

Appendix 8.2 LVIA Methodology



APPENDIX 8.2: LVIA ASSESSMENT METHODOLOGY

8.1 Introduction

- 8.1.1 This assessment aims to identify and describe the nature and significance of the effects likely to arise as a result of the Proposed Development on the existing landscape and the visual amenity of people.

8.2 Approach

- 8.2.1 This methodology has been developed in accordance with the principles of good practice set out in the following published guidance produced by the relevant professional organisations concerned with landscape and visual assessment:

- Guidelines for Landscape and Visual Impact Assessment, Third Edition (2013), (GLVIA3), Landscape Institute and the Institute of Environmental Management & Assessment
- GLVIA3 Statements of Clarification (2013 - 2015), Landscape Institute
- Natural England's 'An Approach to Landscape Character Assessment' (2014)
- An Approach to Landscape Sensitivity Assessment (Natural England, 2019)
- Landscape Institute Technical Guidance Note 06/19: Visual Representation of Development Proposals (LI, 2019)
- Landscape Institute Technical Guidance Note 02/21: Assessing Landscape Value Outside National Designations (LI, 2021)

- 8.2.2 The GLVIA3 states that:

"Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity."

- 8.2.3 Whilst linked, the assessment of landscape and visual effects are treated separately in LVIA. The overall approach used to identify and assess landscape and visual effects is summarised as follows:

- Determine the **scope** of assessment
- Collate baseline information through desk study research and field-based survey work, select appropriate landscape and visual receptors and establish their **value**
- Review the proposal and determine **susceptibility** of landscape and visual receptors to the nature of development proposed
- Combine value with susceptibility to determine the **sensitivity** of landscape and visual receptors to the nature of development proposed
- Describe the nature and magnitude of change (**impacts**) likely to be experienced by landscape and visual receptors as a result of the Proposed Development
- Describe any measures to avoid or reduce the magnitude of any adverse change (**mitigation**)
- Assess the **significance of effects** for landscape and visual receptors in relation to the Proposed Development through a clear description of judgements on sensitivity and magnitude
- Identify those effects that are considered relevant to decision making

Purpose of LVIA

- 8.2.4 The overriding aim of LVIA is to draw out the key landscape and visual issues that are likely to arise as a result of a Proposed Development and to ensure that the significance of effects and the scope for reducing any adverse effects are properly understood by the public and the competent authority. Whilst it is important to identify the range of effects likely to be experienced by receptors, the aim should be to identify and describe in detail any significant effects that are likely to be most relevant to decision making.

Professional Judgement in LVIA

- 8.2.5 The GLVIA3 asserts that professional judgement is a very important part of LVIA as much of the assessment must rely on qualitative judgements about the nature of change and whether it is positive, neutral or negative. However; professional judgement must be informed by clear and transparent methods, as clarified in paragraph 2.24 of the GLVIA3:

“In all cases there is a need for the judgements that are made to be reasonable and based on clear and transparent methods so that the reasoning applied at different stages can be traced and examined by others.”

Limitations of LVIA

- 8.2.6 Landscape results from the interplay between the natural, physical and cultural components of the environment and as such the assessment of landscape and visual effects is a process closely linked with other topics, notably ecology and the historic environment. The LVIA considers the contribution heritage and ecological features make to the character and value of the landscape and visual receptors, along with an assessment of the likely effect of the Proposed Development on the landscape character and views associated with heritage features. The LVIA has been carried out in landscape and visual terms only, as an assessment of effects on heritage assets and their wider cultural setting (e.g. impacts on cultural and historic associations) are considered to be beyond the remit of this LVIA. The LVIA does not assess direct or any other indirect effects on heritage or ecological resources.
- 8.2.7 The LVIA is based on views from publicly accessible locations. Where an impact on residential and other private views (e.g. commercial properties) is noted this is, necessarily, estimated (unless access is provided by a landowner). The viewpoints identified in the LVIA are illustrative of the worst-case potential impact from a representative range of receptors including residences, rights of way, public open spaces, private open space, commercial operations, the road and rail network etc. This LVIA does not necessarily identify all locations from where the Proposed Development would potentially be visible.
- 8.2.8 In the absence of a detailed design and layout the effects of lighting cannot be accurately determined however an assessment is provided on: the likely effects of temporary lighting resulting from construction; the change to the baseline sky glow; and, the change to the landscape and views as a result of the introduction of lighting as part of the Proposed Development.

8.3 Scope of Assessment

Spatial Scope

- 8.3.1 A preliminary study area has been identified, the extent of which considers the nature and scale of the Proposed Development in relation to the existing physical characteristics of the landscape as well as existing landscape studies and assessments. The preliminary study area is based on an approximate radius of 3km from the boundary of the site, which is considered to be sufficient to account for potential significant effects that may arise as a result of the Proposed Development.

Zones of Theoretical Visibility

- 8.3.2 Zones of theoretical visibility (ZTV) have been modelled digitally to identify those areas of the landscape that theoretically are visually connected with the Proposed Development, in order to refine the extent of the study area. **Figures 8.2 and 8.3 in Appendix 8.4** illustrate the following two ZTV scenarios.
- 8.3.3 ZTV 1: represents the proposed built form within the Application Site that would theoretically be visible, based on the building heights for the Proposed Development, taking account of the effect that settlements and significant woodland blocks / belts would have on views toward the Proposed Development and therefore illustrates a reasonably realistic area within which the Proposed Development could theoretically be visible during the summer months. This is based on the building envelope and maximum heights as illustrated on the Parameter Plans.
- 8.3.4 ZTV 2: represents the proposed built form within the Application Site that would theoretically be visible during the winter months, when leaf cover on existing vegetation is reduced and views towards the Proposed Development have potential to be increased, based on the building heights for the Proposed Development, taking account of the effect that only the existing settlements would have on views toward the Proposed Development. This is based on the building envelope and maximum heights as illustrated on Parameter Plans.
- 8.3.5 These ZTVs consider the potential visibility of a developable volume encompassing all built form proposed within the site, rather than the visibility of individual buildings. This 'jelly mould' approach has been adopted to represent the worst-case parameters with regard to building locations, footprint dimensions and heights to ridgeline.
- 8.3.6 The ZTVs were modelled using the Key Terra-Firma ZTV module for BricsCAD v24 and are based on the following parameters and data sources:
- Ordnance Survey mapping at 1:25,000 scale.
 - Ordnance Survey Landform Profile contour data at 5m height intervals.
 - Viewer eye height set at 1.6m above landform.
 - All maximum height parameters are based on the IDP Storey Height Parameter Plan. All heights are finished floor level to building ridge height. Finished floor levels may vary from existing ground levels AOD by up to 3m (+or-), except for Area A which is up to 2m (+or-).
 - Existing Settlements are set at 9m high following landform and set as visually impermeable.
 - Existing Woodland blocks are set at 12m high following landform and set as visually impermeable (for the summer ZTV, excluded for the winter ZTV).

Determining the Study Area

- 8.3.7 The final 2km extent of the study area has been determined by considering together the preliminary study area, the results of the ZTV modelling and the initial findings of the baseline appraisal and assessment process.
- 8.3.8 It is considered that any direct or indirect landscape or visual effects arising as a result of the Proposed Development at a distance of greater than 2km would be negligible and are therefore not included within this assessment.

Temporal Scope

- 8.3.9 This assessment considers landscape and visual effects at the following stages of the Proposed Development:
- Effects during construction: Assesses the likely impact of temporary construction activities and considers the changing nature of the site itself.
 - Effects during operation at Year 0: Assesses the completed development assuming structural landscape treatments would have been implemented and would be establishing, albeit not to a level sufficient to provide a screening function.
 - Effects during operation at Year 15: Assumes structural landscape treatments would have reached semi-maturity allowing for an assessment of likely landscape and visual effects that takes established mitigation measures into account.
 - Effects during summer and winter are considered where these would substantially differ as a result of vegetation growth or leaf cover.
 - Effects at night are considered where these would substantially differ from day time effects.

Cumulative Effects

- 8.3.10 Cumulative effects fall into two types:
- Effects arising from within the project itself, where effects of different types arising under different topics can combine to potentially increase effects on a single receptor or environmental resource. For example, people in their homes may be affected by adverse effects in terms of noise, air quality and visual impact combined. The assessment of these cumulative effects are covered elsewhere in the Environmental Statement.
 - Effects from other reasonably foreseeable projects in combination with the project being assessed. Such projects may include other nearby developments. These could include multiple effects of the same type acting on a single receptor or environmental resource, for example in terms of landscape – the visual impact of multiple developments on a single visual receptor or their cumulative effect on a particular landscape resource. The assessment of these cumulative effects are assessed as part of the LVIA but are collated elsewhere in the Environmental Statement.
- 8.3.11 'Reasonably foreseeable' projects are considered as those with valid planning permissions as granted by the Local Planning Authority, and for which EIA is a requirement, or for which an LVIA has been undertaken.

8.4 Determining Baseline Conditions

- 8.4.1 Information has been collated through desk study and field survey in order to describe the baseline situation in relation to landscape character, landscape features and elements and the visual amenity of people within the study area.

Desk Study

- 8.4.2 A variety of sources have been reviewed to gain an understanding of the quality, variety and sensitivity of the features and elements that contribute toward landscape character and visual amenity in order to identify potential landscape and visual receptors.
- 8.4.3 These include relevant published local policy and guidance documents, existing published landscape character studies, Ordnance Survey mapping and aerial photography.

Data Sources

- 8.4.4 The desk study has included a review of the following sources of information:
- The National Planning Policy Framework (2025)
 - Natural England, The Character of England : Landscape, Wildlife and Natural Features (2014)
 - City and District of St Albans District Local Plan Review 1994 (Adopted 30 November 1994) Saved and Deleted Policies Version (July 2020)
 - Harpenden Neighbourhood Plan 2018 - 2033 (2019)
 - Wheathampstead Neighbourhood Plan 2020 - 2025 (2023)
 - St Albans District Draft Local Plan 2041 Regulation 19 Publication (September 2024)
 - Hertfordshire Green Infrastructure Strategy (August 2022)
 - The St Albans District Green Infrastructure Plan (March 2011)
 - Natural England National Character Areas No 110: Chilterns
 - Central Bedfordshire Character Assessment (2015)
 - Hertfordshire Landscape Character Area Statements - St Albans District (2000 & 2005)
 - Ordnance Survey Mapping at 1:25,000 scale
 - Aerial photography of the site and wider area (Google Earth, www.maps.google.co.uk and www.bing.com/maps)
 - Multi Agency Geographic Information for the Countryside (MAGIC) interactive mapping (www.magic.gov.uk)
 - Natural England Green Infrastructure Mapping (<https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Map.aspx>)
 - Rights of Way Mapping (www.rowmaps.com)
 - UK Government Flood Risk Mapping (<https://flood-map-for-planning.service.gov.uk/>)
 - National Heritage List for England Map Search, English Heritage (<http://www.english-heritage.org.uk/>)
 - National Cycle Network mapping (www.sustrans.org.uk)
 - British Geological Survey, Geology of Britain Viewer (<https://www.bgs.ac.uk/>)
 - Ancient Tree Inventory. Woodland Trust (<https://ati.woodlandtrust.org.uk/>)

Site Survey

- 8.4.5 Initial field work provides a context for LVIA and helps to identify likely opportunities and constraints for a proposed development. In best practice, the findings of initial field work can be used to influence and guide the design of the proposed development in order to avoid or reduce potential impacts and to achieve the best fit with the landscape. Initial survey work for this LVIA was undertaken in July 2024 to establish summer baseline and January 2025 for consideration of

the winter baseline, to further identify those features or elements that contribute to the character of the area and determine the potentially visibility of the Proposed Development.

Photography

- 8.4.6 A series of representative and specific viewpoint photographs were captured during field work using a digital SLR camera with a fixed 50mm lens (equivalent focal length) at approximately 1.6m in height. The method used to capture and present the photographs was consistent with Landscape Institute Advice Note 06/19. These are presented as a series of panoramic viewpoints that were stitched together using Adobe Photoshop CC – Photomerge and have been used to inform the assessment.

Accurate Visual Representation (AVR) Wireline Views

- 8.4.7 Following Pre App discussions with St Albans District Council (SADC) in May 2025, key viewpoints were agreed and AVR wirelines modelled, illustrating the Proposed Development outline and maximum storey heights to ridge as illustrated on Parameter Plans. The wirelines give an indication of the mass, scale and location of the Proposed Development in relation to the baseline view. The wirelines are based on the Storey Heights Parameter Plan.
- 8.4.8 The methodology used to create the AVR wireline views is set out in the Vista3D documents at **Appendix 8.7**.

Selection of Landscape and Visual Receptors

- 8.4.9 Landscape and visual receptors were identified during desk study and have been verified during field survey work to provide a baseline against which to describe those effects likely to arise as a result of the Proposed Development. Receptors used within this assessment include:
- Landscape character types or areas drawn from published documents;
 - Physical landscape features and elements; and
 - Views experienced by people and their visual amenity.

Establishing Value

Landscape Value

- 8.4.10 Landscape value describes the relative level of value or importance attached to a landscape or feature (that would potentially be affected by the Proposed Development) by the different stakeholders and parts of society that use or experience that landscape resource.
- 8.4.11 Factors that have been considered in the determination of landscape value include landscape designations and the level of importance that they signify (i.e. whether international, national or local), relevant local planning policy and guidance, the status of individual areas or features (e.g. TPOs), the quality, condition and rarity of individual features or elements within the landscape and any verifiable local community interest (e.g. village greens, allotments etc.).

8.4.12 The value of landscape receptors are determined against the guidance of Landscape Institute Technical Guidance Note 02/21: Assessing Landscape Value Outside National Designations (LI, 2021) and the criteria set out in **Table 1.1** in order to establish a consistent and objective baseline against which the potential effects arising as a result of the Proposed Development can be assessed. Professional judgement is applied to determine the value attributed in response to these criteria. The factors listed below are not considered to be exhaustive and for any one receptor, these factors may overlap between degrees of value. Therefore, not all criteria need to be attributed to any one receptor for that value to be assigned.

Table 1.1 Criteria considered when determining landscape value.

Value	Criteria
Very High	International and National level designated areas (e.g. World Heritage Sites, National Parks, National Landscapes, Registered Parks and Gardens, Scheduled Monuments, Grade I or II* Listed Buildings, SSSIs etc) are present within the receptor. The area is considered to be an important component of the country's character and is experienced by a high number of tourists. The condition of the landscape and its individual elements is good and is generally maintained to a high standard. Rare or distinctive elements and / or features are key components that contribute to the character of the area / quality of the landscape resource. The landscape has strong associations with well known literature, poetry, art, TV / film or music media, scientific or technical achievements, notable historic events or associations with famous people, that contribute to perceptive reflections of the landscape. The landscape generally has an elevated level of tranquillity and / or may be valued for its wildness / remoteness.
High	Regional or County level designated areas (e.g. Areas of Great Landscape Value (AGLV), Green Belt, Country Parks, Grade II Listed Buildings, Conservation Areas etc) are present within the receptor. The area is considered to be an important component of the region or county's character and is experienced by a reasonable proportion of its population. The condition of the landscape and its individual elements is good and is generally well maintained. Rare or distinctive elements and / or features may be present and would contribute to the character of the area / quality of the landscape resource. The landscape has an influence from well known literature, poetry, art, TV / film or music media, scientific or technical achievements, notable historic events or associations with famous people, that contribute to perceptive reflections of the landscape. The landscape, or areas within it, may have a high level of tranquillity.

Value	Criteria
Medium	No designated landscapes are present, but the landscape may be valued locally (e.g. village greens, allotments or public open spaces etc). Use of the area is likely to be limited to the local community with informal recreational use / greenspace. The condition of the landscape and its individual elements are good to fair, but has good potential for flora and fauna. If present, rare or distinctive elements and / or features are not notable components that contribute to the character of the area. Any associations to art, media, scientific or technical achievements, historic events or famous people are not widely known. The landscape generally has a moderate level of tranquillity.
Low	A landscape of low importance, of low quality and in fair to poor condition, with few features of value or interest. The landscape has little or no amenity value. Rare or distinctive elements and / or features are not present. There are no cultural associations to art, media, scientific or technical achievements, historic events or famous people. The landscape has low potential for biodiversity. The landscape is of limited tranquillity.
Very Low	Industrial or contaminated land. The landscape has no amenity value. A landscape of very low quality and in poor condition, with very low potential for biodiversity. The landscape is not considered to be tranquil.

Value Attached to Views

- 8.4.13 A view is valued through formal designation and / or indicators of value attached by people. **Table 1.2** sets out the value attached to visual receptors, in order to establish a consistent and objective baseline against which the potential effects arising as a result of the Proposed Development can be assessed. As noted for Landscape Value above, the list of factors noted in the criteria below is not considered exhaustive and professional judgement is applied to determine an appropriate value for each view.

Table 1.2 Criteria for determining value attached to views

Value	Criteria
Very High	Views from / over / toward landscapes of International and National importance (e.g. World Heritage Sites, National Parks, National

Value	Criteria
	Landscapes, Registered Parks and Gardens, Scheduled Monuments, Grade I or II* Listed Buildings, SSSIs etc), particularly where the view provides a contribution to the significance of the asset. Views from viewpoints within highly popular visitor attractions / tourist destinations. Protected views.
High	Views from / over / toward landscapes of Regional or County importance (e.g. Areas of Great Landscape Value (AGLV), Country Parks, Long Distance Trails, Grade II Listed Buildings, Conservation Areas etc). Views from viewpoints within moderately popular, well used visitor attractions / tourist destinations, including long distance trails, rights of way etc. Views to which receptors have a proprietary interest (excluding residential properties).
Medium	Views from / over / toward landscapes of local importance, which may be subject to designation (e.g. village greens, allotments or public open spaces etc). Views from landscapes / viewpoints not used by substantial numbers of people, including public rights of way, touring routes, cycle paths, canals, public open spaces etc.
Low	Views from landscapes with no designations and of at most local importance. Views from viewpoints which are not particularly popular or recognised as being destinations in their own right, including infrequently used rights of way. Views with no cultural associations.
Very Low	Views from landscapes of no importance, of poor scenic quality or with no sense of tranquillity.

8.5 Assessment of Likely Effects

8.5.1 Having determined the baseline conditions for the site and study area, the assessment process then proceeds with the following stages:

- Evaluate the sensitivity of landscape and visual receptors in relation to the Proposed Development;
- Assess the magnitude of change (impact) arising as a result of the Proposed Development in relation to: landscape character, physical features and elements of the landscape; and, the visual amenity and views of people;
- Combine judgements on the nature of receptor (sensitivity) with the nature of change (magnitude of impact) to arrive at a clear and reasoned professional judgement regarding the significance of effects.

- 8.5.2 The criteria used for each of these stages of the assessment process in relation to both landscape and visual receptors are detailed in the following section of the methodology and are arranged in word scales in line with the preferred approach described within the GLVIA3.
- 8.5.3 Criteria detailed within these scales provide examples of the different thresholds used within the assessment process. It is important to note that these criteria act as a guide for professional judgement but do not replace it.

Assessment of Landscape Effects

Landscape Sensitivity

- 8.5.4 In LVIA, the sensitivity of landscape receptors is specifically related to the particular development that is being proposed and its location. Whilst landscapes generally have some intrinsic sensitivity, landscape receptors have different features and elements that can accommodate different types of development and levels of change.
- 8.5.5 The sensitivity of receptors is assessed by combining judgements on the value attached to the nature of the development proposed and the baseline capacity of the landscape to accept that type of change. The sensitivity of landscape receptors will vary therefore depending on the type and nature of development proposed.

Landscape Susceptibility

- 8.5.6 Landscape susceptibility describes the ability of a landscape receptor to accommodate change (i.e. the form of development proposed) without undue consequences for the maintenance of the baseline situation.
- 8.5.7 **Table 1.3** sets out the criteria that have been considered when determining landscape susceptibility. As noted for landscape value, the criteria for determining susceptibility are not considered exhaustive and are applied using professional judgement.

Sensitivity of Landscape Receptors

- 8.5.8 Receptors are selected to describe the likely effects on the landscape resource arising as a result of the Proposed Development at a range of scales and can include wider landscape character areas / types as well as specific features or elements within the site and the surrounding area.
- 8.5.9 Sensitivity is specific to each landscape receptor and reflects a balanced judgement on the value attached to the receptor and its susceptibility to the type of change proposed. The matrix in **Table 1.4** illustrates how sensitivity is determined by a combination of value and susceptibility of the landscape receptor.
- 8.5.10 The sensitivity of landscape receptors is described using a five-point word scale. Intermediate levels of sensitivity can also be attributed to receptors where relevant. **Table 1.3** sets out the examples of criteria to determine landscape susceptibility. The criteria identified in the table indicates criteria along the varying scale of their adjacent descriptor, varying from Very High to Negligible. This list is not considered exhaustive and professional judgement is used to attribute

susceptibility with consideration to these criteria. Not all criteria need to be met for a specific value to be attributed to any one receptor.

Table 1.3 Criteria for determining landscape susceptibility

Susceptibility	Criteria
Very High	The landscape is of a very large scale and / or there is a negligible level of containment, resulting in a significant degree of interaction between landform, topography, vegetation cover, field pattern and built form. There is no existing reference or context within the receptor to the type of development proposed. The majority of existing element(s) would not be easy to replace (e.g. ancient woodland, mature trees etc). Detracting features or major infrastructure are not present in the area. The receptor has a very low level of ability to accept the type of development proposed and there are very limited opportunities for mitigation.
High	The landscape is of a large scale and / or there is a low level of containment, resulting in a moderate degree of interaction between landform, topography, vegetation cover, field pattern and built form. There is little or no existing reference or context within the receptor to the type of development proposed. The majority of existing element(s) would not be easy to replace (e.g. ancient woodland, mature trees etc). Detracting features or major infrastructure are not present in the area or, where present, these have little influence on the character or experience of the landscape. The receptor has a low level of ability to accept the type of development proposed and there are limited opportunities for mitigation.
Medium	The landscape is of a medium scale and / or there is a moderate level of containment, resulting in a minor degree of interaction between landform, topography, vegetation cover, field pattern and built form. There is some existing reference or context within the receptor to the type of development proposed. There are limited opportunities for replacement of existing elements. Detracting features or major infrastructure are present in the area and these have a noticeable influence on the character or experience of the landscape. The receptor has a medium level of ability to accept the type of development proposed and there are good opportunities for mitigation.
Low	The landscape is of small scale and / or has a high level of containment, resulting in only a slight degree of interaction between landform, topography, vegetation cover, field pattern and built form.

Susceptibility	Criteria
	There are many existing references within the receptor to the type of development proposed. Few / no existing landscape elements are present (e.g. brownfield sites) or, where these are present, these can easily be replaced. Some existing features are detracting and / or major infrastructure is present which has an obvious influence on the character or experience of the landscape. The receptor has a high level of ability to accept the type of development proposed and there are good opportunities for mitigation and enhancement.
Very Low	Due to the scale of enclosure, the receptor has no interaction with the surrounding landscape. The nature of development proposed would be in keeping with the land use of the site and the surrounding landscape. All landscape elements are easily replaceable. Existing features are detracting and / or major infrastructure is present which heavily influences the character or experience of the landscape. The receptor has a very high level of ability to accept the type of development proposed and there are very good opportunities for mitigation and enhancement.

Table 1.4 Matrix for determining landscape sensitivity

	VALUE					
		Very Low	Low	Medium	High	Very High
SUSCEPTIBILITY	Very Low	Negligible	Low	Low	Medium	Medium
	Low	Low	Low	Medium	Medium	High
	Medium	Low	Medium	Medium	High	High
	High	Medium	Medium	High	High	Very High
	Very High	Medium	High	High	Very High	Very High

Magnitude of Landscape Change

8.5.11 The magnitude of impact for landscape change is influenced by a number of factors including the extent to which landscape features are lost and / or altered, the introduction of new features into the landscape and the resulting change in the physical and / or perceptual characteristics of the landscape. It is determined by, but not necessarily limited to:

- The size and scale of the impact;
- The extent of the geographical area over which change is likely to be felt;

- The duration of the impact and its potential reversibility; and
 - The proximity of the landscape receptor to the site and the nature of the effect.
- 8.5.12 Consideration has been given to the location of character areas in relation to the Proposed Development as it is recognised that landscape features in close proximity to a proposed development would usually have a much stronger influence on the sense of the landscape character than more distant features. It is however acknowledged that more distant features can also have an influence.
- 8.5.13 The magnitude of impact for landscape change is described using a five-point word scale. Intermediate levels of magnitude can also be attributed to receptors where relevant. Magnitude is assessed as being very large, large / very large, large, medium / large, medium, small / medium, small or negligible.
- 8.5.14 The magnitude of impact for landscape change has been assessed with reference to the criteria set out in **Table 1.5** with professional judgement applied in its determination.

Table 1.5 Criteria for determining magnitude of impact for landscape change

Magnitude	Criteria
Very Large	The size and scale of change is considered to be very high due to the total loss of or alteration to existing landscape character or highly distinctive / important features and elements, and / or the addition of uncharacteristic conspicuous features and elements, resulting in a complete change to key aesthetic or perceptual qualities. The geographical extent of change would influence the landscape at a national level. Impacts would be considered long term and would either be irreversible or very difficult to reverse in practical terms.
Large	The size and scale of change is considered to be high due to the notable loss of or alteration to existing landscape character or distinctive / important features and elements, and / or the addition of uncharacteristic noticeable features and elements, degrading the integrity of key aesthetic or perceptual qualities. The geographical extent of change would influence the landscape at a regional level. Impacts would be considered long term and would either be irreversible or very difficult to reverse in practical terms.
Medium	The size and scale of change is considered to be medium due to the partial loss of or alteration to existing landscape character or features and elements, and / or the addition of uncharacteristic features and elements, resulting in key aesthetic or perceptual qualities out of scale or at odds with the local pattern and landform. The geographical extent of change would influence the landscape at a local level.

Magnitude	Criteria
	Impacts would be considered medium term and / or potentially reversible, although it may not be practical to do so.
Small	The size and scale of change is considered to be low due to minor loss or alteration of existing landscape features and elements, resulting in a discernible negative effect to key aesthetic or perceptual qualities. The geographical extent of change would influence the immediate setting of the Proposed Development. Impacts would be considered short term and / or potentially reversible and in practical terms would easily be achievable.
Negligible	The size and scale of change to existing landscape features and elements is considered to be barely discernible. The geographical extent of change would influence the site only. Impacts would be considered short term / temporary and / or easily reversible and in practical terms would very easily be achievable.

Assessment of Visual Effects

Visual Sensitivity

- 8.5.15 Visual receptors are people and comprise individuals or groups of people who are likely to be affected by the Proposed Development at specific viewpoints or a series of viewpoints. The sensitivity of visual receptors is determined by balancing judgements about the susceptibility of receptors to changes in their views and visual amenity (i.e. by the Proposed Development) with the baseline value attached to the view by the receptor. The sensitivity of visual receptors will therefore vary depending on the type and nature of development proposed.

Susceptibility of Visual Receptors

- 8.5.16 The susceptibility of different receptors to changes in their views and visual amenity is a function of the occupation or activity of people experiencing a view at a particular location and the extent to which their attention is focussed on the view and visual amenity they experience.
- 8.5.17 **Table 1.6** sets out the criteria that have been considered when determining the susceptibility of visual receptors to change. As noted for the value of views, the criteria for determining susceptibility are not considered exhaustive and are applied using professional judgement.

Table 1.6 Criteria for determining susceptibility of visual receptors

Susceptibility	Criteria
Very High	Tourists and visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience.
High	Receptors with clear views toward the development. People engaged in outdoor recreation whose attention is likely to be focussed on the landscape and / or particular views, or for whom their appreciation of strong views is an important factor in the enjoyment of the activity. People travelling through the landscape on roads, rail or other routes on recognised scenic routes or where there is a distinct awareness of views of their surroundings and their visual amenity.
Medium	Receptors with oblique or partially screened views. People at work and in educational institutions for whom the appreciation of setting is important to the quality of working / school life, with oblique or partially screened views. People staying in hotels and healthcare institutions who are likely to appreciate views of their surroundings. People engaged in outdoor recreation or sport which involves an appreciation of views (including public rights of way, touring routes, cycle paths, public open spaces etc with reasonable extent of view). People travelling through the landscape for short periods of time on roads, rail, canals or other routes who are likely to experience and appreciate views of their surroundings or are passing through the landscape to enjoy the view.
Low	Receptors with limited views of the development. People at their place of work where the appreciation of the setting is of limited importance to the quality of working life. People staying in hotels and healthcare institutions who are unlikely to appreciate views of their surroundings. People engaged in outdoor recreation or sport which does not involve an appreciation of views. People travelling through the landscape who have limited views of their surroundings or for whom the appreciation of views is of limited importance to their journey (e.g. on main roads, rail corridors, partially enclosed public rights of way or footways adjacent to carriageways).
Very Low	People travelling through the landscape often at high speed (e.g. on motorways and main line railways). People who have no views of their surroundings or for whom views of their surroundings are not important.

Sensitivity of Visual Receptors

- 8.5.18 Receptors have been selected to describe the range of likely effects on the views of people and their visual amenity arising as a result of the Proposed Development, taking into account a range of factors including the number and sensitivity of viewers likely to be affected.
- 8.5.19 Sensitivity is specific to each visual receptor and reflects a balanced judgement on the value attached to the view by the receptor, their visual amenity and its susceptibility to the type of change proposed. The matrix in **Table 1.7** illustrates how sensitivity is determined by a combination of value and susceptibility of the visual receptor.
- 8.5.20 The sensitivity of visual receptors is described using a five-point word scale. Intermediate levels of sensitivity can also be attributed to receptors where relevant. Sensitivity is assessed to be very high, high / very high, high, medium / high, medium, low / medium, low or negligible.

Table 1.7 Matrix for determining visual sensitivity

	VALUE					
SUSCEPTIBILITY		Very Low	Low	Medium	High	Very High
	Very Low	Negligible	Low	Low	Medium	Medium
	Low	Low	Low	Medium	Medium	High
	Medium	Low	Medium	Medium	High	High
	High	Medium	Medium	High	High	Very High
	Very High	Medium	High	High	Very High	Very High

Magnitude of Visual Change

- 8.5.21 The impact on visual receptors is assessed with regard to the magnitude of change (impact) to the views and visual amenity of people arising as a result of the Proposed Development. The magnitude of visual impact is evaluated in relation to its size or scale, its geographical extent and its duration and reversibility.
- 8.5.22 The magnitude of visual change is described using a five-point word scale. Intermediate levels of magnitude can also be attributed to receptors where relevant. Magnitude is assessed as being very large, large / very large, large, medium / large, medium, small / medium, small or negligible.
- 8.5.23 The magnitude of visual impact has been assessed with reference to the criteria set out in the **Table 1.8** with professional judgement applied in its determination.

Table 1.8 Criteria for determining magnitude of visual impact

Magnitude	Criteria
Very Large	The scale of change is considered to be very high due to the total loss or major alteration to key elements / features / characteristics of views. The Proposed Development creates a new focus and has a defining influence on the view. The geographical extent of change is considered to be very high due to the adjacent or close proximity of the receptor to the development, the full and / or direct view and the substantial extent of the view that would change as a result of the development. Impacts would be considered long term and would either be irreversible or very difficult to reverse in practical terms.
Large	The size and scale of change is considered to be high due to the major loss / addition / alteration of features within the view, the change to the composition of the view, the degree of contrast / integration of the proposal with the baseline situation and the nature of the view. The geographical extent of change is considered to be high due to near distance proximity of the receptor to the development, the full and / or near direct to slight angle of view and the substantial extent of the view that would change as a result of the development. Impacts would be considered long term and would either be irreversible or very difficult to reverse in practical terms.
Medium	The size and scale of change is considered to be medium due to the reasonable extent of loss / addition / alteration of features within the view, the change to the composition of the view, the degree of contrast / integration of the proposal with the baseline situation and the nature of the view. The geographical extent of change is considered to be medium due to the middle distance of the receptor to the development, the partial and / or oblique angle of view and the reasonable extent of the view that would change as a result of the development. Impacts would be considered medium term and would potentially be reversible, although it may not be practical to do so.
Small	The size and scale of change is considered to be low due to the limited extent of loss / addition / alteration of features within the view, the change to the composition of the view, the degree of contrast / integration of the proposal with the baseline situation and the nature of the view. The geographical extent of change is considered to be low due to the middle to long distance of the receptor from the development, the glimpsed and / or indirect angle of view and the minimal extent of the view that would change as a result of the development. Impacts would be considered short term, would potentially be reversible and in practical terms would easily be achievable.

Magnitude	Criteria
Negligible	The size and scale of change is considered to be very low due to the barely perceptible extent of loss / addition / alteration of features within the view, the change to the composition of the view, the degree of contrast / integration of the proposal with the baseline situation and the nature of the view. The geographical extent of change is considered to be barely perceptible due to the long distance of the receptor from the development, the glimpsed and / or indirect angle of view and the extent of the view that would change as a result of the development. Impacts would be considered short term or temporary, would easily be reversible and in practical terms would very easily be achievable.

Definitions of Terms used to Describe Change

8.5.24 The GLVIA3 emphasises the importance of clarifying any assumptions underlying professional judgements, therefore where verbal scales are used to describe the nature and magnitude of changes (impacts) likely to occur as a result of the Proposed Development, which differ from the previously defined scales, the following definitions apply.

Nature of Change

8.5.25 The nature of change is defined as follows:

- Direct (resulting directly from the development) or Indirect (consequential change resulting from the development);
- Permanent or Temporary (if temporary a timescale will be described); and
- Positive, Negative or Neutral.

8.5.26 The GLVIA3 acknowledges that determining whether change is positive, negative or neutral is a challenging issue and requires informed professional judgements to be made with reference to the following criteria as a minimum:

- The degree to which the proposal fits with existing landscape character; and
- The contribution to the landscape that the development may make in its own right, usually by virtue of good design, even if it is in contrast to the existing character of the landscape

Nature of View

8.5.27 This criterion describes the nature and relative amount of time over which views of the Proposed Development are likely to be experienced. Views are described as being:

- Full: views would be relatively open / unscreened and of a duration sufficient to appreciate the scale of the Proposed Development;
- Partial: views of the Proposed Development would be partially screened / filtered and / or would be of a limited duration that would not allow the full scale of the development to be fully appreciated; or

- Glimpsed: views of the Proposed Development would be largely screened and / or the duration of views would be so limited that the scale of the development cannot be appreciated by the receptor.

Distance of Receptor from Site Boundary

8.5.28 This is expressed in metres or kilometres and considers the following thresholds in relation to the site boundary:

- Adjacent: next to or in very close proximity to the site;
- Near Distance: up to 500m;
- Middle Distance: between 500m and 2km; or
- Long Distance: 2km and above.

Area of Landscape Affected

8.5.29 This criterion provides thresholds that describe the geographical extent of the landscape over which change arising as a result of the Proposed Development would be felt. Change is described as being of the following scales:

- Regional: likely to influence more than one landscape type or character area;
- Local: at the scale of a landscape type or character area;
- Immediate Setting: within close proximity to the site; or
- Site only: within the development itself.

Angle of View of Visual Receptors

8.5.30 This criterion describes the angle of the view toward the Proposed Development that a visual receptor is likely to experience in relation to the activity they are undertaking, e.g. walking along a public footpath:

- Direct: in line with the activity being undertaken.
- Indirect: not in line with the activity being undertaken.

Duration of Impact

8.5.31 The duration of impacts are considered against the following thresholds:

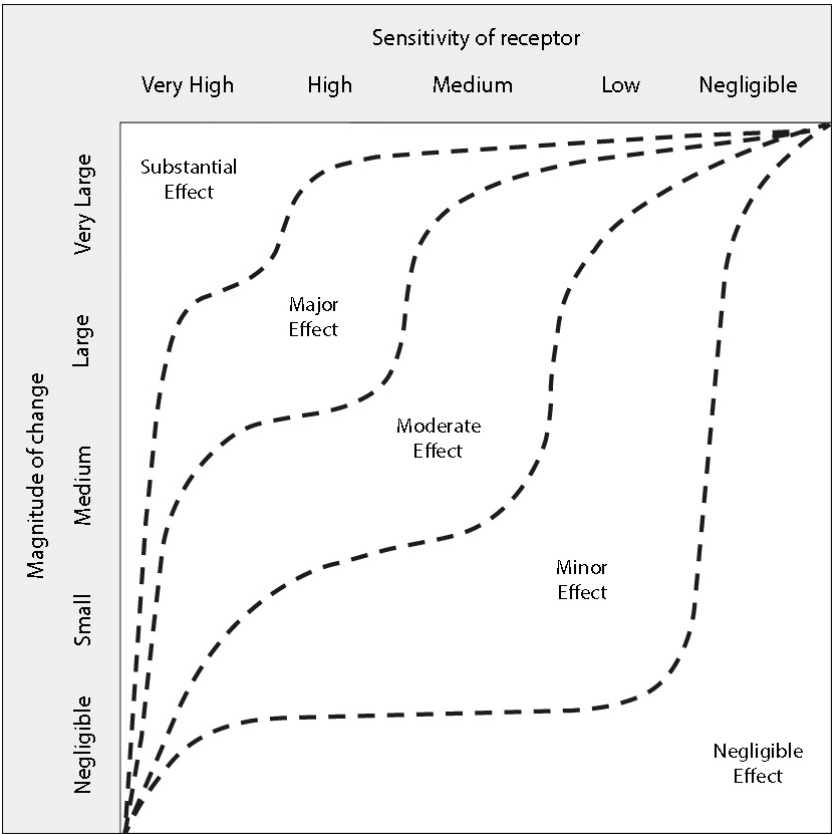
- Temporary : During Construction
- Short term: up to 5 years
- Medium term: between 5 and 10 years
- Long term: over 10 years

8.5.32 The reversibility of impacts is also considered. These are recorded as either reversible or irreversible and comprise a judgement about the prospects and practicality of a particular impact being reversed over a defined timescale.

8.6 Determining Effects

8.6.1 The final conclusions for both landscape and visual effects are based on a combination of sensitivity of the receptor and magnitude of change (impact). The overall judgement on the nature and level of these effects is based on the sequential combination of each criteria, leading to a balanced justification as described by the criteria provided in **Tables 1.10 & 1.11**, with professional judgement applied to inform this determination. The matrix in **Table 1.9** provides an indicative illustration of how the effect is determined by this combination of sensitivity and magnitude but is not applied without due consideration of the specific details of the site and development under assessment.

Table 1.9 Matrix for determining significance of effect



- 8.6.2 Describing the effects likely to arise as a result of the Proposed Development and determining their significance requires the application of professional judgement to weigh the findings of the sensitivity of receptors against the predicted magnitudes of change (impact), which can be beneficial, adverse or neutral.
- 8.6.3 The significance of landscape and visual effects are described using a five-point word scale. Intermediate levels of significance can be attributed where relevant. Significance of landscape effects is assessed as being substantial, major / substantial, major, moderate / major, moderate, minor / moderate, minor or negligible. A judgement of neutral effect can also be determined where there is no discernible change.

8.6.4 The criteria used to determine the significance of both landscape and visual effects are set out in **Tables 1.10** and **1.11** and are derived from guidance provided within the GLVIA3.

Table 1.10 Criteria for determining significance of landscape effects

Effect	Description. The Proposed Development would:
Substantial Adverse Effect	• Be at complete variance with the character of the landscape. • Permanently diminish the integrity of a wide range of characteristic features and elements. • Permanently damage the sense of place.
Major Adverse	• Be at considerable variance with the character of the landscape. • Degrade or diminish the integrity of a wide range of characteristic features and elements. • Substantially damage the sense of place.
Moderate Adverse Effect	• Conflict with the character of the landscape. • Have an adverse impact on some characteristic features and elements. • Diminish the sense of place.
Minor Adverse Effect	• Not quite fit with the character of the landscape. • Be at variance with characteristic features and elements. • Detract from the sense of place.
Negligible Adverse Effect	• Result in a barely perceptible deterioration of landscape character. • Have a barely perceptible impact on characteristic features and elements. • Barely degrade the sense of place.
Neutral Effect	• Maintain the existing character of the landscape. • Blend in with characteristic features and elements. • Enable the sense of place to be maintained.
Negligible Beneficial Effect	• Result in a barely perceptible improvement to landscape character. • Provide limited enhancement of characteristic features and elements. • Barely improve the sense of place
Minor Beneficial Effect	• Complement the character of the landscape. • Enhance characteristic features and elements. • Slightly enhance the sense of place.
Moderate Beneficial Effect	• Slightly enhance the character of the landscape. • Enable the restoration of characteristic features and elements partially lost or diminished as a result of changes from inappropriate management or development. • Enhance the sense of place.

Effect	Description. The Proposed Development would:
Major Beneficial Effect	- Enhance the character of the landscape. - Enable the restoration of characteristic features and elements completely lost or diminished as a result of changes from inappropriate management or development. - Greatly enhance the sense of place.
Substantial Beneficial Effect	- Significantly enhance the character of the landscape. - Enable the restoration of characteristic features and elements of a very high value landscape, completely lost or diminished as a result of changes from inappropriate management or development. - Significantly enhance the sense of place.

Table 1.11 Criteria for determining significance of visual effects

Effect	Description. The Proposed Development would:
Substantial Adverse Effect	Cause a significant deterioration to the view of a receptor of very high sensitivity that would constitute a total change in the view or would introduce a major discordant element into the view.
Major Adverse Effect	Cause a major deterioration to the view of a receptor of high sensitivity that would constitute a total change in the view or would introduce a major discordant element into the view.
Moderate Adverse Effect	Cause an obvious deterioration to the view of a receptor of medium to high sensitivity that would constitute a clear change in the view or would introduce a discordant element into the view; or, a major deterioration to the view of a receptor of low sensitivity.
Minor Adverse Effect	Cause a limited deterioration to the view of a receptor of medium to high sensitivity that would constitute a noticeable change in the view or would introduce uncharacteristic features or elements into the view; or, an obvious deterioration to the view of a receptor of low sensitivity.
Negligible Adverse Effect	Result in a barely perceptible change in the view, associated with the introduction of uncharacteristic features or elements.
Neutral	Not be visible to the receptor. Any associated mitigation would represent an indiscernible change to the baseline situation.
Negligible Beneficial Effect	Result in a barely perceptible change in the view, associated with the introduction of characteristic features or elements.
Minor Beneficial Effect	Result in a limited improvement to the view of a receptor of medium to high sensitivity; or, an obvious improvement to the view of a receptor of low sensitivity.

Effect	Description. The Proposed Development would:
Moderate Beneficial Effect	Result in an: obvious improvement to the view of a receptor of medium to high sensitivity; or, a major improvement to the view of a receptor of low sensitivity.
Major Beneficial Effect	Result in a major improvement to the view of a receptor of high sensitivity that would constitute a total change in the view or would introduce a major discordant element into the view.
Substantial Beneficial Effect	Result in a significant improvement to the view of a receptor of very high sensitivity.

Describing the Importance of Effects to Decision Making

8.6.5 For the purposes of this assessment, the significance of effects are described in relation to their importance to decision making and have been defined as follows:

- **Substantial** – Considerable and significant effect (by extent, duration or magnitude of impact) of more than local significance or in breach of recognised acceptability, legislation, policy and / or standards. Considered to be very important and material to decision making.
- **Major** – Obvious and significant effect (by extent, duration or magnitude of impact) considered to be important and material to the decision making process.
- **Moderate** – Potential to be significant and material to decision making.
- **Minor** – Slight, very short or highly localised effect, not significant and unlikely to be important for decision making.
- **Negligible or Neutral** – No significant effect, not relevant to decision making.

8.6.6 Major and Substantial effects are considered to be material to decision making and considered significant in EIA terms, with Moderate effects potential to be material to decision making and considered potentially significant in EIA terms. Minor, Negligible and Neutral effects are considered not significant in EIA terms.

8.7 Assessment of Cumulative Effects

8.7.1 As noted under Section 8.3 above, cumulative effects fall into two distinct types:

- Effects arising from within the project itself, where effects of differing types arising under different topics can combine to potentially increase effects on a single receptor or environmental resource. For example, people in their homes may be affected by adverse effects in terms of noise, air quality and visual impact combined. The assessment of these cumulative effects are covered elsewhere in the Environmental statement.
- Effects from other reasonably foreseeable projects in combination with the project being assessed. Such projects may include other nearby developments. These could include multiple effects of the same type acting on a single receptor or environmental resource, for example in terms of landscape – the visual impact of multiple developments on a single visual receptor or their cumulative effect on a particular landscape resource. The assessment

of these cumulative effects are assessed as part of the LVIA but are collated elsewhere in the Environmental Statement.

- 8.7.2 'Reasonably foreseeable' projects are considered as those with valid planning permissions as granted by the Local Planning Authority, and for which EIA is a requirement, or for which a non-statutory LVIA has been undertaken.
- 8.7.3 When considered in isolation, the environmental effects from an individual development upon any single receptor or landscape resource may not be significant. However, when there is potential for effects from a number of individual developments to interact, they will be considered in combination, which may result in the cumulative effect being significant.
- 8.7.4 The significance of cumulative effects should be determined by the extent to which the various impacts can be accommodated by a particular receptor or environmental resource.
- 8.7.5 The following factors should be considered:
- Which receptors or resources are affected? This is a judgement based on a review of the assessments carried out for each development, where there is potential for cumulative effects, to determine receptors or resources common to more than one assessment.
 - How would the receptor or resource be affected? This is a consideration of the nature of the cumulative effect.
 - How far can the resource absorb cumulative effects? This is a judgement of the ability of the receptor or landscape resource to accommodate the cumulative effect without increasing the overall significance of effect.
- 8.7.6 In accordance with the main methodology for the EIA, the assessment of cumulative effects takes into account the impacts during the phases of construction, immediately post-completion (Year 0) and once mitigation measures have established (Year 15).
- 8.7.7 The criteria for judging the significance of cumulative effects is as follows:
- **Substantial** : effects that the decision maker must take into account as the receptor / resource is irretrievably compromised
 - **Major** : effects that may become a key decision making issue
 - **Moderate** : potential to be material to decision making
 - **Minor** : effects that are locally significant
 - **Negligible or Neutral** : effects that are beyond the current forecasting ability or are within the ability of the resource to absorb such a change
- 8.7.8 It should be noted that the cumulative effect reported is not the sum of the effects for each project. A potential cumulative effect arises when the effect of the whole may be considered to be greater than the sum of the two parts, where the two developments in combination may result in an effect of greater significance. The cumulative assessment defines this additional effect.
- 8.7.9 Noting the criteria outlined above, where the additional effect is **Substantial** or **Major**, taking into account the capacity of the environment to accommodate the number of projects proposed, it

could influence the decision making process for the project. If **Moderate**, further work may be required to reduce the cumulative effect as the project progresses. A **Minor** effect is still considered to be of significance for the local area, it does not imply that the effects for each project considered separately are **Minor**.

8.8 LVIA and the Design Process

Mitigation & Enhancement Measures

- 8.8.1 Mitigation measures are proposed to prevent, reduce and where possible offset any adverse landscape and visual effects and are typically developed in collaboration with members of the design team and environmental specialists.
- 8.8.2 In terms of LVIA, the aims of mitigation are to ensure the Proposed Development achieves the best fit with the local landscape character, retains and makes best use of existing landscape features and provides adequate screening for visual receptors. The type(s) of mitigation measures proposed are influenced by the surrounding landscape character and where possible would address opportunities to enhance biodiversity and improve nature conservation.
- 8.8.3 Enhancement relates to any proposals that seek to improve the landscape and / or visual amenity of the Proposed Development / Site and its wider setting beyond its original baseline condition and as such is not specifically related to the mitigation of adverse effects.
- 8.8.4 For the purposes of this LVIA it has been assumed that mitigation and enhancement measures would be implemented during the construction phase and would be in place at completion. Mitigation is therefore considered within this assessment as an integral part of the development proposals.