surface for night imagery and occasional light and sound shows. The dramatic chalk cliffs of London Road and Galley Hill Road would be retained and will house the staff accommodation complex. Overall there would be a moderate, adverse, permanent effect that would be significant.

11.181 Hydrology and water features: As noted above, there would be new saltmarsh habitat and reed beds across the Swanscombe Peninsula and as described in the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7). In terms of the A2(T) Resort Access Road corridor, there would be completed attenuation basins as part of the highways drainage scheme that would include permanently wet ponds and reed bed systems to enhance biodiversity and visual amenity, whilst providing a continuation of the fluvial theme across the DCO Order Limits.

11.182 There would be a newly completed water body in Bamber Pit to replace the one which would be displaced as a result of the highway construction of the Resort Access Road. It is considered there would be a moderate beneficial, permanent effect at Year 1 of completion that would be significant.

11.183 Habitats and planting: In addition to the effects on the habitats and planting likely at construction, upon completion there are considered to be a number of additional effects aside from direct loss of fabric, replaced with built form.

11.184 There is likely to be increased recreational disturbance to areas of scrub, poor semi-improved grassland, semi-improved neutral and calcareous grassland and areas of reedbeds across the Project Site. The proposed clear signage of public routes, upgrade

works and diversion of some PRoW routes through retained habitats to minimise this erosion and disturbance. With regard to the River Ebbsfleet south of the peninsula, there would be provision of new landscape planting that will screen the habitat from the road delivered through the Landscape Strategy (Document Reference 6.2.11.7).

11.185 In terms of the onsite Arboricultural resource, the implementation of the Proposed Development with access arrangements would result in the loss of no category A items, of high quality, 16 category B items, of moderate quality and eight category C items of low quality. The survey identified a total of six U category items (categorised in accordance with BS 5837: Tree in relation to Design, Demolition and Construction – Recommendations 2012), the condition of which was considered to be impaired to such an extent that they cannot be realistically retained as living trees in the context of the current land use for longer than 10 years and these items are therefore not included in the calculations above.

11.186 In preparing its plans, the Applicant has endeavoured to ensure that as many trees, groups of trees and hedgerows as possible are retained as illustrated in the Tree and Hedgerows which a be Removed or may Be Affected Plans (Document Reference 2.16) with an assessment provided within the Arboricultural Impact Assessment (Appendix 12.9, Document Reference 6.2.12.9). The loss calculated in the preceding paragraph represents the worst-case scenario for tree, tree group and hedgerow loss, and takes a precautionary approach in this respect.

11.187 As detailed within the Landscape Strategy (Appendix 11.7, document reference 6.2.11.7) that will be secured as a requirement of the DCO, new planting of c.6000 plus trees is proposed as individuals, in the form of street tree planting or amenity open grown forest trees within the Proposed Development or as copses and pockets of woodlands in the open areas within and bordering the Proposed Development. This planting will enhance the amenity and ecological value of the Project Site, contribute to the overall Green Infrastructure for the area, ensure diversity of species and age, and secure succession to the tree stock into the long-term.

11.188 Overall, there would be a major/moderate effect which is significant that would be permanent and adverse in nature.

11.189 Built features: The introduction of newly built features, enhanced existing features such as Bell Wharf, and White's Jetty along with the removal of industrial derelict relicts across much of the Swanscombe Peninsula would result in a moderate/minor adverse, permanent effect that would be not significant.

11.190 Perceptual and sensory: Across the Swanscombe Peninsula there will be a notable introduction of vertical built structures that will form the London Resort, including hotels, conferention centre, multi-storey car park, a welcome plaza and theme park worlds and rollercoasters. These will cement the resort as a visual landmark destination from the surrounding area.

11.191 The London Resory ferry terminal will be a major arrival point for visitors to the resort.

Upon disembarking the ferry they will enter a courtyard where they will transfer onto the awaiting people-mover land train. The landscape design of this space will feature the resort branding, welcome signage and planted islets following the style of the main plaza.

11.192 With the increased activity will be an increase in audible ambience that will travel no more than a couple of hundred metres from the Resort boundary (Document Reference 6.2.15.4). It should be noted that whilst the Swanscombe Peninsula currently does not feature the volume of Proposed Development, noise from the nearby Cemex and Britannia Steel plants to the east of the Kent Project Site can be heard over the eastern parts of the peninsula, and similarly the Manor Way, Northfleet, Kent Kraft and Rod End industrial estates to the southern end of the peninsula exert a baseline murmur of industrial noise over the area. Some noise can also be heard from the industrial areas on the nearby northern bank of the Thames across the peninsula.

11.193 The marshland areas across the peninsula would be retained (see Parameter Plans, Document Reference 2.19) and offer green and relatively tranquil natural areas with recently completed information boards, observation platforms and boardwalks.

11.194 The perceptual and sensory change to the landscape would generally be seen as adverse however in this instance would be moderate/minor, beneficial, permanent and not significant.

Essex Project Site

11.195 Cultural associations and historic landscape: A connection to the existing public right of way to the east of the site with a link to Tilbury Fort will be incorporated as part of the Proposed Development at the Essex Project Site.

11.196 The Grade II* listed Cruise Terminal building and landing stage would be retained within the Proposed Development at the Essex Project Site. This building would be refurbished and available to resort visitors using the Ferry Terminal. Fencing may be removed and the frontage of the former station building would be opened up to allow visitors to appreciate the building and its setting, and connect safely to onward travel. Historical information relating to the importance of the building and its cultural heritage includes the arrival of the SS Empire Windrush in 1948.

11.197 The change would be medium and the effect moderate, beneficial, permanent and significant in nature.

11.198 Topography, geology and soils: The topography is largely flat and aside from minor land regrading and digging of foundations, would remain unaffected to any significant degree as a result of the Proposed Development at the Essex Project Site. There would be a very low change, and a negligible, neutral effect which would be permanent and not significant.

11.199 Hydrology and water features: With regards to hydrology the Essex Project Site, apart from a section of the River Thames, is largely void of hydrological features. The extension

of the landing stage will not alter the river. There is opportunity to create a water feature outside the port terminal designed to the fluvial concept to provide a sense of connection to the Resort. There would in reality be no change to the hydrology and water features of the Essex Project Site, that would result in no effect and would not be significant.

11.200 Habitats and planting: The baseline fabric and habitats across the Essex Project Site are fairly limited due to the primarily urban nature of the area, which is mostly hardstanding and built form. There are some small area of scrub and vegetation as well as grass verges and a small area of saltmarsh and mudflat. The saltmarsh and mudflats would be retained.

11.201 Upon completion of the Proposed Development at the Essex Project Site, verges along the approaches on Tilbury Fort Road and Tilbury Docks Road would be enhanced with avenue tree and swathes of wildflower meadow and bulb planting as detailed within the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7, that will be secured as a requirement by the DCO).

11.202 The multi-storey carpark will have a green roof whilst blank facades to large buildings could have integrated cable systems to grow vines and climbing plants. Overall there would be a minor/negligible effect which would be beneficial, permanent and not significant in nature.

11.203 Built features: The listed former Tilbury Riverside Station would be retained and refurbished upon completion and a new multi-storey car park with green roof would be operational on the former railway land to the north. There would be a medium magnitude of change, and a moderate effect that would be beneficial, permanent and significant.

11.204 Perceptual and sensory: The completed enhanced approach verges on Tilbury Fort Road and Tilbury Docks Road would create a clear and attractive sense of arrival.

11.205 The Tilbury Terminal would act as a key gateway for visitors arriving from the north side of the river in Essex, and would include a new multi-storey car park with green roof, and a walkway to transfer on foot directly to the ferry concourse.

11.206 An enhanced arrival experience at the ferry port terminal would include public realm improvements with tree planting, outdoor seating and water feature set around the waiting areas designed to the fluvial concept to provide a sense of connection with the landscape of the Resort.

11.207 There would be a medium change, resulting in a minor effect that would be beneficial due to minor increases in biodiversity delivered through enhanced planting. The effect would be permanent and not significant.

Local landscape character

11.208 Invariably, a mixed-use development on a scale such as the Proposed Development across the Project Site will result in the partial removal of landscape features at a level which

materially alters the character of the receiving environment. Potential effects upon the LLCAs at Year 1 of completion are summarised in Table 11-11 below, with the full assessment contained within Appendix 11.3 (Document Reference 6.2.11.3).

Table 11-11: Potential effects on LLCAs at Year 1 of completion

	Sensitivity	**Effect**
1. Marshland LLCA	Medium	Moderate (Adverse) Significant
2. Chalk Pits LLCA	Low	Moderate/Minor (Adverse) Significant
3. International LLCA	Low	Minor (Neutral) Not Significant
4. Northfleet LLCA	Very Low	Negligible (Beneficial) Not Significant
5. Northfleet Industrial LLCA	Very Low	Minor/Negligible (Beneficial) Not Significant
6. Northfleet Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
7. Swanscombe LLCA	Very Low	Negligible/None (Adverse) Not Significant
8. Swanscombe Heritage Park LLCA	Medium	Minor/Negligible (Adverse) Not Significant
9. Ingress Park LLCA	Low	Minor/Negligible (Adverse) Not Significant
10. Greenhithe Village LLCA	Very Low	No effect (Neutral) Not Significant
11. Knockhall LLCA	Very Low	No effect (Neutral) Not Significant
12. Stone Town LLCA	Very Low	No effect (Neutral)

	Sensitivity	**Effect**
		Not Significant
13. Stone Marshes Riverside and Crossways Business Park LLCA	Very Low	No effect (Neutral) Not Significant
14. Gravesend Town Centre and Riverside LLCA	Medium	No effect (Neutral) Not Significant
15. Gravesend Victorian/Edwardian Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
16. Gravesend Inter/Post War Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
17. Gravesend Modern Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
18. Gravesend Southern Fringe LLCA	Very Low	Negligible/None (Neutral) Not Significant
19. Springhead LLCA	Very Low	Negligible/None (Neutral) Not Significant
20. Wombwell Park LLCA	Low	Negligible (Neutral) Not Significant
21. Southfleet and Istead Arable Lands LLCA	Medium	Minor/Negligible (Neutral) Not Significant
22. Darenth Downs LLCA	Medium	Minor/Negligible (Neutral) Not Significant
23. Ebbsfleet LLCA	Very Low	No effect (Neutral) Not Significant
24. Bluewater LLCA	Very Low	No effect (Neutral) Not Significant
25. Long Reach and Fiddler's Reach LLCA	Low	Minor (Adverse) Not Significant

	Sensitivity	Effect
26. Northfleet Hope Reach LLCA	Low	Minor (Adverse) Not Significant
27. Gravesend Reach LLCA	Low	Minor/Negligible (Adverse) Not Significant
28. Tilbury Marshes LLCA	Medium	Minor/Negligible (Neutral) Not Significant
29. Tilbury Urban Area LLCA	Very Low	Negligible/None (Neutral) Not Significant
30. Tilbury Docks LLCA	Very Low	Negligible (Beneficial) Not Significant
31. Grays/Chadwell St Mary Urban Area LLCA	Very Low	Negligible/None (Neutral) Not Significant
32. West Thurrock LLCA	Very Low	Negligible/None (Neutral) Not Significant

11.209 With regard to the Kent Project Site, there would be a high magnitude of change and moderate significant permanent effect upon the Marshland LLCA which makes up the majority of the Swanscombe Peninsula area. That being said, those areas of ecological value such as Botany Marsh (east), Black Duck Marsh and Broadness Salt Marsh are to be largely protected from construction and future development (see Parameter Plan, Document Reference 2.19), such that the most valuable assets of the LLCA are retained.

11.210 The Chalk Pits LLCA would experience a very high magnitude of change and moderate, significant permanent adverse effect. In particular there would be operational staff accommodation, back-of-house and the Resort Access Road within the pits although the distinctive quarried chalk cliffs and some of the colonising vegetation would remain. Development in chalk pits is very much part of the character of the wider area. The 'abandoned character' of the three chalk pits within the Project Site would be replaced with positive active development.

11.211 With regard to the other LLCAs covering or within the Kent Project Site's immediate context, whilst there will be changes (some of which are of high magnitude) following completion none of the effects upon these LLCAs are considered to be significant.

11.212 Within the Essex Project Site, it is expected there will be very low change, and an effect of negligible to the character of the Tilbury Docks LLCA at completion stage, whilst the

adjacent Gravesend Reach would experience a low change and minor/negligible effect. Both outcomes are not significant.

Landscape character areas

11.213 With regard to the broader, published landscape character areas, the effects upon Year 1 of completion upon those areas which cover or lie in close proximity to the Project Site are detailed in Table 11-12 below, with the full detail of assessment contained with Appendix 11.3 (Document Reference 6.2.11.3).

Table 11-12: Potential effects on published landscape character at Year 1 of completion

	Sensitivity	**Effect**
Kent Landscape Character Areas		
Western Thames Marshes LCA	Medium	Moderate (Adverse) Significant
Dartford and Gravesend Fringes LCA	Low	Minor (Adverse) Not Significant
Darenth Downs LCA	Medium	Minor/Negligible (Adverse) Not Significant
Southfleet Arable Lands LCA	Medium	Minor/Negligible (Adverse) Not Significant
Gravesham Landscape Character Areas		
Botany Marshes LCA	High	Major/Moderate (Adverse) Significant
Gravesend Southern Fringes LCA	Low	Negligible (Adverse) Not Significant
Istead Arable Farmland LCA	Medium	No Effect (Neutral) Not Significant
Gravesham Townscape Appraisal		
Industrial Hinterland TCA	Very Low	Negligible (Adverse) Not Significant
Northfleet TCA	Low	Negligible (Adverse) Not Significant

	Sensitivity	Effect
Modern Suburbs TCA	Low	No Effect (Neutral) Not Significant
Thurrock Landscape Character Areas		
Tilbury and Docks Urban Area LCA	Very Low	Negligible (Neutral) Not Significant
Tilbury Marshes LCA	High	Moderate/Minor (Beneficial) Not Significant
Thames East Strategy Character Areas		
Long Reach and Fiddler's Reach RCA	Low	Minor (Adverse) Not Significant
Northfleet Hope Reach RCA	Low	Minor (Adverse) Not Significant
Gravesend Reach RCA	Low	Minor/Negligible (Adverse) Not Significant

Visual amenity

11.214 Locations of representative receptor photoviewpoints are illustrated on Figure 11.10 (Document Reference 6.3.11.10). The photoviewpoints themselves are provided as Figure 11.12 (Document Reference 6.3.11.12). Some of these photoviewpoints have been selected for photomontage, of which are contained in Figure 11.14: Accurate Visual Representations (Document Reference 6.3.11.14) and illustrate the proposed parameters (Document Reference 2.19) as wirelines that are coloured in accordance with the 'Illustrative Parameters Plans – Site Plan' contained within section 4.1 of the DAS (Document Reference 7.1). The photomontages also include for an illustrative model of the Proposed Development to provide an idea of the shape, size, massing and distribution within the parameters. It should be noted that the illustrative model does not include structures such as rides and rollercoasters as these are subject to confirmation by, and would be changed from time to time by the Intellectual Property providers in line with evolving market demand.

11.215 Receptor sensitivity is described in Table 11-2 with the sensitivity of visual receptors varying according to category, context of the view and susceptibility to change. The potential effects at Year 1 of completion predicted for each receptor is included in summary in Table 11-13 below, with the full assessment contained within Appendix 11.3 (Document Reference 6.2.11.3). It should be noted that whilst generally perceptual changes are typical seen as adverse, they can also been interpreted as beneficial. For example, whilst the completion of the Proposed Development may appear as an adverse

change to those living, driving, walking locally, to those visiting the area, the eye catching landmark Proposed Development would be a talking point within the landscape and could be considered a beneficial change.

Table 11-13 Potential effects at Year 1 of completion on visual receptor groups

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
Residences and Settlements			
5, 7	Swanscombe	High	Major (Beneficial) to Major/Moderate (Adverse) Significant
2, 11	Ingress Park	High	Major (Adverse) to Major/Moderate (Adverse) Significant
12	Greenhithe	High	Major/Moderate (Adverse) Significant
18	Gravesham	High	Moderate/Minor (Adverse) Not Significant
17, 20, 40	Northfleet	High	Moderate/Minor (Adverse) Not Significant
29, 30	Grays	High	Major/Moderate (Adverse) Significant
46	Castle Hill	High	Minor (Adverse) Not Significant
64, 65	Tilbury	High	Minor (Adverse) Not Significant
34	Chadwell St Mary	High	Minor (Adverse) Not Significant
Public Rights of Way, National Cycle Routes and Open Access Land			
1, 2, 3	Footpath DS1	High	Major

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
			(Adverse) to Major/Moderate (Adverse) Significant
4	Footpath DS2	High	Major (Adverse) Significant
60	Footpath DS12	High	Major (Adverse) Significant
55	Footpath DS17	Medium	Moderate/Minor (Adverse) Not Significant
5	Footpath DS31	High	Major (Adverse) Significant
56	Footpath DR1	High	Moderate/Minor (Adverse) Not Significant
61	Footpath DR26	High	Minor (Adverse) Not Significant
22, 23, 53, 54	Footpath NU1	High	Major (Adverse) Significant
59	Footpath NG1	High	Minor (Adverse) Not Significant
52	Footpath N129	High	Minor (Adverse) Not Significant
36	Footpath 68	High	Minor (Adverse) Not Significant
72	Footpath 117	Medium	Major/Moderate (Adverse) Significant
27	Footpath 141	Medium	Moderate/Minor (Adverse) Not Significant

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
26, 29	Footpath 170	Medium	Moderate (Adverse) Significant to Moderate/Minor (Adverse) Not Significant
31	Footpath 177	Medium	Moderate/Minor (Adverse) Not Significant
32	Footpath 186	Medium	Minor/Negligible (Adverse) Not Significant
41	Footpath NS177	Very High	Moderate/Minor (Adverse) Not Significant
36	Byway 98	High	Minor (Adverse) Not Significant
44	Restricted Byway DR126	High	Minor (Adverse) Not Significant
2, 13, 14, 17, 48	NCR 1	Medium	Major/Moderate (Adverse) Significant to Moderate/Minor (Adverse) Not Significant
29, 30, 31, 37	NCR 13	Medium	Moderate (Adverse) Significant to Moderate/Minor (Adverse) Not Significant
9	Swanscombe Heritage Park	High	Major/Moderate (Adverse) Significant
29, 30, 31	Grays Riverside Park and water's edge public spaces	Medium	Moderate (Adverse) Significant to Moderate/Minor (Adverse) Not Significant

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
35	Coalhouse Fort	High	Minor (Adverse) Not Significant
37	Tilbury Fort	Medium	Moderate/Minor (Adverse) Not Significant
64	Anchor Field Park	Medium	Minor/Negligible (Adverse) Not Significant
65	King George's Playing Field	Medium	Minor/Negligible (Adverse) Not Significant
73	Pedham Place Golf Course	Very High	No Effect (Neutral) Not Significant
74	Camer Country Park	Very High	Moderate/Minor (Adverse) Not Significant
Public Highways			
5, 58	Galley Hill Road	Low	Moderate (Beneficial) Significant to Minor (Beneficial) Not Significant
57	High Street	Low	Minor (Adverse) Not Significant
10	Knockhall Road	Low	Minor/Negligible (Adverse) Not Significant
28	Devonshire Road	Low	Minor/Negligible (Adverse) Not Significant
43	New Barn Road	Low	Negligible (Adverse) Not Significant
44	Park Corner Road	Low	Negligible (Adverse) Not Significant
15, 16	Ebbsfleet International	Very Low	Moderate/Minor (Adverse) Not Significant

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
21	Stonebridge Road/B2175	Low	Minor/Negligible (Adverse) Not Significant
47	Hall Road Bridge/B262	Very Low	Negligible/None (Adverse) Not Significant
33	Chadwell Bypass	Low	Minor/Negligible (Adverse) Not Significant
42	A227	Low	Negligible (Adverse) Not Significant
13, 14	A2260	Low	Moderate/Minor (Adverse) Not Significant
47, 62	A2(T)	Very Low	Negligible/None (Adverse) Not Significant
63	B255	Very Low	Negligible (Adverse) Not Significant
Railways			
-	London to Southend mainline	Very Low	Negligible (Neutral) Not Significant
-	North Kent railway line	Very Low	Negligible (Neutral) Not Significant
-	HS1	Very Low	Negligible (Neutral) Not Significant
Users of the Thames (recreational traffic, haulage, ferries and cruise ships)			
50	Between Gravesend and Tilbury	Low	Negligible (Adverse) Not Significant
66	South of Stone Ness	High	Major/Moderate (Adverse) Significant
67	South of Tilbury Docks	High	Moderate/Minor (Adverse) Not Significant

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
68	North of Broadness Salt Marsh	High	Major (Adverse) Significant
69	Gravesend Reach	High	Moderate/Minor (Adverse) Not Significant
70	Northfleet Hope	High	Major/Moderate (Adverse) Significant
71	Fiddler's Reach	High	Major (Adverse) Significant

Residences and settlements

11.216 A summary of the effects on the residential amenity of residential areas during Year 1 of completion is set out below.

11.217 The assessment shows that there would potentially be significant effects from areas of Swanscombe (represented by Photoviewpoints 5 and 7), dwellings along the waterfront and western edge of Kent Project Site at Ingress Park (represented by Photoviewpoints 2 and 11), riverside properties Greenhithe (represented by Photoviewpoint 12), dwellings near the waterfront and on elevated ground at Northfleet (Photoviewpoints 17, 20 and 40) and waterfront dwellings at Grays on the northern bank of the Thames opposite the Kent Project Site (represented by Photoviewpoints 29, 30 and 31).

Public rights of way and open access land

11.218 As illustrated on Figure 11.2 (Document Reference 6.3.11.2), a small number of PRoW traverse the Project Site and the broad study area. Figure 11.10 (Document Reference 6.3.11.10) illustrate the locations of the Photoviewpoints. Photoviewpoints 1, 2, 3, 4, 5, 19, 22, 23, 24, 26, 27, 31, 32, 36, 37, 38, 41, 42, 43, 44, 45, 51, 52, 54, 55, 56, 59, 60, 61 and 73 illustrate views from sections of PRoW.

11.219 Footpath DS1 (Photoviewpoints 1, 2 and 3), Footpath DS2 (Photoviewpoint 4), Footpath DS12 (Photoviewpoint 60), Footpath DS31 (Photoviewpoint 5), Footpath DR1 (Photoviewpoint 56) Footpath NU1 (Photoviewpoints 22, 23 and 54), Footpath 170 (Photoviewpoints 26 and 29 and Footpath 117 (Photoviewpoint 72), would experience potential significant effects during Year one of completion that would be adverse and permanent.

11.220 In terms of Open Access Land and areas of Public Open Space (POS), there would be potential significant effects from Swanscombe Heritage Park (Photoviewpoint 9) and the public spaces along the northern bank of the Thames (Photoviewpoints 29, 30 and 31) that

would be adverse and permanent in nature.

11.221 With regard to National Cycle Routes (NCRs), potential significant effects are likely to remain upon sections of NCR 1 which passes east-west through the study area and through parts of the Kent Project Site, however, from the A2260 (represented by Photoviewpoints 13, 14 and 48) there is expected to be a reduction from a moderate significant effect at construction to moderate/minor which is not significant. There would also be potentially significant effects along sections of NCR 13 which passes east-west through the study area on the northern bank of the Thames, passing through the Essex Project Site (representative views illustrated by Photoviewpoints 29, 30, 31, 37 and 39) that would be adverse and permanent in nature.

11.222 No significant effects are predicted upon public rights of way within the Kent Downs AONB as represented by Photoviewpoints 41, 73 and 74 during construction.

11.223 Effects on other routes vary more considerably, due primarily to local topography and the effect of intervening vegetation and built form, which screens, or partly screens many views. Effects are likely between major to moderate level (all high to medium sensitivity with magnitude of change varying between very high to high), with these effects significant, adverse and permanent. Many parts of these routes would experience much lower (not significant) effects, with those assessed presenting the worst case.

Public highways

11.224 The assessment has shown that during the Year 1 of completion there would be potential (worst case) moderate (significant) level adverse effects on the local road network. These routes include Galley Hill Road (Photoviewpoint 5) whilst effects on the A2260 (Photoviewpoints 13 14 and 48) which pass east-west through the Kent Project Site would reduce to moderate/minor and not significant, which would be adverse and permanent. The changes would see a revision from their baseline views to one characterised by a recently completed entertainment resort and associated operations in very close range. Effects would be adverse and permanent in nature.

11.225 However, with regard to these effects, it should be noted that the level of effect will diminish with distance on these routes and level of intervening screening element such as vegetation, built form and topography. Views to the Project Site will be limited to infrequent glimpsed oblique views. Effects at this level are not surprising; any major development of this scale would yield such an outcome and this is not a reflection on the quality of the scheme masterplan, but of the process that requires an assumption to be made that most people would see the visual and sensory change as adverse.

11.226 For the remaining road network, screening, the existing character of views and the low to very low sensitivity of road receptors plays an important role in limiting effects and as such there would be no significant effects upon those routes.

Railways

11.227 No potential significant effects are predicted upon the railway network passing through of within proximity to the Project Site, primarily due to the containment of the routes through deep cuttings within the landscape and mature vegetation and built form which serves to screen views.

Users of the Thames (recreational traffic, haulage, ferries and cruise ships)

11.228 With regard to users of the Thames, there will be significant effects experienced by vessels travelling directly past the Swanscombe Peninsula: the completed Proposed Development at Year 1 would be visible as illustrated by Photoviewpoints 66, 68, 70 and 71.

11.229 Photoviewpoint 50 illustrates views from between Gravesend and Tilbury, of which effects of negligible and not significant are predicted as a result of the construction of the Proposed Development at the Essex Project Site.

11.230 Photoviewpoint 67 illustrates views from the stretch of river just south of Tilbury Docks which would experience moderate/minor effects that would not be significant.

11.231 Photoviewpoint 69 illustrates views from the approach along Gravesend Reach towards the Project Site, of which effects of minor and not significant are predicted.

PROPOSED MITIGATION

Mitigation and enhancement

11.232 The hierarchical approach towards mitigation (prevent, reduce, offset) has been used to avoid, where possible, any effects through the overall design of the Proposed Development, the disposition of its elements (prevent) and subsequently through careful siting of the different elements of the Proposed Development and its required infrastructure (reduce).

11.233 Inherent mitigation provides a form of preventative mitigation and, as discussed above, is that which has been considered as an integral part of the overall design and locational strategy for the Proposed Development. This mitigation by design is described in ES chapter Three: Project Description. It is not an ‘add-on’ or ‘band-aid’ measure to ameliorate significant environmental effects, but part of the positive and pro-active approach whereby mitigation has been assessed and considered at all stages of the development of the project to prevent or reduce the occurrence of potentially significant environmental effects. Additionally, the Proposed Development is of a high-quality design and of a size and scale by which dense vegetative screening is not appropriate, and instead high-quality, complimentary landscape design is far better suited to celebrate the Proposed Development, whilst ensuring retention and enhancement of the surrounding marshland areas at the Kent Project Site.

11.234 The landscape and visual mitigation strategy is a key, and fully-integrated, component of the Proposed Development. As illustrated on the parameter plans, the Proposed Development incorporates retained green infrastructure, public open space (both formal and informal) and landscape enhancements.

11.235 The Proposed Development has been conceived and designed with reference to published Landscape Character Assessments, as well as site-specific advice regarding landscape and visual matters, thus ensuring mitigation proposed is in line with Local Authority policy guidance.

11.236 Those mitigation measures pertinent to landscape and visual (and arboricultural) matters are detailed with reference to the different stages of the Proposed Development below.

Construction

11.237 The following measures will be implemented during the construction phase of the Proposed Development:

- The adoption of an approved Construction and Environment Management Plan (CEMP, Document Reference 6.2.3.2) including mitigation designed to avoid significant ecological effects including those on key landscape features, will be secured as a requirement of the DCO. This CEMP will be approved by the local planning authorities in accordance with DCO requirements and will be substantially in accordance with the measures set out in the outline CEMP (Document Reference 6.2.3.2);

- The Construction Method Statement (CMS, Document Reference 6.2.3.1) will be secured as a requirement of the DCO, sets out the indicative construction methodologies, works, machinery and procedures required to build the Proposed Development. It describes at a high level how the London Resort will be constructed and sets out the overall programme and phasing of works. This CMS will be approved by the local planning authorities in accordance with DCO requirements and will be substantially in accordance with the measures set out in the outline CMS (Document Reference 6.2.3.1);

- An approved Arboricultural Method Statement (AMS) incorporating best practice guidance set out in British Standard 5837: '2012 Trees in Relation to Design, Demolition and Construction' which will ensure retained trees and other vegetation is not adversely affected during the construction process. Further guidance pertaining to arboricultural matters is contained within the Arboricultural Impact Assessment (Document Reference 6.2.12.9);

- The adoption of an approved topsoil and earthworks management plan (Soil Management Plan), including dust control measures (see Chapter 18, Document Reference 6.1.18) will be secured as a requirement of the DCO ;

- The use of visual screening, such as hoardings for more sensitive visual receptors in proximity to the Application Site, including residential receptors that have the greatest potential to be affected by the Proposed Development;

- Existing residents that live adjacent to the Project Site (particularly those close to the Kent Project Site and the areas near the Swanscombe Peninsula) would be more sensitive to construction lighting due to the proximity, direction and type of receptor. Mitigation measures for construction lighting include directional fittings and restricted hours of operation as referred to in the Lighting Statement (Document Reference 7.9); and

- As illustrated on Figure 11.2 (Document Reference 6.3.11.2) there are a number of PRoW crossing the Kent Project Site. Safe access for pedestrians would need to be maintained whenever practicable throughout the construction phases of development. Access along the PRoWs should be protected using Heras fencing or similar. Construction works which create dust should be kept to a minimum within proximity to the PRoWs, and dust prevention measures, such as damping, should be undertaken to reduce the impact on users of the PRoW network. For reasons of public safety, any informal use of the site for dog walking, etc., should be established, and where evident, would need to be prevented during the construction phase of the development. This would be achieved using protective fencing.

11.238 Generally, the landscape and visual effects during the construction phases of the Proposed Development would be difficult to mitigate due to the nature of these operations. However, as described above, the adoption of approved best practice construction methods will aid in reducing the perception of construction activities for those receptors most likely to be affected.

11.239 Notwithstanding the adoption of these measures, and whilst the significance of the effect at some receptors would reduce to a limited degree, no receptor which would experience a significant unmitigated effect would experience a reduction to a non-significant level of effect as a result of construction mitigation.

11.240 The critical issue in considering construction effects is their temporary nature, and thus the short time period for which landscape and visual amenities would be affected to a significant degree.

11.241 To summarise, residual significant effects would apply to the following receptors during the construction stage of the Proposed Development:

- The landscape character and fabric within the Kent Project Site itself;

- Residential areas of Swanscombe, Northfleet, Grays, Ingress Park, Greenhithe and Castle Hill;

- A number of PRoWs within and in close proximity to the Project Site; and

- At representative Photoviewpoints 1, 2, 3, 4, 5, 7, 9, 11, 12, 22, 23, 29, 30, 53, 54, 60, 66, 68, 70, 71 and 72.

Operation

11.242 Mitigation during the operation (post completion) stage comprises embedded (avoidance) mitigation and additional mitigation proposed to reduce the significance of likely effects (reduction mitigation). These different mitigation measures are discussed below with reference to the Proposed Development.

Embedded mitigation

11.243 Despite the unavoidable loss of some greenfield land on the Swanscombe Peninsula and along the proposed transport corridor from the A2(T) to the main body of the Kent Project Site (albeit both of which have had past industrial/commercial uses), the current condition and key characteristics of the landscape have been considered throughout the design of the Proposed Development and integrated into the layout where possible, such as the avoidance of Black Duck Marsh, Broadness Salt Marsh and Botany Marsh East (see Parameter Plans, Document Reference 2.19, will be secured as a requirement of the DCO). With regard to the Essex Project Site, the proposed developable area is largely existing hardstanding.

11.244 In terms of the arboricultural resource, the masterplanning of the development layout has ensured that trees and hedgerow loss would be minimised through integration of these features into the development areas and the areas of open space. The AIA (Document Reference 6.2.12.9) details the value of the tree stock on site and makes recommendations for future retention.

Additional mitigation

11.245 The landscape and visual mitigation strategy is a fully integrated, component of the Proposed Development. As illustrated on the landscape parameter plans (Document Reference 2.20) the Proposed Development incorporates public open space (both formal and informal) and other landscape enhancements, which include:

- An over-arching Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) for the Project Site which provides design principles for the Proposed Development covering a number of elements such as accessibility, habitat creation and ecology, hydrology and public facilities, and provides the basis for a fully detailed Soft Landscaping Scheme (SLS) to be prepared post consent. The Landscape Strategy will be secured as a requirement of the DCO;

- The Landscape Management Plan (Document Reference 6.2.11.8) will be secured as a requirement of the DCO, provides the strategy for delivering landscape management, maintenance and monitoring within the site wide landscape, which combined with the Ecological Mitigation and Management Framework, that will also

be secured as a requirement of the DCO, (Document Reference 6.2.12.3) ensure that the ecological habitats retained, created or enhanced provide long term benefits to wildlife throughout the operational period of the Proposed Development;

- The provision of a retained, albeit somewhat realigned and upgraded on-site PRoW network, offering recreational value, and a community resource (Appendix 11.9: Public Rights of Way Assessment, Document Reference 6.2.11.9); and

- The creation of surface water attenuation and detention features including reed beds, ponds and swales, incorporated within the areas of open space.

11.246 In addition to these site-wide measures, along the site boundaries and through the development along key existing green links, the landscaping will be managed and reinforced to contain the Proposed Development, providing site security, screening and habitat enhancement, along with aiding the integration of the Proposed Development into its landscape context when viewed from further afield.

11.247 As part of the wider green infrastructure, as illustrated within the Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7), public open spaces, both formal and informal, will be designed to provide high-quality and traffic free green space, which satisfies a number of objectives, including:

- Public open space for formal and informal use;

- Provision of an improved on-site PRoW network;

- Green walls and roofs employed on buildings throughout the Proposed Development;

- Contribution to green networks and enhance habitat connectivity; and

- Facilitated sustainable drainage (SuDS) and connectivity with the existing blue network.

11.248 In summary, the landscape elements specific to the detailed design of the Proposed Development include enhancements that would provide:

- Visual filtering of the Proposed Development;

- Public and private amenity; and

- Ecological value.

RESIDUAL SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROPOSALS

After completion at Year 15

11.249 The full assessment of effects at Year 15 post completion are contained within Appendix 11.3 (Document Reference 6.2.11.3) and are summarised below.

Landscape character

Landscape character of the Project Site itself

11.250 In terms of effects upon the landscape fabric and features of the Project Site itself during Year 15 of operation are considered to be similar to those predicted at Year 1.

Table 11-14: Potential effects on landscape character of the Kent and Essex Project Sites at Year 15

	Sensitivity	**Effect**
Kent Project Site		
Cultural Associations and Historic Landscape	Medium	Moderate (Beneficial) Significant
Topography, geology and Soils	Medium	Moderate/Minor (Adverse) Not Significant
Hydrology and Water Features	High	Moderate (Beneficial) Significant
Habitats and Planting	High	Major/Moderate (Beneficial) Significant
Built Features	Low	Moderate/Minor (Adverse) Not Significant
Perceptual and Sensory Aspects	Medium	Moderate/Minor (Beneficial) Not Significant
Essex Project Site		
Cultural Associations and Historic Landscape	High	Moderate (Beneficial) Significant

	Sensitivity	Effect
Topography, geology and Soils	Low	Negligible (Neutral) Not Significant
Hydrology and Water Features	Low	No Effect (Neutral) Not Significant
Habitats and Planting	Low	Minor/Negligible (Beneficial) Not Significant
Built Features	High	Moderate (Beneficial) Significant
Perceptual and Sensory Aspects	Low	Minor (Beneficial) Not Significant

Kent Project Site

11.251 Cultural association and historic landscape: After 15 years, the topographical changes will be less noticeable as they will be integrated into the local landscape as planting matures. Overall there would be a moderate, adverse, permanent effect that would be significant.

11.252 Topography, geology and soils: After 15 years, the topographical changes will be less noticeable as they will be integrated into the local landscape as planting matures. Overall there would be a moderate/minor, adverse, permanent effect that would not be significant.

11.253 Hydrology and water features: Over time the reedbed systems, replacement water body within Bamber Pit and the ponds, swales , ditches and attenuation basins located throughout the Proposed Development will have established, providing a beneficial change and enhancement to the hydrological and water feature component of the Kent Project Site. It is considered there would be a moderate beneficial, permanent effect at Year 15 of completion that would be significant.

11.254 Habitats and planting: After 15 years, the habitat plantings and enhancements including the retained marshland, development areas and off-site areas will have matured, providing net ecological benefit and biodiversity. Overall, there would be a major/moderate effect which is significant that would be permanent and beneficial in nature.

11.255 Built features: There is no change to the assessment findings after 15 years. There would remain a moderate/minor adverse, permanent effect that would be not significant.

11.256 Perceptual and sensory: There is change to the assessment findings after 15 years, as the Proposed Development would be mature and have become an established part of the landscape. The perceptual and sensory change to the landscape would generally be seen as adverse however in this it instance would be moderate/minor, beneficial, permanent and not significant.

Essex Project Site

11.257 Cultural associations and historic landscape: There is no change to the assessment findings after 15 years. The change would remain medium, and the effect moderate, beneficial, permanent and significant in nature.

11.258 Topography, geology and soils: There is no change to the assessment findings after 15 years. There would be a very low change, and a negligible, neutral effect which would be permanent and not significant.

11.259 Hydrology and water features: There is no change to the assessment findings after 15 years. There would be no change to the hydrology and water features of the Essex Project Site, that would result in no effect.

11.260 Habitats and planting: There is no change to the assessment findings after 15 years. Overall there would be a minor/negligible effect which would be beneficial, permanent and not significant in nature.

11.261 Built features: There is no change to the assessment findings after 15 years. There would be a medium magnitude of change, and a moderate effect that would be beneficial, permanent and significant.

11.262 Perceptual and sensory: There is no change to the assessment findings after 15 years. There would be a medium change, resulting in a minor effect that would be slightly beneficial due to minor increases in biodiversity delivered through enhanced planting. The effect would be permanent and not significant.

Local landscape character areas

11.263 The potential effects upon LLCAs at Year 15 of completion are summarised in Table 11-15 below, with the full assessment contained within Appendix 11.3 (Document Reference 6.2.11.3).

Table 11-15: Potential effects on LLCAs at Year 15 of completion

	Sensitivity	**Effect**
1. Marshland LLCA	Medium	Moderate (Beneficial)

	Sensitivity	**Effect**
		Significant
2. Chalk Pits LLCA	Low	Moderate/Minor (Beneficial) Not Significant
3. International LLCA	Low	Minor (Neutral) Not Significant
4. Northfleet LLCA	Very Low	Negligible (Beneficial) Not Significant
5. Northfleet Industrial LLCA	Very Low	Negligible (Beneficial) Not Significant
6. Northfleet Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
7. Swanscombe LLCA	Very Low	Negligible/None (Adverse) Not Significant
8. Swanscombe Heritage Park LLCA	Medium	Minor/Negligible (Adverse) Not Significant
9. Ingress Park LLCA	Low	Minor/Negligible (Adverse) Not Significant
10. Greenhithe Village LLCA	Very Low	No effect (Neutral) Not Significant
11. Knockhall LLCA	Very Low	No effect (Neutral) Not Significant
12. Stone Town LLCA	Very Low	No effect (Neutral) Not Significant
13. Stone Marshes Riverside and Crossways Business Park LLCA	Very Low	No effect (Neutral) Not Significant
14. Gravesend Town Centre and	Medium	No effect

	Sensitivity	**Effect**
Riverside LLCA		(Neutral) Not Significant
15. Gravesend Victorian/Edwardian Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
16. Gravesend Inter/Post War Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
17. Gravesend Modern Suburbs LLCA	Very Low	No effect (Neutral) Not Significant
18. Gravesend Southern Fringe LLCA	Very Low	Negligible/None (Neutral) Not Significant
19. Springhead LLCA	Very Low	Negligible/None (Neutral) Not Significant
20. Wombwell Park LLCA	Low	Negligible/None (Neutral) Not Significant
21. Southfleet and Istead Arable Lands LLCA	Medium	Negligible/None (Neutral) Not Significant
22. Darenth Downs LLCA	Medium	Minor/Negligible (Neutral) Not Significant
23. Ebbsfleet LLCA	Very Low	No effect (Neutral) Not Significant
24. Bluewater LLCA	Very Low	No effect (Neutral) Not Significant
25. Long Reach and Fiddler's Reach LLCA	Low	Minor/Negligible (Adverse) Not Significant
26. Northfleet Hope Reach LLCA	Low	Minor/Negligible (Adverse) Not Significant

	Sensitivity	Effect
27. Gravesend Reach LLCA	Low	Negligible (Adverse) Not Significant
28. Tilbury Marshes LLCA	Medium	Minor/Negligible (Neutral) Not Significant
29. Tilbury Urban Area LLCA	Very Low	Negligible/None (Neutral) Not Significant
30. Tilbury Docks LLCA	Very Low	Negligible/None (Beneficial) Not Significant
31. Grays/Chadwell St Mary Urban Area LLCA	Very Low	Negligible/None (Neutral) Not Significant
32. West Thurrock LLCA	Very Low	Negligible/None (Neutral) Not Significant

11.264 Following completion, and as mitigation measures have matured circa 15 years from initial completion, the magnitude of change is expected to reduce slightly upon the Marshland LLCA as the Proposed Development becomes assimilated into its context. However, the magnitude of change, although slightly reduced is still expected to be high, meriting a moderate significant effect that is permanent but would change to beneficial in nature.

11.265 Whilst areas of the LLCA are permanently lost to the Proposed Development, only one area remained as an historic marsh, the rest is all previously developed and made ground with considerable contamination. Retained and enhanced areas of ecological value such as Botany Marshes, Black Duck Marsh and Broadness Salt Marsh would have continued to mature and establish. Newly diverted/realigned PRoW routes would have matured through parts of the Marshland LLCA. In addition, there will be established wildlife hides, boardwalks, information boards and viewing platforms, whilst areas of habitat such as saltmarsh will have had time to establish. The built structures in the resort and green infrastructure planting will also have had an opportunity to mature and integrate into the landscape.

Landscape character areas

11.266 With regard to the broader published landscape character areas, the potential effects predicted upon those areas which cover or lie in close proximity to the DCO Order Limits at Year 15 of completion are summarised in Table 11-16 below with the full details of assessment contained within Appendix 11.3 (Document Reference 6.2.11.3).

Table 11-16: Potential effects on published landscape character at Year 15 of completion

	Sensitivity	Effect
Kent Landscape Character Areas		
Western Thames Marshes LCA	Medium	Moderate (Adverse) Significant
Dartford and Gravesend Fringes LCA	Low	Minor (Adverse) Not Significant
Darenth Downs LCA	Medium	Minor/Negligible (Adverse) Not Significant
Southfleet Arable Lands LCA	Medium	Minor/Negligible (Adverse) Not Significant
Gravesham Landscape Character Areas		
Botany Marshes LCA	High	Moderate (Adverse) Significant
Gravesend Southern Fringes LCA	Low	Negligible (Adverse) Not Significant
Istead Arable Farmland LCA	Medium	No Effect (Neutral) Not Significant
Gravesham Townscape Appraisal		
Industrial Hinterland TCA	Very Low	Negligible/None (Adverse) Not Significant
Northfleet TCA	Low	Negligible (Adverse) Not Significant
Modern Suburbs TCA	Low	No Effect (Neutral) Not Significant
Thurrock Landscape Character Areas		
Tilbury and Docks Urban Area LCA	Very Low	Negligible/None (Neutral) Not Significant
Tilbury Marshes LCA	High	Moderate/Minor (Beneficial) Not Significant

	Sensitivity	Effect
Thames East Strategy Character Areas		
Long Reach and Fiddler's Reach RCA	Low	Minor/Negligible (Adverse) Not Significant
Northfleet Hope Reach RCA	Low	Minor/Negligible (Adverse) Not Significant
Gravesend Reach RCA	Low	Minor/Negligible (Adverse) Not Significant

Visual amenity

11.267 Locations of representative receptor photoviewpoints are illustrated on Figure 11.10 (Document Reference 6.3.11.10). The photoviewpoints themselves are provided as Figure 11.12 (document 6.3.11.12). Receptor sensitivity is described in Table 11-17 with the sensitivity of visual receptors varying according to category, context of the view and susceptibility to change. The potential effects at Year 15 of completion predicted for each receptor is included in Table 11-17 below.

Table 11-17: Potential effects at Year 15 of completion on visual receptor groups

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
Residences and Settlements			
5, 7	Swanscombe	High	Major/Moderate (Beneficial) to Moderate (Adverse) Significant
2, 11	Ingress Park	High	Major/Moderate to Moderate (Adverse) Significant
12	Greenhithe	High	Moderate (Adverse) Significant
18	Gravesham	High	Moderate/Minor (Adverse) Not Significant
17, 20, 40	Northfleet	High	Moderate/Minor (Adverse) Not Significant

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
29, 30	Grays	High	Major/Moderate (Adverse) Significant
46	Castle Hill	High	Minor (Adverse) Not Significant
64, 65	Tilbury	High	Minor (Adverse) Not Significant
34	Chadwell St Mary	High	Minor (Adverse) Not Significant
Public Rights of Way, National Cycle Routes and Open Access Land			
1, 2, 3	Footpath DS1	High	Major to Major/Moderate (Adverse) Significant
4	Footpath DS2	High	Major/Moderate (Adverse) Significant
60	Footpath DS12	High	Major (Adverse) Significant
55	Footpath DS17	Medium	Moderate/Minor (Adverse) Not Significant
5	Footpath DS31	High	Major/Moderate (Beneficial) Significant
56	Footpath DR1	High	Moderate/Minor (Adverse) Not Significant
61	Footpath DR26	High	Minor (Adverse) Not Significant
22, 23, 53, 54	Footpath NU1	High	Major/Moderate (Adverse) Significant
59	Footpath NG1	High	Minor (Adverse) Not Significant
52	Footpath N129	High	Minor (Adverse) Not Significant

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
72	Footpath 117	Medium	Moderate (Adverse) Significant
27	Footpath 141	Medium	Moderate/Minor (Adverse) Not Significant
26, 29	Footpath 170	Medium	Moderate (Adverse) Significant to Moderate/Minor (Adverse) Not Significant
31	Footpath 177	Medium	Moderate/Minor (Adverse) Not Significant
32	Footpath 186	Medium	Minor/Negligible (Adverse) Not Significant
41	Footpath NS177	Very High	Moderate/Minor (Adverse) Not Significant
36	Byway 98	High	Minor (Adverse) Not Significant
44	Restricted Byway DR126	High	Minor (Adverse) Not Significant
2, 13, 14, 17, 48	NCR 1	Medium	Major (Adverse) Significant to Negligible (Adverse) Not Significant
29, 30, 31, 37, 39	NCR 13	Medium	Moderate (Adverse) Significant to Minor (Adverse) Not Significant
9	Swanscombe Heritage Park	High	Moderate (Adverse) Significant

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
29, 30, 31	Grays Riverside Park and water's edge public spaces	Medium	Moderate (Adverse) Significant to Moderate/Minor (Adverse) Not Significant
35	Coalhouse Fort	High	Minor (Adverse) Not Significant
37	Tilbury Fort	Medium	Moderate/Minor (Adverse) Not Significant
64	Anchor Field Park	Medium	Minor/Negligible (Adverse) Not Significant
65	King George's Playing Field	Medium	Minor/Negligible (Adverse) Not Significant
73	Pedham Place Golf Course	Very High	No Effect (Neutral) Not Significant
74	Camer Country Park	Very High	Moderate/Minor (Adverse) Not Significant
Public Highways			
5, 58	Galley Hill Road	Low	Moderate/Minor (Beneficial) Not Significant to Minor (Beneficial) Not Significant
57	High Street	Low	Moderate/Minor (Adverse) Not Significant
10	Knockhall Road	Low	Negligible (Adverse) Not Significant
28	Devonshire Road	Low	Minor/Negligible (Adverse) Not Significant
43	New Barn Road	Low	Negligible (Adverse) Not Significant

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
44	Park Corner Road	Low	Negligible (Adverse) Not Significant
15, 16	Ebbsfleet International	Very Low	Moderate/Minor (Adverse) to Minor (Adverse) Not Significant
21	Stonebridge Road/B2175	Low	Minor/Negligible (Adverse) Not Significant
47	Hall Road Bridge/B262	Very Low	Negligible/None (Adverse) Not Significant
33	Chadwell Bypass	Low	Minor/Negligible (Adverse) Not Significant
42	A227	Low	Negligible (Adverse) Not Significant
13, 14	A2260	Low	Minor (Adverse) Not Significant
47, 62	A2(T)	Very Low	Negligible/None (Adverse) Not Significant
63	B255	Very Low	Negligible (Adverse) Not Significant
Railways			
-	London to Southend mainline	Very Low	Negligible (Neutral) Not Significant
-	North Kent railway line	Very Low	Negligible (Neutral) Not Significant
-	HS1	Very Low	Negligible (Neutral) Not Significant
Users of the Thames (recreational traffic, haulage, ferries and cruise ships)			
50	Between Gravesend and Tilbury	Low	Negligible (Adverse) Not Significant

Photoviewpoint numbers	Receptor and Location	Sensitivity	Effect
66	South of Stone Ness	High	Major/Moderate (Beneficial) Significant
67	South of Tilbury Docks	High	Moderate/Minor (Beneficial) Not Significant
68	North of Broadness Salt Marsh	High	Major/Moderate (Beneficial) Significant
69	Gravesend Reach	High	Minor (Beneficial) Not Significant
70	Northfleet Hope	High	Major (Beneficial) Significant
71	Fiddler's Reach	High	Major/Moderate (Beneficial) Significant

Residences and settlements

11.268 Following completion, and as mitigation measures mature, by Year 15 the magnitude of change would marginally reduce for the majority of residential receptors, reflecting the success of the scheme mitigation, and the early establishment of strategic planting throughout the Proposed Development and the overall high quality of the scheme proposed.

11.269 There would be a reduction in the magnitude of change and overall level of previously significant effects upon parts of Swanscombe (represented by Photoviewpoints 5 and 7), however, the effects, whilst reduced, would still remain significant (major/moderate) and would be adverse and permanent in nature.

11.270 Previously significant effects on the parts of Ingress Park (represented by Photoviewpoints 2 and 11), would similarly reduce but would, however, still remain significant, adverse and permanent (between major/moderate and moderate). Waterfront properties at Greenhithe would continue to experience significant adverse permanent effects which will have reduced slightly from those effects at Year one of completion (major/moderate) to moderate.

11.271 Waterfront dwellings at Grays on the northern bank of the Thames opposite the Kent Project Site (represented by Photoviewpoints 29, 30 and 31) would continue to experience adverse, permanent significant effects by Year 15 that would be major/moderate.

11.272 However, it is important to note that this effect would only be apparent for certain parts of certain properties, and not as a wholescale effect across entire residential areas.

Public rights of way and open access land

11.273 Following completion, and as mitigation measures mature, by Year 15 the magnitude of change would generally reduce for the PRoW network, whilst those within the Project Site itself and within particularly close proximity to the Project Site boundary would remain the same.

11.274 Major effects predicted upon the footpath network of the Swanscombe Peninsula of the Kent Project Site would reduce by Year 15 to Major/Moderate from Major at Year 1 following the maturation of the landscaping and overall weathering and acceptance of the Proposed Development in its context over time. These effects would remain significant adverse permanent in nature, applying to Footpath DS1 (Photoviewpoints 1, 2 and 3), Footpath DS2 (Photoviewpoint 4), Footpath DS12 (Photoviewpoint 60), Footpath DS31 (Photoviewpoint 5) and Footpath NU1 (Photoviewpoints 22, 23 and 54).

11.275 Significant effects predicted at Year 1 from PRoW and Public Open Space (POS) on the northern banks of the Thames would remain moderate from for Footpath 170 (Photoviewpoints 29, 30) which remain significant, adverse and permanent in nature.

11.276 In terms of Open Access Land and areas of public open space , there would be potential significant effects from Swanscombe Heritage Park (Photoviewpoint 9) which would reduce from major/moderate at Year 1 to moderate by Year 15, remaining adverse, permanent and significant in nature.

11.277 With regard to National Cycle Routes (NCRs), potential significant effects are likely to remain upon sections of NCR 1 which passes east-west through the study area and through parts of the Kent Project Site. However, from the A2260 (represented by Photoviewpoint 13, 14 and 48) there is expected to be a reduction from a moderate/minor to minor which are both not significant. Photoviewpoint 2 (part of NCR 1) would see a reduction in effect from major/moderate to moderate and remain adverse permanent and significant in nature.

11.278 There would continue to be potentially significant effects along sections of NCR 13 which passes east-west through the study area on the northern bank of the Thames, passing through the Essex Project Site (representative views illustrated by Photoviewpoints 29, 30, 31, 37 and 39) from major/moderate to moderate adverse and permanent.

11.279 Effects on other routes vary more considerably, due primarily to local topography and the effect of intervening vegetation and built form, which screens, or partly screens many views. Effects are likely at between a major to moderate level (all high to medium sensitivity with magnitude of change varying between very high to high), with these effects significant. Many parts of these routes will experience much lower (not significant) effects, with those assessed presenting the worst case.

11.280 Residual effects that have remained at significant level are not surprising. The conversion of any site to a major development site would yield such an outcome and this is not a reflection on the quality of the scheme masterplan, but of the process that requires an assumption to be made that most people would see the visual and sensory change as adverse.

11.281 Effects on other routes vary more considerably, due primarily to local topography and the effect of intervening vegetation, which screens, or partly screens many views. Many parts of these routes will experience much lower (not significant) effects, with those assessed presenting the worst case.

11.282 In general terms, and in the case of all effects upon all routes, it is true that over the longer term, and as the Proposed Development becomes an accepted part of the view, references to the magnitude of change and levels of effect would be immaterial as the development becomes part of the local context.

Public highways

11.283 The assessment has shown that during the Year 15 of completion there would be a reduction from moderate significant level adverse effects on Galley Hill Road (Photoviewpoint 5) to moderate/minor which is not significant. Similarly, effects would further reduce on the A2260 (Photoviewpoints 13, 14 and 48), which passes east-west through the Kent Project Site, to minor and not significant, which would be adverse and permanent.

11.284 However, with regard to these effects, it should be noted that the level of effect will diminish with distance on these routes and level of intervening screening element such as vegetation, built form and topography. Views to the Project Site will be limited to infrequent glimpsed oblique views. Effects at this level are not surprising. Any major development of this scale would yield such an outcome and this is not a reflection on the quality of the scheme masterplan, but of the process that requires an assumption to be made that most people would see the visual and sensory change as adverse.

11.285 Over the longer term, and as the Proposed Development becomes an accepted part of the view from these roads, references to magnitude of change and levels of effect would become irrelevant in the local context.

11.286 For the remaining road network, screening, the existing character of views and the low to very low sensitivity of road receptors plays an important role in limiting effects and as such there would be no significant effects upon those routes.

Railways

11.287 No potential significant effects are predicted upon the railway network passing through of within proximity to the Project Site, primarily due to the containment of the routes through deep cuttings within the landscape and mature vegetation and built form which

serves to screen views.

Users of the Thames (recreational traffic, haulage, ferries and cruise ships)

11.288 With regard to users of the Thames, there may be significant effects experienced by vessels travelling directly past the Swanscombe Peninsula where the most substantial quantum of the London Resort would be apparently visible. Photoviewpoint 50 illustrates views from the Gravesend to Tilbury Ferry, of which effects of minor and not significant are predicted as a result of the completed Proposed Development at the Project Site.

11.289 With regard to users of the Thames, there will be significant effects experienced by vessels travelling directly past the Swanscombe Peninsula of the completed Proposed Development at Year 15 would be apparently visible as illustrated by Photoviewpoints 66, 68, 70 and 71.

11.290 Photoviewpoint 50 illustrates views from between Gravesend and Tilbury, of which effects of minor and not significant are predicted as a result of the construction of the Proposed Development at the Essex Project Site.

11.291 Photoviewpoint 67 illustrates views from the stretch of river just south of Tilbury Docks which would experience moderate/minor effects that would not be significant.

11.292 Photoviewpoint 69 illustrates views from the approach along Gravesend Reach towards the Project Site, of which effects of minor and not significant are predicted.

CONSIDERATION OF IMPACTS UPON THE METROPOLITAN GREEN BELT

11.293 With regard to the Metropolitan Green Belt, given the small area of land potentially affected and the limited nature of the works, effects upon the spatial nature of this designation are expected to be limited.

11.294 The vast majority of the DCO Order Limits is not located within the Green Belt, with the Swanscombe Peninsula entirely excluded from this designation The vast majority of the access corridor, A2(T) and A296 main roads are excluded from the Green Belt, however a small strip of land (c.25.7ha) within the DCO Order Limits and south of the A2(T) main road falls within the Green Belt (see Figure 11.2, Document Reference 6.3.11.2).

11.295 The A2(T)/B259 junction improvement works would be very minor, and the change to the A2 Resort Access Road corridor would be minimal. Considered alongside landscape and visual mitigation strategies, it is anticipated that the proposed access corridor and junction improvements would be successfully integrated into the landscape with limited significant adverse effects and similar in nature to the baseline scenario. Similarly, the effects upon the openness and permanence of the Green Belt are not expected to be affected to a notable degree.

11.296 In regard to the five purposes of Green Belt contained within para 134 of the NPPF, as a

result of the Proposed Development and these highway works, there would not be sprawl of large built-up areas into the Green Belt (Purpose a), neighbouring towns would not merge into one another due to the highways works (Purpose b), the countryside would not be encroached upon as the routes are already established (Purpose c), the limited nature of the highways works would preserve the setting and special character of historic towns (Purpose d). Finally with regard to the assistance of "urban regeneration, by encouraging the recycling of derelict and other urban land" (Purpose e), again the limited nature of the highways works that will take place within the Green Belt will be on existing major transport routes.

CONSIDERATION OF EFFECTS UPON NIGHT TIME VIEWS

Site context after dark

11.297 Twelve of the representative photoviewpoints were selected for night time views to capture baseline light during dark hours. Similarly, agreement to these locations has been sought through consultation with ThC, GBC, DBC, NE and Kent Downs AONB Unit as part of the design development and assessment process. These locations have been selected based on the coverage of views from north, south, east and west into the Project Site and the majority are taken where receptors are likely to be at night (roads, settlements and dwellings).

11.298 Photoviewpoints 8, 12, 21, 22, 29, 33, 41, 45, 46, 49, 73 and 74 were selected to illustrate the Project Site's context after dark and are provided in Figure 11.13 (Document Reference 6.3.11.13) whilst their locations are illustrated on Figure 11.11 (Document Reference 6.3.11.11). However, in regard to users of PRoW, it is likely that the majority of receptors are no longer active upon these routes after dark, particularly away from urban areas and light sources which provide a sense of security.

11.299 It was found that from distance to the south, as represented by Night View: Photoviewpoints 41, 73 and 74 taken from within the Kent Downs AONB, there are numerous light sources from within the urban areas of Gravesend, Northfleet, Tilbury, Swanscombe, Grays and West Thurrock that provide a considerable amount of baseline light. The area around these night views in particular is dark itself and generally void of notable lights sources, whilst the urban area in which the Kent and Essex Project Sites are located, is readily identifiable in views as a busy urban area from distance after dark.

11.300 Cross water views from Night View: Photoviewpoints 12 and 29 look towards the main area of the London Resort at the Kent Project Site on the Swanscombe Peninsula. Lights sources across the peninsula are limited with the safety lights on the superpylon, the floodlights from the CEMEX and Britannia Refined Metals plants the main identifiable light source. Residential areas at Ingress Park and industrial areas at Northfleet and cross water at Tilbury, provide light sources which spill somewhat from their areas and add to the night glow of the area, whilst the Kent Project Site itself remains fairly dark.

11.301 From the north-east Night View: Photoviewpoint 33 illustrates the baseline scenario as

experienced from the edge of Chadwell St Mary. The riverside urban areas to the south, including Tilbury, Gray, Ingress Park and Gravesend are notable light sources in the view and create an urban glow. The Kent Project Site is identifiable with the safety lights of the superpylon located on the Swanscombe Peninsula, whilst the vast lighting associated with Tilbury Docks near the Essex Project Site are also readily noticeable.

11.302 From within the urban area of Gravesend, Night View: Photoviewpoint 49 represents the baseline context as experienced from Windmill Hill, a public park contained by residential areas. Similar to Night View: Photoviewpoint 33 there are considerable light sources across the urban areas associated with Thurrock, Gravesend, Grays, Swanscombe and Tilbury which dominate the night time scenario. The Essex Project Site is particularly influenced by existing light sources, whilst the Kent Project Site identifiable by the superpylon is also set within a context that has large scale industrial uses and light sources as a backdrop.

11.303 Night View: Photoviewpoints 45 and 46 illustrate the baseline context of views towards the proposed link road which would connect the A2(T) to the London Resort on Swanscombe Peninsula. As illustrated, the road network is well lit throughout the area, whilst the presence of urban form such as dwellings, car parks are noticeable in the close to middle distance, whilst commercial uses at Thameside locations are visible at distance, particularly from Night View: Photoviewpoint 45.

11.304 In terms of areas within the Kent Project Site, Night View: Photoviewpoint 22 is taken from Botany Marshes looking in the direction of the main body for the London Resort at the Swanscombe Peninsula. As illustrated, the baseline scenario across this part of the Kent Project Site is generally void of light sources (other than the superpylon), whilst glow from nearby urban areas adjacent to the Kent Project Site and cross river exert a light glow over the area with a lot of the foreground readily visible. The chalk cliffs to the south (left of the image) are also lit up by lighting associated with the Manor Way industrial park.

Construction

11.305 In line with the Construction Method Statement (CMS, Document Reference 6.2.3.1), where work is required outside of daylight hours, temporary lighting would be directed away from retained watercourses, woodlands, mature trees and hedgerows. The outline Construction Environmental Management Plan (Document Reference 6.2.3.2) and the Lighting Statement (Document Reference 7.9) provides further detail in respect of temporary construction lighting. All these documents will be secured as a requirement of the DCO.

Operation

11.306 The Lighting Strategy (Document Reference 7.9) secured as a requirement of the DCO, details the proposed lighting strategy across the Proposed Development and will be secured as a requirement of the DCO. The lighting strategy shall form the basis, of which the final designs and implementation of the artificial lighting are to be addressed. The

lighting strategy sets out the recommendations, applicable regulations and best practice, to be adopted for the Proposed Development. Parameters are provided, to limit obtrusive light and light pollution, together with considerations for protection of ecology and the environment.

11.307 The Lighting Strategy (Document Reference 7.9) predominantly addresses the external lighting requirements, as the significant element of lighting impact, with recommendations to limit the impact from the interior lighting, of which details are to be further developed during the design period.

11.308 In terms of anticipated effects on those night views listed above and illustrated in Figure 11.13 (Document Reference 6.3.11.13), a narrative is contained each relevant view within Appendix 11.3 (Document Reference 6.2.11.3) of effects at Year 1 and Year 15 of operation, of which there will be little change over the.

11.309 With regard to views from within the Kent Downs AONB (Night View: Photoviewpoints 41, 73 and 73), it is anticipated there will be little change to the baseline scenario as a result of the Proposed Development due to distance and the abundance of lighting in the vicinity of the Project Sites which define the area as a busy urban landscape by night.

11.310 In terms of those views closer to the Proposed Development, there will unsurprisingly be a considerable change to the night time scenario (Night View: Photoviewpoints 12, 29 and 30), particularly in regard to views of the Kent Project Site at the Swanscombe Peninsula (which has little light source itself) which will house the London Resort. These changes are considered of a similar magnitude expected to the daytime assessments.

11.311 From urban areas to the north-east (Night View: Photoviewpoint 33) and south-east (Night View: Photoviewpoint 49), The completion of the Essex Project Site will likely result in little change to the night time scenario. Filtered views towards the Kent Project Site will comprise the completed resort at the Swanscombe Peninsula, which will have its own illuminated character at night, featuring as a landmark in the distance against a backdrop of well-lit urban areas.

CUMULATIVE AND IN-COMBINATION EFFECTS

11.312 Cumulative effects can arise from the intervisibility of operational or proposed developments and/or from the combined effects of individual components of the Proposed Development occurring in different locations or over a period of time. The separate effect of such individual components or developments may not be significant, but together they may create a degree of adverse effect on the landscape resource or visual receptors within their combined visual envelopes. Schemes may have significant effects in their own right, but significant cumulative effects would not automatically arise following the addition of the Proposed Development; the significance is determined by the degree of change that the Proposed Development would introduce into the theoretical cumulative baseline.

11.313 Cumulative effects arise in two principal ways, in combination and sequentially. Combined effects occur when: 1) two or more schemes appear simultaneously in the same arc of view without the need for an observer to turn; and 2) in succession, where it is necessary for the observer to turn the head to see the various schemes. Sequential effects occur where the observer has to move from one location to another to be able to see the different developments, and typically arise when the observer is travelling through a landscape.

11.314 Those cumulative sites within the near vicinity of the Project Site, which have the potential to result in cumulative landscape and visual effects are as detailed in Chapter 21 (Document Reference 6.1.21). This Chapter identifies a 'long list' of schemes (Figure 21.2, Document Reference 6.3.21.2) which is narrowed down to a 'short list' (Figure 21.3) of schemes is based on the potential for significant cumulative effects as an overall picture across the board of environmental topics

11.315 The effects of the cumulative schemes, referred to in Figure 21.3 (Document Reference 6.3.21.2), upon landscape and visual receptors are considered within Appendix 11.6 (Document Reference 6.2.11.6) and are summarised below, focusing on where cumulative effects have the potential to be significant.

11.316 The landscape and visual cumulative assessment considers two scenarios:

a) The certain scenario, which considers the consented cumulative schemes and the Proposed Development; and

b) The uncertain scenario, which considers the consented cumulative schemes, the Proposed Development and those cumulative schemes currently in planning.

11.317 Where significant cumulative effects arose in the cumulative assessment within Appendix 11.6 (Document Reference 6.2.11.6), these are summarised in the following sub sections below.

Landscape character

Local landscape character areas

11.318 In terms of cumulative significant effects upon landscape character areas, these are summarised below whilst the detailed assessment is contained within Appendix 11.6 (Document Reference 6.2.11.6).

11.319 The Proposed Development is assessed above as having a moderate adverse significant effect on the Marshland LLCA upon Year 1 of completion. Cumulative schemes ID17 and ID42 would be visible from within the LLCA, however the effects would be indirect as they are located outside the LLCA. In either the certain scenario (ID42), or uncertain scenario (adding ID17) there would be a significant cumulative effect upon the Marshland LLCA with the Kent Project Site as the main proponent.

11.320 There would be a significant cumulative effect on the Northfleet Industrial LLCA in the certain scenario, largely due to the other cumulative schemes (ID20, ID21, ID39, ID40 and ID43). The cumulative schemes, all of which are consented would occupy a large area of the LLCA, fundamentally changing the character from almost solely industrial to a mixture including residential.

11.321 With regard to the Springhead LLCA, this would experience a significant cumulative effect in the certain scenario primarily due to the consented cumulative schemes ID18 and ID19, which are currently being built out and comprise large housing schemes that take up a large proportion of the LLCA, establishing the cumulative effect. There would be no physical effect from the Kent Project Site on the LLCA but there would be a very limited indirect cumulative effect from the Resort Access Road visible from the western edges of the LLCA. There would be no additional cumulative effects through the addition of the Proposed Development.

11.322 In terms of Ebbsfleet LLCA, cumulative schemes ID9 and ID11 would result in a significant cumulative effect in the certain scenario. ID9 comprises a large-scale housing scheme which will take up the vast majority of land with the LLCA. The Kent Project Site would not result in additional significant cumulative effects through the addition of the Proposed Development to what is already a significant cumulative effect established by the cumulative schemes.

11.323 With regards to Ingress Park, in the certain scenario, the addition of the Kent Project Site would create the cumulative effect, which would be not significant. In the uncertain scenario (by adding in those schemes not currently consented), there would be a significant cumulative effect, largely due to cumulative schemes ID17 and ID42. The Kent Project Site would add to this significant cumulative effect.

11.324 Gravesend Southern Fringe LLCA would, in the certain scenario, experience a significant cumulative effect with ID21 being the main contributor to the significant effect. The Kent Project Site would not result in additional significant cumulative effects through the addition of the Proposed Development to what is already a significant cumulative effect established by the cumulative schemes.

11.325 In terms of the Tilbury Marshes LLCA, in the certain scenario, there would be a significant cumulative effect, which would be established by the cumulative site ID1 as the main proponent. The Essex Project Site would add this marginally and would not result in additional significant cumulative significant effects established by the cumulative scheme. In the uncertain scenario adding in ID3, ID4, ID22 and ID27 would make the existing cumulative significant effect more extensive, and the addition of the Essex Project Site an even smaller addition to this. The Essex Project Site would add this marginally and would not result in additional significant cumulative significant effects established by the uncertain cumulative schemes.

Landscape character areas

11.326 With regard to the Dartford and Gravesend Fringes LCA, the Proposed Development at the Kent Project Site does not result in a significant effect upon the LCA. In the certain cumulative scenario, ID9, ID18 and ID19 comprise large scale housing schemes which will take up the vast majority of land with the LCA. As such ID9, ID11, ID18 and ID19 would result in a significant cumulative effect upon the Dartford and Gravesend Fringes LCA. The Proposed Development Kent Project Site would not add to what is already a significant cumulative effect.

11.327 In regard to the Gravesend Southern Fringe LCA, the Proposed Development at the Kent Project Site would not result in a significant effect upon the LLCA. In the certain scenario, cumulative scheme ID21 comprises a housing scheme which would take up a large proportion of the green space within the LLCA. As a result there would be a significant cumulative effect, with ID21 being the main contributor to the significant effect.

11.328 In terms of the Industrial Hinterland LCA, the Proposed Development at the Kent Project Site would not result in a significant effect upon the LLCA in its own right. In the certain scenario the cumulative schemes (ID20, ID21, ID39, ID40 and ID41), all of which are consented would occupy a large area of the LCA, fundamentally changing the character from almost solely industrial to a mixture including residential. As a result, there would be a significant cumulative effect, largely due to the other consented cumulative schemes within the LCA

11.329 For the Tilbury Marshes LCA, in the certain scenario, here would be a significant cumulative effect already established by the cumulative sites ID1 and ID2. The Essex Project Site would add to this minimally. In the uncertain scenario, adding in the cumulative sites in planning (ID3, ID4, ID22 and ID27) would make the existing cumulative effect more extensive, and the addition of the Essex Project Site an even smaller addition to this.

Visual amenity

11.330 It is pertinent to note that the cumulative baseline consists of a number of areas of development. Taking into account the size and distribution of cumulative developments, it is possible that there would be locations within the landscape from which view of more than one development site may be gained either in combination or sequentially, particularly views from vehicular or river corridors. A detailed assessment of the cumulative effects on each Photoviewpoint is provided in Appendix 11.6 (Document Reference 6.2.11.6).

11.331 The cumulative assessment has identified that some cumulative effects are predicted, predominantly in views from within 2km where the Project Site would be seen to increase the horizontal scale of development within the local context. In summary:

- The area would be more urbanised and therefore less susceptible to change and less

sensitive to the introduction of urban components within the landscape;

- Some viewpoints that are likely to experience change as a result of development of the Project Site would have views blocked or modified by cumulative baseline development, particularly for receptors within and around Northfleet, Castle Hill and Springhead where the development of the cumulative schemes would either screen views of the Proposed Development and/or urbanise the immediate context.

11.332 While the effect of the Proposed Development at the Project Site would not differ, the magnitude of change experienced across the wider area would clearly be greater when taking the combined effect of the other schemes into consideration. By the same token, it may be considered that the proportion to the total visual change attributable to the Proposed Development would be proportionately less because, i) the wider area would be more urbanised and therefore less sensitive to the introduction of urban components within the landscape; and ii) photoviewpoints that are likely to change as a result of the Proposed Development may have view blocked or altered by other developments.

11.333 Overall, as a result of the implementation of the Proposed Development and the cumulative developments listed above, there would be an increase in massing of built development within the local context as a whole which is already urbanised.

11.334 Photoviewpoint 1 would experience a cumulative significant effect. Significant due to Kent Project Site and ID17 (in the uncertain scenario) in combination or separately.

11.335 In the certain scenario, at Photoviewpoint 2, the Kent Project Site would establish cumulative effect with ID42, which would be significant. In the uncertain scenario, adding in ID17 there would already be a significant cumulative effect (with ID42) to which the Kent Project Site would add.

11.336 From the edge of the residential area of Swanscombe, looking south towards the A2 (Photoviewpoint 8), there would be a significant cumulative effect due to other cumulative schemes in close proximity (ID9, ID10, ID11, ID15, ID18 and ID19). Kent Project Site would add to this significant effect.

11.337 From Ingress Park (Photoviewpoint 11), there would be a significant cumulative effect, due to the Kent Project Site in the certain scenario with ID42 and uncertain scenario by adding ID17.

11.338 From Greenhithe riverfront, (Photoviewpoint 12), there would be a significant cumulative effect, due to the Kent Project Site where ID17 would be present within the view in the uncertain scenario.

11.339 To the east at Rosherville Quays/Gravesend Waterfront (Photoviewpoint 17), there would be a significant cumulative effect in the certain scenario primarily due to the cumulative schemes present in the view (ID20, ID25, ID39, ID40, ID41). Nearby at Northfleet Lighthouse (Photoviewpoint 19) there would similarly be a significant cumulative effect,

primarily due to ID39 in close proximity. Further south on elevated ground near Rosherville Primary School (Photoviewpoint 20) there would be a significant cumulative effect due to cumulative sites ID20, ID25, ID39, ID40 and ID41 in close proximity.

11.340 From North Kent Avenue (Photoviewpoint 18), there would be a significant cumulative effect due to the Kent Project Site.

11.341 Along the northern bank of the Thames, from both Photoviewpoint 26, 27, 29, 30, 31 and 72) there would be, in the certain scenario (ID39 and ID42), and uncertain scenario (adding ID17) into the view, a significant cumulative effect, primarily due to the Kent Project Site.

11.342 On elevated ground to the north of the northern side of the Thames, Photoviewpoint 34 illustrates residential views from higher ground at Chadwell St Mary. As such, in the certain scenario, there would be a significant cumulative effect largely due to ID1. In the uncertain scenario, there will be a significant cumulative effect due to cumulative schemes in close proximity (ID2, ID3, ID4, ID22, ID27).

11.343 At Tilbury Fort (Photoviewpoint 37), there would be a cumulative significant effect due to the Essex Project Site.

11.344 At Gravesend waterfront and the Saxon Shore Way (Photoviewpoint 51 and 59), there would be Significant cumulative effect largely due to ID1 in the certain scenario. In the uncertain scenario, there would still be a significant cumulative effect, due to ID1 and additional cumulative schemes (ID2, ID3 and ID4) in close proximity.

11.345 From elevated ground to the south-west of the Kent Project Site, (Photoviewpoint 63), there would be a significant cumulative effect largely due to the cumulative schemes in close proximity to the view, all of which are consented and are located in between the view and the Kent Project Site (ID9, ID10, ID11).

11.346 From the River Thames itself, there will be variation in the cumulative effects experienced along its course due to the transient nature of receptors along it. Traveling in a west to east direction, South of Stone Ness (Photoviewpoint 66), there would be a significant cumulative effect in the uncertain scenario of adding ID17. Along Fiddler's Reach (Photoviewpoint 71) in the certain scenario (ID39 and ID42) and uncertain scenario (adding ID17) there would be a cumulative significant effect due to the Kent Project Site. North of Broadness Salt Marsh (Photoviewpoint 68), there would be a significant cumulative effect in the certain (ID42) and uncertain scenario (adding ID17) that would be primarily due to the Kent Project Site. At Northfleet Hope (Photoviewpoint 70), there would be, in the certain scenario (ID43) and uncertain scenario (adding ID17), a cumulative significant effect due to the Kent Project Site. Further east, along Gravesend Reach (Photoviewpoint 69), in the certain scenario, there would be a significant cumulative effect due to ID1 in close proximity. In the uncertain scenario, there would also be significant cumulative effect largely due to additional cumulative schemes (ID2, ID3 and ID4) in close proximity.

CLIMATE CHANGE

11.347 The impact of climate change on the landscape and visual resource is assessed through consideration of a potential future baseline scenario and considers how potential climate change may alter the predicted landscape and visual effects contained within this chapter. Whilst it is unlikely that completely new direct impacts would arise as a result of climate change based on the current conditions, the geographic spread or scale of potential impacts might be changed when considered against the future baseline conditions.

11.348 The changes to temperature and precipitation predicted would be likely, in time, to change the landscape around us, in a number of ways. However, it is unlikely that the subtle changes would lead to wholescale change to the future landscape baseline within the lifetime of the Proposed Development. Changes might include certain tree species or grasslands becoming more dominant/prevalent, but given the urban character of the surrounding landscape, these changes would not have a prominent impact. A further subtle change may occur through an increase in sea level, the high tide at the Project Site, rising slightly over time. This has been accounted for through an increase in the height of flood defence barriers around the Swanscombe Peninsula and consequently sea level change is not likely to cause a noticeable change throughout the life of the Proposed Development. Changes to the landscape effects predicted are therefore considered appropriate.

11.349 For visual effects, the future baseline under a climate change scenario would not lead to any greater, or different, effects to those predicted.

CONCLUSION

11.350 An assessment of the landscape and visual components of the Project Site and wider area where there is potential for likely significant environmental effects was undertaken through desktop and field study and in accordance with accepted guidance. This identified the main landscape and visual receptors likely to be affected by the Proposed Development, and resulted in a baseline appraisal in the context of which landscape and visual effects could be assessed. The main landscape and visual implications of the Proposed Development and the potential impacts during the construction phase, at Year 1 and at Year 15 were identified and mitigation developed in order to minimise these impacts.

Summary of effects in respect of landscape character

11.351 In the longer term (Year 15 and beyond), at the local level an adverse residual significant effect has been identified for the Marshland LLCA which covers the majority of the Swanscombe Peninsula area of the Kent Project Site. This is not surprising given the size and scale of the proposals within this LLCA and such an outcome is not a reflection on the quality of the scheme masterplan, but of the process which requires an assumption to be made that most people would see the perceptual and sensory change of development as 'adverse'. However it should be noted that some such adverse effects will be necessary,

indeed, cannot be avoided if the Proposed Development is successful and will be balanced by other wider positive effects.

11.352 By the same token, the Proposed Development will yield a significant beneficial effect on the landscape fabric and habitats of the Marshland LLCA landscape, especially in the medium and long term as the proposed landscape and ecological enhancements at Black Duck Marsh, Botany Marsh and Broadness Salt Marsh mature. In addition, the provision of new hydrological features throughout the scheme will also yield a significantly beneficial effect.

11.353 At the broader district, borough and county level, the host Western Thames Marshes LCA of the Kent Landscape Character Assessment would experience residual significant adverse effects. This LCA comprises a few areas of isolated marshes separated and fragmented by urban and industrial development. The Kent Project Site occupies much of the Swanscombe Peninsula which is one of these LCA areas. As such, as a result of the completed development there will be considerable change to this part of the LCA, whilst the other areas of the Western Thames Marshes will remain unaffected.

11.354 With regard to the host Botany Marshes LCA identified within the Gravesham Landscape Character Assessment, invariably, a mixed-use development on a scale such as the Proposed Development across the DCO Order Limits, in particular the Swanscombe Peninsula of the Kent Project Site, would result in the unavoidable (at least partial) removal of landscape features, as well as the perceptual and sensory change at a level which materially alters the character of the receiving environment. The eastern part of the marshes would remain unaffected whilst the western edges will be subject to development of the back of house and Gate 1 resort areas.

11.355 In the wider context, at all stages of the Proposed Development, there are no significant adverse effects predicted on rest of the host or non-host LLCAs, LCAs, TCAs or RCAs.

Summary of effects in respect of visual amenity

11.356 It would be very surprising for a mixed scheme such as the Proposed Development not to give rise to some predicted 'significant' (moderate or higher) effects during the construction phase and in the longer term. These significant effects, in the longer term (Year 15 and beyond) are limited to within 2km of the Project Site which is an indication of how little this project, notwithstanding its extent, impacts on views from the wider landscape.

11.357 The proposed and inherent mitigation measures are, over time, demonstrably effective in reducing the visual effects of the Proposed Development:

- The general pattern is for the significance of medium and long term visual effects to be less than the short-term effects;

- In the long-term (Year 15 of completion and beyond), only 21 of the 74 photoviewpoints are predicted to experience significant visual effects. As such, with consideration of cumulative effects, there would be an increase in massing of built development within the local context as a whole, reducing the susceptibility to change of these receptors; and

- The fact that residential receptors experiencing a significant effect are limited to those located in relatively close proximity to the Site, or by receptors from elevated vantage points, coupled with the trend towards reducing effects from viewpoints further afield allows three clear conclusions to be drawn:

    - Firstly, the proposed mitigation will be effective in absorbing and integrating the proposals into the landscape in an appropriate way, consistent with local landscape character;

    - Secondly that the areas where residual longer-term significant visual effects will be experienced is extremely localised: limited to public rights of way, river users, road users and private dwellings in close proximity to the Project Site; and

    - Thirdly, the specific Landscape Strategy (Appendix 11.7, Document Reference 6.2.11.7) ensures that the Proposed Development retains and enhances those ecological areas of most value within the Project Site, such that it is well-integrated into the landscape and retains the saltmarsh edge character as experienced from the Thames and crosswater from the northern bank of the Thames.

11.358 The fact that no significant adverse effects are experienced by receptors located beyond 2km of the Project Site, including from elevated positions to the north-east and south-east of the Project Site, is considered to be as a result of a number of key factors:

- First, the landscape-led work undertaken at the outset of the masterplanning process set important guiding principles;

- Second, views towards the Project Site tend to be obtained only from very occasional elevated vantage points;

- Third, landscape features associated with major highway corridors provide a visual screen to views from the north and west; and

- Fourth, in views from distant receptors, the Proposed Development will (a) comprise a very small view cone of the expansive panoramas available (b) be perceived in the context of extensive existing built form within Swanscombe, Gravesend and Tilbury.

Overall summary

11.359 Whilst there are some significant adverse effects identified at both the construction and

operational phases, they are primarily landscape and visual impacts that, in many cases are unavoidable by virtue of the fact that the Project Site is of such a size, scale and quality of design and would be a landmark attraction. The significance of the construction phase effects is only temporary for the duration of the construction stage of each phase. Also, they will not affect all residents / viewpoints to the same degree at the same time as the construction will be phased across the Project Site and by the time that later phases commence, the mitigation built into earlier phases will become more established, thereby minimising effects on certain receptors.

11.360 The operational effects in landscape and visual terms have been minimised as far as possible and through the design of the scheme which ensures that the development is as sensitive as possible on the existing landscape and views.

11.361 In landscape and visual terms, the impact assessment (Appendices 11.2 and 11.3, Document References 6.2.11.2 and 6.2.11.3) indicates that the greatest scope for significant permanent effects relates to the construction and early years of the operation phase (Year 1 of completion) of the Proposed Development at the Project Site.

11.362 The Proposed Development will considerably and permanently change the existing landscape of the Swanscombe Peninsula. However, on the basis of the proposed landscape and ecological mitigation strategies, it is considered that the overall residual effects upon the landscape fabric and features of the Swanscombe Peninsula would be beneficial, including retention and enhancement of existing areas of ecological habitats such as marsh, reeds and grassland as well as creation of newer areas.

11.363 With regard to the Proposed Development at the Essex Project Site, landscape and visual effects would be localised, particularly after the construction phase when the changes are in progress and more evident. During operation, it is considered that the effects would be minimal at Year 1 and further reduced by Year 15.

11.364 The impact assessment indicates that the Proposed Development along the Access Corridor is likely to reinforce the existing landscape character of Ebbsfleet Valley through which it runs. Parts of the A2(T) Corridor landscape are likely to experience more minor changes due to the A2(T)/B259 junction improvement works. Taking into account the proposed landscape and visual mitigation strategies, it is anticipated that the new road and junction improvement works would be successfully integrated into the landscape without significant adverse effects. The landscape and visual impact of the Access Corridor is likely to be relatively localised.