



Gatwick Airport Northern Runway Project

Environmental Statement

Appendix 8.4.1: Landscape, Townscape and Visual Impact Assessment Methodology

Book 5

VERSION: 1.0

DATE: JULY 2023

Application Document Ref: 5.3

PINS Reference Number: TR020005

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1 Introduction

1.1 General

1.1.1 This document forms Appendix 8.4.1 of the Environmental Statement (ES) prepared on behalf of Gatwick Airport Limited (GAL). The ES presents the findings of the Environmental Impact Assessment (EIA) process for the proposal to make best use of Gatwick Airport's existing runways and infrastructure (referred to within this report as 'the Project'). The Project proposes alterations to the existing northern runway which, together with the lifting of the current restrictions on its use, would enable dual runway operations. The Project includes the development of a range of infrastructure and facilities which, with the alterations to the northern runway, would enable the airport passenger and aircraft operations to increase. Further details regarding the components of the Project can be found in the **ES Chapter 5: Project Description** (Doc Ref. 5.1).

1.1.2 This document provides the Landscape, Townscape and Visual Impact Assessment Methodology for the Project.

2 Landscape, Townscape and Visual Resources

2.1 Introduction

2.1.1 In September 2019, GAL submitted a Scoping Report to the Planning Inspectorate, which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects and, where necessary, to determine suitable mitigation measures for the construction and operational phases of the Project.

2.1.2 Following consultation with the statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) provided a **Scoping Opinion** on 11 October 2019, **ES Appendix 6.2.2** (Doc Ref. 5.3).

2.1.3 The **Scoping Report** at **ES Appendix 6.2.1** (Doc Ref. 5.3) makes a commitment to develop the Landscape, Townscape and Visual Impact Assessment (LTVIA) in consultation with relevant statutory and non-statutory consultees. The following description of the assessment methodology expands on text within the Scoping Report and PEIR Appendix 8.4.1.

2.2 Assessment Methodology

Relevant Guidance

2.2.1 As a matter of best practice, the LTVIA has been undertaken based on the relevant guidance on landscape and visual assessment. This includes:

- Guidelines for Landscape and Visual Impact Assessment 3rd Edition (Landscape Institute and Institute of Environmental Management and Assessment, 2013).
- An Approach to Landscape Character Assessment (Natural England, October 2014).
- Landscape Character Assessment – Guidance for England and Scotland (The Countryside Agency and Scottish Natural Heritage, 2002).
- Airspace Design: CAP 1616 (Civil Aviation Authority, 2021)
- Tranquillity – An Overview, Technical Information Note 1/17 (Landscape Institute).
- Technical Guidance Note 06/19: Visual Representation of Development Proposals (Landscape Institute).
- Tranquillity – An Overview, Technical Information Note 1/17 (Landscape Institute).

Scope of the Assessment

2.2.2 The LTVIA includes an appraisal of the landscape, townscape and visual baseline conditions within the study area and their value, condition, susceptibility and sensitivity to change as a result of the Project. The relevant aspects of the Project have been described and the effects on landscape, townscape and visual resources assessed. Design development and mitigation measures have been described which would minimise adverse effects.

2.2.3 The LTVIA focuses on effects that have the potential to be significant, with less emphasis on effects that are unlikely to be significant.

Study Areas

2.2.4 The existing and proposed Zones of Theoretical Visibility (ZTVs) have informed the extent of the study area to ensure that all landscape, townscape and visual receptors that may experience significant effects are captured (**ES Figures 8.4.1 and 8.4.2** (Doc Ref. 5.2)). The proposed ZTV includes a location for the 48 m high stack at the central airfield maintenance and recycling (CARE) facility, as the tallest element of the Project.

2.2.5 Existing and proposed ZTVs have been generated which extend beyond a 15 km radius from the Project site boundary to identify the potential for intervisibility between development at Gatwick, the surrounding landscape and the visual receptors within it. An area of search of 5 km radius from the Project site boundary has been identified as the main focus of the LTVIA as the ZTVs indicate that the vast majority of land that may be potentially intervisible with development at Gatwick Airport lies within this area. This has defined an appropriate study area to capture the relevant landscape, townscape and visual receptors that are likely to be affected by the Project and to ensure that all likely significant effects have been identified. Two locations immediately outside of the 5 km radius study area have also been included in the assessment to ensure very localised effects on receptors at Tilgate Park (Crawley District 'Important Viewpoint') and Turners Hill (High Weald Area of Outstanding Natural Beauty (AONB)) are included in the LTVIA. A distant viewpoint location at Leith Hill in the Surrey Hills Area of Outstanding Natural Beauty (AONB) has also been included within the LTVIA.

2.2.6 A separate study area has been established to coincide with overflying aircraft at height profiles up to 7,000 feet above ground level to address effects on the perception of tranquillity by visual receptors (**ES Figure 8.4.3** (Doc Ref. 5.2)). The methodologies for assessing Airspace Change (CAA, 2021) require the LTVIA to consider effects on the perception of tranquillity due to increased overflights within nationally designated landscapes comprising the High Weald, Surrey Hills and Kent Downs AONB's and the South Downs National Park.

Methodology for Baseline Studies

Desk Study

2.2.7 The scope of work has included the following core activities:

- a review of relevant planning policy related to landscape/townscape and visual issues; and
- a desk study and web search of relevant background documents and maps, including reviews of aerial photography, web searches, county and local planning authority publications, National Park and AONB publications and relevant landscape and townscape character assessments for the site and study areas.

Site-Specific Surveys

2.2.8 The scope of work has included the following:

- field assessments and photographic surveys of the character and fabric of the Project site and its surroundings, and of the views available to and from the site. Field surveys allow a better understanding of the landscape and townscape, to determine its character, condition (quality), value and intrinsic sensitivity and to identify visual receptors and visual barriers.
- 2.2.9 A series of representative daytime summer and winter views and winter night time views have been identified (**ES Figures 8.4.1, 8.4.2 and 8.4.4** (Doc Ref. 5.2) with panoramic photography at **ES Figures 8.4.5-8.4.36**). The representative viewpoints have been used to assess the potential visual impacts of the Project on the different range of views towards the Project site. The selected viewpoints include views from close quarters through to distant views in which the Project site is part of a wider landscape. Viewpoints have been identified in consultation with local authorities, county councils, Natural England and the High Weald AONB Management Board.
- 2.2.10 A methodology for capturing and assessing overflight data has informed the baseline for the assessment of effects on tranquillity. Overflights are capped at a height of 7,000 feet above ground level and within a distance of up to 1.8 km from an observer and defined aircraft that would be visible or audible. The Gatwick overflight data is based on 92 days in summer 2019 and presented within a grid size of 1 km aligned with the runway orientation. The data for an average 24 hour period is presented as a heat map with the number of overflights defined for each grid square ranging from 1 to 10, 11 to 50, 51 to 100, 101 to 200 and greater than 200.
- 2.2.11 The baseline data captures overflying aircraft following established Noise Preferential Routes (NPRs) and arrival flight paths, where effects on tranquillity due to an intensification of existing noise or visual impacts are most likely to occur. Receptors within the landscape outside of these NPRs and routes have been scoped out of the assessment as there are no proposed changes to routing and therefore these areas would not be overflown (and no change in the effect on tranquillity as a result of the Project is likely). No impacts are anticipated beyond this wider study area and effects on designated landscapes outside these areas have been scoped out of the assessment.
- 2.2.12 To enable a complete baseline situation to be defined non-Gatwick flights have also been assessed and mainly originate from Heathrow Airport and Redhill aerodrome. Ten days of radar

data within approximately 50 km of Gatwick Airport during June and July 2019 have been analysed.

Assessment Criteria and Assignment of Significance

- 2.2.13 The significance of an effect is determined based on the sensitivity of a receptor and the magnitude of an impact. The terms used to define magnitude and sensitivity are based on and have been adapted from those used in the Design Manual for Roads and Bridges (DMRB) methodology (Highway England *et al.*, 2020).
- 2.2.14 The baseline assessment includes an appraisal of the landscape and townscape (landscape within the built-up area) within the study area. The studies identify the landscape/townscape resources and character, including individual features, key characteristics and the wider landscape/townscape character.
- 2.2.15 Baseline information on the landscape/townscape has been gathered through a combination of desk studies, consultation and field surveys. Documents used to inform the assessment include aerial photographs, Ordnance Survey maps and published landscape character assessments.
- 2.2.16 Relevant national, county and district landscape character assessments have been reviewed. Particular attention has been paid to the key landscape characteristics of the relevant landscape types / character areas and special qualities of the High Weald AONB, Surrey Hills AONB, Kent Downs AONB and South Downs National Park. Valued landscape resources have been identified at national and local levels.
- 2.2.17 Field surveys have been carried out to gain a better understanding of the landscape and townscape, to determine its character, condition and to identify visual receptors and visual barriers. The surveys have established the features, elements and characteristics that combine to give the landscape and townscape a distinct sense of place.
- 2.2.18 Site surveys have identified a range of visual receptors predominantly within the 5 km radius study area. Receptors can be categorised in the following main groups.
 - Walkers and equestrians using public rights of way.
 - Cyclists, including those using National Cycle Route 21.
 - People using public open space.
 - Occupiers of residential properties.
 - Occupiers of commercial properties.
 - Occupiers of vehicles and trains.

- 2.2.19 All main receptor groups with potential views of the Project have been described. 32 viewpoint locations which are representative of key visual receptor groups have been identified to provide a more detailed understanding of publicly available views and potential effects on visual amenity, as below.
 - Visitors to Gatwick Airport.
 - Members of staff working at Gatwick Airport.
- 2.2.19 All main receptor groups with potential views of the Project have been described. 32 viewpoint locations which are representative of key visual receptor groups have been identified to provide a more detailed understanding of publicly available views and potential effects on visual amenity, as below.
 - Viewpoint 1: Perimeter Road North and public right of way 346/2Sy, Sussex Border Path.
 - Viewpoint 2: Short Stay Multi-Storey Car Park.
 - Viewpoint 3: Car rental South Terminal, public right of way 360/Sy.
 - Viewpoint 4: River Mole public right of way 346, Sussex Border Path.
 - Viewpoint 5: River Mole public right of way 346, Sussex Border Path.
 - Viewpoint 6: Riverside Garden Park, National Cycle Route 21.
 - Viewpoint 7: Horley Riverside.
 - Viewpoint 8: Public right of way 362a north of the A23 and South Terminal.
 - Viewpoint 9: Balcombe Road at Pentagon Field.
 - Viewpoint 10: Public right of way 359/Sy at Pentagon Field.
 - Viewpoint 11: Public right of way 360/1Sy at Tinsley Green.
 - Viewpoint 12: Bridleway public right of way 352/Sy at Rowley Farm.
 - Viewpoint 13: Ifield Road.
 - Viewpoint 14: Public right of way 344, Sussex Border Path east of Charlwood.
 - Viewpoint 15: Norwood Hill.
 - Viewpoint 16: Turners Hill High Weald AONB.
 - Viewpoint 17: Tilgate Hill Crawley Borough Council 'Important View'.
 - Viewpoint 18: North Terminal roundabout Sussex Border Path.
 - Viewpoint 19: Sussex Border Path 346, A23.
 - Viewpoint 20: Longbridge roundabout.
 - Viewpoint 21: Longbridge roundabout, Church Meadows, public open space/conservation area.
 - Viewpoint 22a: A23 footway.
 - Viewpoint 22b: A23 footway.
 - Viewpoint 23: Railway overbridge Sussex Border Path.
 - Viewpoint 24: Car Park B.
 - Viewpoint 25: Sussex Border Path 368, M23 Spur.
 - Viewpoint 26: Bridleway 348Sy Poles Lane.
 - Viewpoint 27: Public right of way 325 west of Gatwick.

- Viewpoint 28: Hookwood public right of way 342.
- Viewpoint 29: Public right of way 340 north east of Charlwood.
- Viewpoint 30: Russ Hill, Sussex Border Path.
- Viewpoint 31: East of Salford public right of way.
- Viewpoint 32: Leith Hill, Surrey Hills AONB.

2.2.20 The representative viewpoints have been used to assess the potential visual impacts of the Project on the different range of views towards the Project site.

2.2.21 The landscape, townscape and visual assessment process has identified the existing 'baseline' and projected future baseline as a result of committed or consented developments in terms of condition, value and character of the landscape/townscape and its visual relationship with its surroundings, building on the initial appraisal of existing baseline conditions.

Receptor Sensitivity/Value

2.2.22 The sensitivity or susceptibility of a landscape or townscape to change varies according to the nature of the existing resource and the nature of the proposed change. Considerations of value, integrity and capacity are all relevant when assessing sensitivity. For the purpose of this assessment, these terms are defined as:

- Value: the relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons. Landscapes can be recognised through national, regional or local designation. Views tend not to be designated, but value can be recognised through a named location shown on a map, or through the creation of a parking lay-by or location of a bench to appreciate a view.
- Integrity: the degree to which the value has been retained, the condition and integrity of the landscape or the view.
- Capacity: the ability of a landscape, townscape or view to accommodate the proposed change while retaining the essential characteristics which define it.

Landscape and Townscape Value

2.2.23 As part of the baseline description of the study area the value of the landscape or townscape that would be affected has been established in accordance with paragraph 174 of the National Planning Policy Framework (NPPF) (Ministry of Housing, Community and Local Government, 2021). The value of certain landscapes has been recognised, eg the national designations of National Park (NP). Some landscapes are locally designated, eg

Special Landscape Area (SLA). The aspects/special qualities of the landscape that led to the designations have been noted, as has the degree to which that aspect is present in the particular area under consideration.

2.2.24 Other landscapes are undesignated, but are valued locally for specific reasons or specific elements / features. GLVIA3 includes a list of eight factors within Box 5.1. The Landscape Institute's 'Technical Guidance Note 02-21: Assessing Landscape Value Outside National Designations' also includes these factors and additionally includes 'functionality'. These have been used to identify landscape/townscape value. These have been used as factors in Sections 8.6 to 8.13 of **ES Chapter 8: Landscape Townscape and Visual Resources** (Doc Ref. 5.1), to establish value within the study area. These factors are:

- Landscape quality.
- Scenic quality.
- Rarity.
- Representativeness.
- Conservation interest.
- Recreation value.
- Perceptual aspects (including tranquillity).
- Associations.
- Functionality.

2.2.25 How that value might be affected by a development is classified on a four point scale (low, medium, high and very high) as set out in Table 2.2.1 below. The table can only illustrate general categories, as the effects on an area or element of landscape / townscape is specific to the development proposed and the particular aspect affected.

Table 2.2.1: Landscape/Townscape Value Criteria

Value	Designation	Definition
Very High	International/ National	Exceptional scenic quality (and/or special qualities), no or limited potential for substitution, eg World Heritage Site, National Park, AONB or key elements features within them well known to the wider public.
High	National/ Regional/Local	Very attractive or attractive scenic quality, high or good landscape/townscape quality, limited potential for substitution, eg National

Value	Designation	Definition
		Park, AONB, SLA or key elements within them.
Medium	Regional/Local	Typical and commonplace or in part unusual scenic quality, ordinary landscape/townscape quality, potential for substitution, eg Locally designated (SLA) or undesignated, but value expressed through literature and cultural associations or through demonstrable use.
Low	Local	Dull, degraded or damaged scenic quality, poor landscape/townscape quality, can be readily substituted, eg Undesignated. Certain individual landscape/townscape elements or features may be worthy of conservation or landscape/townscape identified would benefit from restoration or enhancement.

Landscape and Townscape Condition

2.2.26 The evaluation of condition is based on judgements about the physical state of the landscape or townscape resource. It reflects the state of repair of individual features and elements, as indicated by the categories within Table 2.2.2 below, or can be applied to the intactness of the resource as a whole outlined by the corresponding descriptions.

Table 2.2.2: Landscape/Townscape Condition Criteria

Condition	Definition
Very Good	Strong structure; very attractive with distinct features worthy of conservation; strong sense of place; no detracting features.
Good	Recognisable structure; attractive with many features worthy of conservation; occasional detracting features.
Ordinary	Distinguishable structure; common place with limited distinctiveness and features worthy of conservation; some detracting features.
Poor	Weak structure; evidence of degradation; lacks distinctiveness and sense of place; frequent detracting features.

Condition	Definition
Very Poor	Damaged structure; evidence of severe disturbance or dereliction; no distinctiveness; detracting features dominate.

Landscape, Townscape and Visual Receptor Sensitivity

- 2.2.27 Sensitivity, or susceptibility, is not readily graded in bands. However, in order to provide both consistency and transparency to the assessment process, Table 2.2.3 below defines the criteria which have guided the judgement as to the sensitivity of the receptor and the susceptibility to change.
- 2.2.28 The sensitivity of the landscape and townscape character areas to the type of change associated with the Project has been considered, based on guidance contained within GLVIA3. Table 2.2.3 below summarises the criteria used to assess the sensitivity of the landscape to change.

Table 2.2.3: Landscape/Townscape Sensitivity Criteria

Sensitivity	Definition
Very High	Landscape/townscape value recognised by international or national designation. The landscape/townscape resource has very little ability to absorb change of the type proposed without fundamentally altering its present character and is of very high importance, rarity and value. Sense of relatively high levels of tranquillity or remoteness specifically noted in landscape character/tranquillity assessment. High sensitivity to disturbance specifically noted in landscape character assessment. The qualities for which the landscape/townscape is valued are in very good or good condition, with a clearly apparent distinctive character and absence of detractors. Very limited potential for substitution.
High	Landscape/townscape value recognised by national designation. The landscape/townscape resource has little ability to absorb change of the type proposed without fundamentally altering its present character and/or is of high importance, rarity or value.

Sensitivity	Definition
	Sense of relatively high levels of tranquillity or remoteness specifically noted in landscape character/tranquillity assessment. High sensitivity to disturbance specifically noted in landscape character assessment. The qualities for which the landscape/townscape is valued are in good condition, with a clearly apparent distinctive character and absence of detractors. Limited potential for substitution.
Medium	Landscape/townscape value is recognised or designated locally. The landscape/townscape resource has moderate capacity to absorb change of the type proposed without significantly altering its present character and/or is of medium importance, rarity or value. The landscape/townscape is relatively intact, with a distinctive character and some detractors; and is reasonably tolerant of change. Sense of moderate levels of tranquillity or remoteness noted in landscape character/tranquillity assessment. Medium sensitivity to disturbance. Limited potential for substitution.
Low	The landscape/townscape resource is tolerant of change of the type proposed without detriment to its character and/or is of low importance, rarity or value. Landscape/townscape integrity is low, with a poor condition with the presence of detractors; and the landscape/townscape has the capacity to potentially accommodate high levels of change. Sense of relatively low levels of tranquillity or remoteness noted in landscape character/tranquillity assessment. Low sensitivity to disturbance.
Negligible	The landscape/townscape resource is tolerant of change of the type proposed without detriment to its character and/or is of low importance, rarity or value. Landscape/townscape integrity is low, with a poor condition and a degraded character with the presence of detractors such as dereliction; and the landscape/townscape has the capacity to potentially accommodate considerable change.

Sensitivity	Definition
	Sense of relatively low levels of tranquillity or remoteness noted in landscape character/tranquillity assessment. Negligible sensitivity to disturbance.

- 2.2.29 The sensitivity of visual receptors has been assessed, based on guidance contained within GLVIA3. Sensitivity is dependent upon several factors including the location and context of the viewpoint, whether views are continuous, fragmented, or intermittent (ie the dynamic nature of a view gained while travelling through an area), the importance of views and the occupation and activity of the visual receptor. Influences such as the number of receptors affected, popularity of views and the significance of the views in relation to valued landscapes or features also determine the importance of views.

Table 2.2.4: Visual Sensitivity Criteria

Sensitivity	Definition
Very High	Large number of viewers whose attention is very likely to be focused on the landscape within nationally designated landscapes where high levels of tranquillity are most likely to be experienced. Eg users of strategic recreational footpaths and cycleways; people experiencing views from important landscape features of physical, cultural or historic interest, beauty spots and picnic areas.
High	Large number of viewers whose attention is likely to be focused on the landscape. Includes areas within nationally designated landscapes where high levels of tranquillity may be experienced. Eg residents experiencing views from dwellings; users of strategic recreational footpaths and cycleways; people experiencing views from important landscape features of physical, cultural or historic interest, beauty spots and picnic areas. Occupiers of vehicles in highly scenic areas or on recognised tourist routes.
Medium	Viewers' attention may be focused on landscape, such as users of pavements, footways and secondary footpaths in urban areas, and people engaged in outdoor sport or recreation eg horse riding or golf. Occupiers of vehicles in rural areas.

Sensitivity	Definition
Low	People at their place of work, or engaged in similar activities, whose attention may be focused on their work or activity and who may therefore be potentially less susceptible to changes in view. Occupiers of vehicles whose attention may be focused on the road.
Negligible	People at their place of work, or engaged in similar activities, whose attention may be focused on their work or activity and who may therefore be potentially less susceptible to changes in view. Occupiers of vehicles in urban areas.

Magnitude of Impact

2.2.30 The next stage of the assessment process has identified the potential magnitude of change to landscape or townscape character and views arising from the Project. The assessment distinguishes between landscape or townscape impacts and impacts upon views, based on guidance contained within GLVIA3. The former considers the impact upon landscape or townscape character taking account of direct impacts upon the physical resource (landform, vegetation, pattern, etc.) and any indirect impacts arising from the Project, which would be sufficient to impact on the inherent character of a landscape or townscape area. The latter considers the direct impact on views perceived by people from publicly accessible locations. Potential impacts are also considered in terms of their duration ie whether they are permanent or temporary.

2.2.31 The magnitude or scale of change brought about by the Project upon both the existing landscape or townscape resource and upon views, both beneficial and adverse, has been assessed as set out in Table 2.2.5 below.

Table 2.2.5: Impact Magnitude Criteria

Magnitude of Impact	Definition
High	The proposed change forms a dominant or immediately apparent feature that would significantly alter and change the view. Where there are substantial changes affecting the character of the landscape/townscape, or important

Magnitude of Impact	Definition
	elements through loss of or severe damage to key existing characteristics, features or elements. Proposed development within affected landscape/townscape. Scale, mass and form of development out of character with existing elements. Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (adverse). Substantial change to sense of tranquillity due to proposed disturbance. Large scale or major improvement of landscape/townscape character or view; extensive restoration or enhancement of quality (beneficial).
Medium	The proposed change forms a prominent new element that would affect and change the view. The proposed development forms a visible and recognisable feature in the landscape/townscape. Proposed development is within or adjacent to affected landscape/townscape. Scale of development fits with existing features. Partial loss of/damage to key characteristics, features or elements, but not adversely affecting the integrity of landscape/townscape (adverse). Prominent change to sense of tranquillity due to proposed disturbance. Moderate scale improvement of landscape/townscape character or view; partial restoration or enhancement of quality (beneficial).
Low	The proposed change constitutes only a minor component of view, which is recognisable, although might be missed by the casual observer. Awareness of the proposed change would not change the overall nature and character of the view. Receptor may be located at distance from the Project. Minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (adverse). Minor change to sense of tranquillity due to proposed disturbance. Minor benefit to, or addition of, one (maybe more) key landscape/townscape characteristics, features or

Magnitude of Impact	Definition
	elements or improvement in quality of view due to partial restoration or enhancement (beneficial).
Negligible	Only a very small part of the proposed change would be discernible, and/or it is at such a distance that it would be scarcely appreciated. Consequently, it would have very little effect on view. The effect of change on the perception of the landscape/townscape, the physical characteristics, features or elements is barely discernible (adverse). Barely discernible change to sense of tranquillity due to proposed disturbance. Very minor benefit to or positive addition of one or more landscape/townscape characteristics, features or elements (beneficial).
No Change	No loss of or alteration to landscape/townscape characteristics, features or elements or sense of tranquillity; no observable adverse or beneficial impact.

Significance of Effect

2.2.32 The significance of the effect upon landscape, townscape or visual resources has been determined by taking into account the sensitivity of the receptor and the magnitude of the impact. The method employed for this assessment is presented in Table 2.2.6 with an additional matrix at Table 2.2.7 which sets out levels of effect on the perception of tranquillity. Where a range of significance levels are presented, the final assessment for each effect is based upon expert judgement.

2.2.33 In all cases, the evaluation of receptor sensitivity, impact magnitude and significance of effect has been informed by professional judgement and is underpinned by narrative to explain the conclusions reached.

2.2.34 For the purpose of this assessment, any effects with a significance level of moderate or less are not considered to be significant in terms of the EIA Regulations.

Table 2.2.6: Assessment Matrix

Sensitivity	Magnitude of Impact				
	No Change	Negligible	Low	Medium	High
Negligible	No change	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	No change	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	No change	Negligible or Minor	Minor	Moderate	Moderate or Major
High	No change	Negligible or Minor	Minor or Moderate	Moderate or Major	Major or Substantial
Very High	No change	Minor	Moderate or Major	Major or Substantial	Substantial

2.2.35 A description of the significance levels is provided in the bullets below.

- Substantial: Where the proposed changes cannot be mitigated; would be completely uncharacteristic and would substantially damage the integrity of a valued and important landscape or townscape, or the ability to perceive high levels of tranquillity. Where the proposed changes would form the dominant feature or would be completely uncharacteristic and substantially change the scene in highly valued views. Only adverse effects are normally assigned this level of significance.
- Major: Where the proposed changes cannot be fully mitigated; would be uncharacteristic and would damage a valued aspect of the landscape or townscape, or the ability to perceive relatively high levels of tranquillity. Where the proposed changes would form a major part of the view, or would be uncharacteristic, and would alter valued views. These beneficial or adverse effects are considered to be very important considerations.
- Moderate: Where some elements of the proposed changes would be out of scale or uncharacteristic of an area, or would result in an immediately identifiable reduction in the perception of levels of tranquillity. Where the proposed changes to views would be prominent, out of scale or uncharacteristic within the existing view. These beneficial or adverse effects may be important factors. The cumulative effects of such factors may lead to an increase in the overall adverse effect on a particular resource or receptor.

- Minor: Where the proposed changes would be at slight variance with the character of an area or result in a slight reduction in the perception of tranquillity. Where the proposed changes to views would be recognisable or at slight variance with the existing view. These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical factors but may be important in enhancing the subsequent design of the Project.
- Negligible: Where the proposed changes would be barely discernible within the landscape/townscape or have a barely discernible influence over a landscape/townscape, or result in a barely discernible reduction in the perception of tranquillity. Where the proposed changes would be barely discernible within the existing view.

2.2.36 The level of effects is described as substantial, major, moderate, minor or negligible. Where negligible adverse and beneficial effects occur within the same view or same landscape/townscape, the effect can be described as neutral on balance. In the assessment those individual levels of effect indicated as being 'substantial' or 'major' may be regarded as significant effects. An accumulation of individual 'moderate' effects, for instance experienced by a visual receptor during a journey, may also be regarded as a significant sequential effect, when considered in combination.

2.2.37 The assessment matrix at Table 2.2.6 provides a framework for the assignment of levels of effect for each impact identified, together with professional judgement. Long term, day time operational effects form the primary focus of this assessment as these are most likely to result in significant effects. To avoid the need to include separate matrices for assessing the different nature of short term or temporary effects of the construction phase and the relatively limited effects of night time light sources, the same matrix is used as the basis for the assessment and the assessor has the opportunity to downgrade the level of effect to reflect the reduced duration of the effect or the reduced visibility of the night time context. All assessment conclusions are supported by reasoned justification.

Table 2.2.7: Tranquillity Assessment Matrix

Sensitivity of receptors in nationally designated landscapes	% increase in overflights	Magnitude of change in perception of tranquillity	Description	Level of Effect
High to Very High	0 to 5%	No Change to Negligible	Increase in number of daily overflights unlikely to be perceptible to people.	No Change to Negligible adverse
High to Very High	5 to 15%	No Change to Negligible	Increase in number of daily overflights barely perceptible to some people and imperceptible to others.	No Change to Minor adverse
High to Very High	15 to 20%	Negligible	Increase in number of daily overflights discernible to people.	Negligible to Minor adverse

2.2.38 The future baseline situation would include an aircraft fleet of quieter types, therefore the adverse effects on the perception of tranquillity due to an increase in flights would be offset, to some extent, by the quieter fleet.

Future Baseline

2.2.39 The developments outlined in this section are currently consented or under construction and would proceed in the absence of the Project. The capability of the existing airport, when the consented airfield and terminal projects are complete, would be 62.4 mppa by 2038 (and 67.2 by 2047). These developments include:

- pier 6 extension and reconfiguration of aircraft stands;
- alterations to Taxiway Quebec;
- resurfacing of the main runway in accordance with the usual maintenance schedule;
- reconfiguration of aircraft stands;
- additional rapid exit taxiway;
- replacement of the Instrument Landing System (ILS) localisers;
- use of robotics technology within existing long stay parking areas;
- Gatwick Rail Station improvements;
- highway improvements to North Terminal and South Terminal roundabouts, signalisation and signage;
- South Terminal Hilton Hotel multi storey car park 4 (820 vehicles); and
- North Terminal multi storey car park 7 (additional 3250 vehicles).

2.3 Key Aspects of the Project

2.3.1 The maximum design scenarios for the different elements of the Project have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Description at Chapter 5 of the ES, be taken forward in the final design scheme.

2.4 Mitigation and Enhancement Measures Adopted as Part of the Project

2.4.1 A number of measures have been designed into the Project to reduce the potential for impacts on landscape, townscape and visual resources. These are listed in Table 8.8.1 of Chapter 8 of the ES.

2.5 Assessment of Effects

2.5.1 Separate assessment stages have been identified which form the basis of the LTVIA, as follows:

- 2024 to 2029;
- 2030 to 2032;
- 2033 to 2038;
- 2038; and
- 2047 (where relevant).

2.5.2 The construction, completion and operational phase of each of the elements within the Project have been assessed. Landscape mitigation planting associated with the relevant developments has been assessed as part of the Project at Year 1, when implemented, and at Year 15 when it has reached its intended design purpose.

2.6 Cumulative Effects

Screening of Other Developments and Plans

2.6.1 The Cumulative Effect Assessment has taken into account the impact associated with the Project together with other relevant developments and plans.

2.6.2 Cumulative visual effects have been assessed based on the 32 viewpoint locations previously identified. Static cumulative effects would occur where receptors look directly towards the Project and would also see cumulative schemes in the same angle of view. Additional successive cumulative effects would occur where the receptor can turn through 360 degrees to gain views of cumulative schemes in different angles of view. Sequential cumulative effects would occur where a receptor would be able to see more than one cumulative scheme, together with the Project, within a journey along a route. Effects on landscape, townscape and visual resources have been assessed for the daytime and at night, during construction, at completion and when operational.

3 Visual Representation Technical Methodology

3.1 Introduction

Technical Visualisations

3.1.1 Technical visualisations are often referred to as photomontages. A digital photomontage consists of a base photograph with a computer-generated image of the proposal super-imposed within the view. It is crucial that the proposal is correctly aligned and clipped/represented behind foreground so as not to give a false impression of the visual impact.

3.1.2 Visualisations that accompany planning applications are required to be accurate, objective and unbiased. Two-dimensional visualisations cannot fully replicate what is seen in reality. They should, therefore, be considered an approximation of the three-dimensional experience, to be used as a tool for assessment and

communication. This methodology is intended to meet the criteria set out by the Landscape Institute in the Visual Representation of Development Proposals: Technical Guidance Note 06/19 (17 September 2019).

3.1.3 The Landscape Institute Technical Guidance breaks visualisations into four main types according to the level of detail required:

- **Type 1** Annotated viewpoint photographs
To represent context and outline or extent of development and of key features.
- **Type 2** 3D wireline / model
To represent 3D form of development / context.
- **Type 3** Photomontage / photowire
To represent appearance, context, form and extent of development.
- **Type 4** Photomontage / photowire (survey / scale verifiable)
To represent scale, appearance, context, form and extent of development.

3.2 Photography

Camera

3.2.1 The camera used is a high quality digital single lens reflex (SLR) with a 36mm x 24mm full frame sensor (FFS) in combination with a fixed 50mm focal length (FL) lens. This produces a 35mm format image. Images are produced in landscape format wherever possible giving a horizontal field of view (HFOV) of 39.6° and a vertical field of view (VFOV) of 27°. *'A fixed 50mm FL lens is considered the benchmark for landscape technical photography.'* Visual Representation of Development Proposals - LI TGN 06/19 (Appendix 1.1.5).

Tripod

3.2.2 The camera is mounted on a levelled tripod at approximately 1.6 metres above existing ground level. In addition, the camera is also levelled using a spirit level that sits in the flash socket of the SLR camera. The tripod location is photographed to assist future confirmation/verification of the viewpoint location. The location is also recorded using a hand-held GPS. Where viewpoint location needs to be recorded to a greater accuracy (Type 4 visualisations).

Image Capture

3.2.3 Images are captured in RAW format with EXIF data recording the camera and lens settings. Original RAW files can be submitted if required for verification.

Lighting

3.2.4 Photographs are taken in weather conditions of clear visibility whenever possible. Photographs are taken at an appropriate time of day to position the sun behind the camera where possible.

Viewpoints

3.2.5 Winter views ensure maximum visibility through vegetation cover. Where possible, the site is positioned in the middle of the view with frames taken either side to give context.

Panoramas

3.2.6 Panoramas are used for context only. Panoramas are produced by splicing together standard photographs with recognised software (e.g. Adobe Photoshop) in order to minimise distortion.

3.2.7 The camera is mounted on a Panorama head on a levelled tripod. A 50% overlap (20° rotation) is taken between photographs to allow the sides of each to be removed when splicing together to minimise distortion. The same exposure is used for all frames using a manual exposure setting or a camera exposure lock.

3.2.8 Where context is required for visualisations a 60° HFoV has been shown on an A3 sheet. This consists of three 50mm FL frames stitched together.

Photographic Equipment

3.2.9 Photographs were taken using the following equipment:

- Canon EOS 5D Mark III full frame sensor (FFS);
- EF50mm f/1.4 USM (39.6° HFoV);
- Manfrotto Tripod;
- NN4-D16- Nodal Ninja NN4 Panorama head with RD-16 rotator base; and
- NN-EZ-Nodal Ninja EZ Leveller MKII.

3.3 Type 3 Methodology

Photowire/Photomontage

3.3.1 Visualisation Type 3 is used where a proposal has been designed in enough detail to represent its form and extent within the

context of the view. An accurate 3D model is produced and aligned within the view to a reasonable level of locational and photographic accuracy to represent the appearance of the development within the existing photographic view. For the purpose of the LTVIA maximum parameter models have been developed for key elements of the Project, appropriate to the level of detail for a DCO application.

Location Accuracy

3.3.2 The viewpoint location is recorded using the following equipment:

- DNR Garmin hand-held GPS (accuracy 2-5m);
- OS maps and aerial photography; and
- LiDAR where available.

View Alignment

3.3.3 The 3D model is aligned within the photograph by recreating the 50mm FL camera to matching Ordnance Survey co-ordinates within a 3D environment. AutoDesk products and Adobe Photoshop are used to create the visualisation as follows:

- base mapping and height data of the relevant area are set up to GB National Grid co-ordinates (OSGB36);
- the proposed scheme model is located according to the scheme design and positioned to GB National Grid co-ordinates (OSGB36);
- 50mm FL cameras are created using GPS data collected on site;
- wireline computer images are produced at matching image resolution to the photograph. The wireline includes relevant survey data, LiDAR and reference markers from aerial imagery etc;
- the wireline is positioned so that the reference features in the image match those on the photograph;
- the photography is then aligned for the relevant viewpoint using survey data, LiDAR, aerial imagery and GPS data collected on site, to existing reference markers visible in the photographs; and
- wirelines showing the proposal are then combined with the original photograph to produce the visualisation. Solid lines represent the proposed development in front of features within the photograph. Dotted lines represent development behind features in the photograph that would be retained.

Presentation

3.3.4 Type 3 visualisations are presented as a single frame image 390mm x 260mm on an A3 sheet. The visualisation show

massing, outline or a rendered view giving an accurate representation of the proposal.

4 References

Civil Aviation Authority (2021) Airspace Design: CAP 1616

Countryside Agency and Scottish Natural Heritage (2002) Landscape Character Assessment – Guidance for England and Scotland

Greater London Authority (2012) London View Management Framework Supplementary Planning Guidance: Appendix C: Accurate Visual Representations

Highways England, Transport Scotland, Welsh Government and the Department for Infrastructure Northern Ireland (2020) Design Manual for Roads and Bridges, Volume 11. LA 104: Environmental Assessment and Monitoring. [Online] Available at: <http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section2/la104.pdf>

Landscape Institute (2017) Tranquillity – An Overview, Technical Information Note 1/17. [Online] Available at: <https://www.landscapeinstitute.org/technical-resource/tranquillity/>

Landscape Institute (2019) Technical Guidance Note 06/19: Visual Representation of Development Proposals. [Online] Available at: <https://www.landscapeinstitute.org/visualisation/>

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

Natural England (2014) An Approach to Landscape Character Assessment.

5 Glossary

5.1 Glossary of terms

Table 5.1.1: Glossary of Terms

Term	Description
AONB	Area of Outstanding Natural Beauty

Term	Description
CARE	Central airfield maintenance and recycling enclosure
DCO	Development Consent Order
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
ES	Environmental Statement
FFS	Full Frame Sensor
FL	Focal Length
GAL	Gatwick Airport Limited
LTVIA	Landscape, Townscape and Visual Impact Assessment
NP	National Park
NPPF	National Planning Policy Framework
NPR	Noise Preferential Routes
PEIR	Preliminary Environmental Information Report
SLA	Special Landscape Area
SLR	Single Lens Reflex
ZTV	Zones of Theoretical Visibility