APPENDIX 7.1
METHODOLOGY

Appendix 7.1

A.1 Introduction

A.1.1 The Landscape Institute and the Institute of Environmental Management & Assessment's Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA 3), 2013, notes in Chapter 1 that Landscape and Visual Impact Assessment (LVIA) relates to:

> *"…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"*

A.1.2 The methodology employed in carrying out the LVIA of the Proposed Development is in accordance with the Guidelines set out in GLVIA 3 and Natural England landscape character guidance.The guidelines are not intended as a prescriptive set of rules, and the approach has been adapted to the specific project.

A.1.3 LVIAs are undertaken by professionals who are also typically involved in the design of the landscape and the preparation of subsequent management proposals. This can allow the assessment to proceed as an integral part of the overall scheme design. Judgements are based on training and experience and supported by clear evidence and reasoned argument.

A.1.4 The purpose of an LVIA is to identify the likely effects of change resulting from the Proposed Development, which can be used as a tool to optimise the design of a scheme and minimise the potential for adverse change to arise and to maximise the benefit of positive changes. Landscape and visual assessments are separate, although linked, processes with a distinction made between:

- Landscape - landscape character and the elements and features that contribute to the sense of place (landscape receptors); and
- Visual - people who experience views within the landscape (visual receptors).

A.1.5 An LVIA is typically accompanied by illustrative material, including baseline mapping and photographs of the Site itself and from the wider context.

A.1.6 There are typically three key stages to the LVIA process, with a further two optional stages carried out as required:

- Baseline Studies;
- Iterative Design;
- Assessment of Landscape and Visual Effects;
- Cumulative Assessment (should this be required);
- Night-Time Assessment (should this be required).

A.1.7 An overview of the assessment process is set out in Diagram 1 (below). the assessment of landscape and visual effects relies on identifying the interactions between the Proposed Development and the identified receptors, linking judgements between the sensitivity of the receptors and the magnitude of effect experienced. The sensitivity of a receptor is determined by combining judgements on the value attached to the receptor alongside its susceptibility, while the magnitude of an effect is determined by combining judgements on scale and duration.

Baseline Studies

A.1.8 The purpose of baseline studies is to record the existing landscape features, characteristics, the way the landscape is experienced, and the area from which the existing site and Proposed

Development may be visible to potential visual receptors. The following are typically undertaken as part of the baseline studies:

- Identification of the extents of the study area. This is based on professional judgement and may vary depending on the type of development proposed and landscape context.
- Zone of Theoretical Visibility (ZTV) modelling to assist in identifying potential viewpoints, should this be deemed necessary, dependent on professional judgement of the visual envelope of the Site/Proposed Development.
- Identification of potential representative viewpoints within the study area.
- A desktop study of patterns and scale of landform, land use and built development, relevant current planning policy (including landscape designations) and landscape character publications. Further localised character assessments may also be undertaken to supplement published assessments.
- A localised character assessment will normally also be carried out to supplement the published characterisation material to confirm whether the Site is representative of any of the key characteristics set out and to determine consideration of 'natural', 'cultural and social', and 'perceptual and aesthetic' factors. Factors typically considered may include the following, as relevant:
    - Landform and hydrology;
    - Land use and settlement;
    - Pattern/texture/line;
    - Scale and enclosure;
    - Historical development/time depth;
    - Activities and cultural association;
    - Spatial structure and built form;
    - Infrastructure;
    - Movement, connectivity, and accessibility;
    - Green Infrastructure;
    - Enclosure/views;
    - Tranquillity and remoteness; and
    - Aesthetic or visual quality.

A.1.9 Where relevant, the future baseline of the Site and its context is also considered, in order to account for ongoing change in the landscape, for example developments that are under construction, and which will have altered the landscape context to the Site by the time the Proposed Development would be likely to be initiated.

A.1.10 For the avoidance of doubt, the future baseline context should not be confused with cumulative effects, which are addressed differently and assessed separately.

Design and Mitigation

A.1.11 LVIAs are undertaken by professionals who are also often involved in the design of the landscape, site design, and the preparation of subsequent management proposals. The design and assessment stages are iterative, with stages overlapping in part.

A.1.12 Mitigation measures are embedded within the design of the Proposed Development (or the development parameters for an outline application) arising from desk-based study and LVIA field work. These measures, such as the building layout, massing, height, and arrangement of open spaces and new structural planting, are termed 'Primary Mitigation'. Effective Primary Mitigation strategies avoid or reduce adverse effects by ensuring the key principles of the design of the development, as noted above, are sympathetic with the existing baseline.

A.1.13 Additional recommended measures to reduce adverse effects are termed 'Secondary Mitigation'. These may be illustrated in material accompanying the proposal, including a Design and Access Statement.

A.1.14 Typical Secondary Mitigation strategies can include:

- Additional design detail including building materials or landscape design approaches, including indicative species;
- A Landscape and Biodiversity Management Strategy to secure ongoing enhancement of landscape features;
- A Construction Environmental Management Plan to minimise effects arising during the construction process, typically including tree protection; and
- A programme of appropriate monitoring, agreed with the regulatory authority, so that compliance and effectiveness can be readily monitored and evaluated.

A.1.15 The contribution made by areas of planting introduced as part of the Proposed Development is also considered in terms of the effects at year 1 and the residual effects (allowing for growth of planting over time), and the height of this planting for assessment purposes is assumed to be as follows (based on an average growth rate of 1m in 3 years – the specific rate of growth varies according to species, soil, light, microclimate conditions and management):

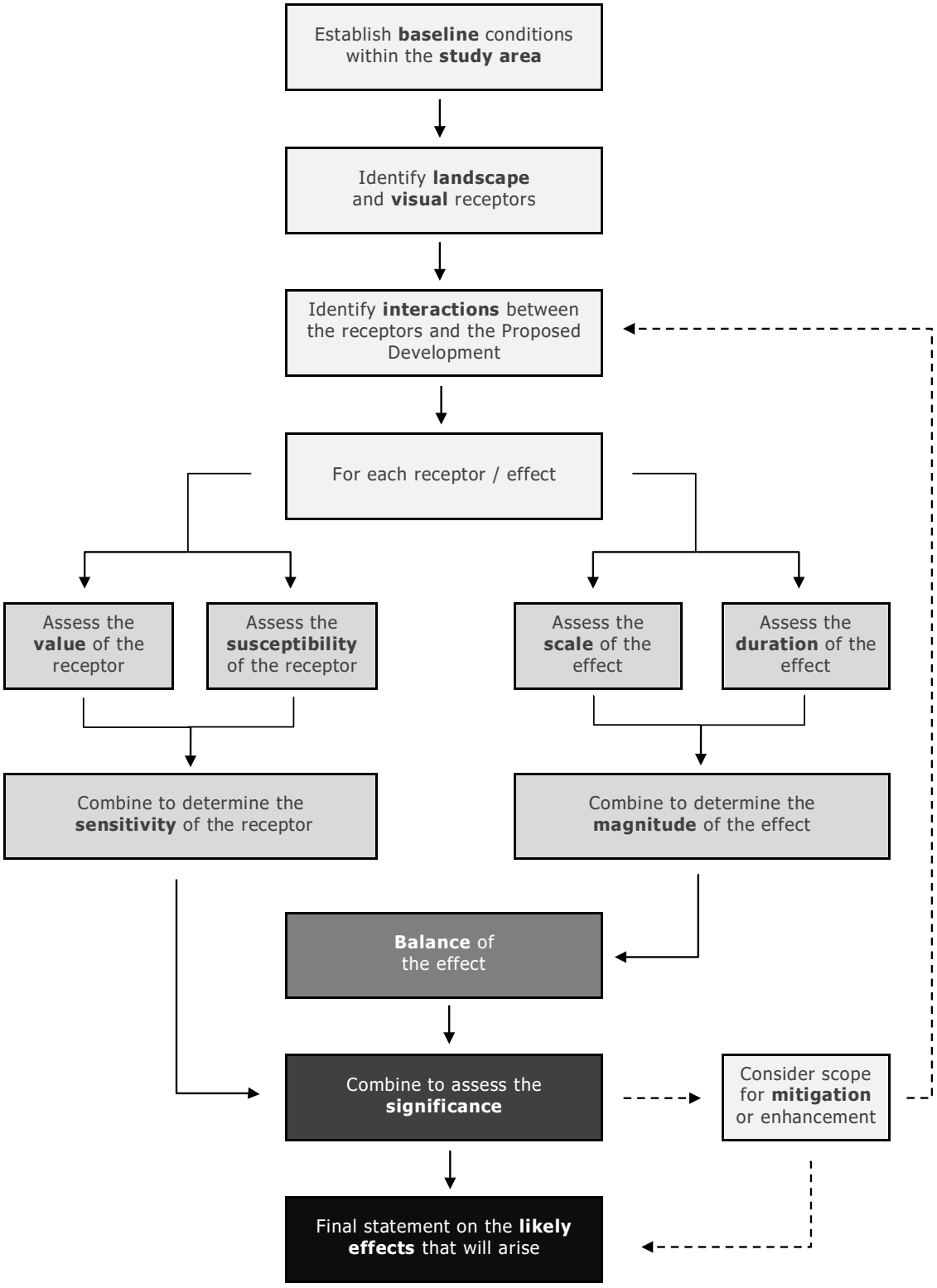
- Planting at Year 1: typically 0.7-4.5 metres; and
- Planting at Year 15: typically 5.5-9.5 metres.

A.1.16 In addition, measures may be taken to offset or compensate for adverse effects, if these are not already built into the design proposals. Typical compensation measures are the replacement of felled trees with new trees or off-site provision of public amenity or access where this may be lost within the Site.

Enhancement

A.1.17 Whilst distinct from mitigation of adverse effects, enhancement may be achieved through the Proposed Development (e.g. the creation of a new landscape or public amenity/access; enhancement in character or view; or improved management of existing landscape features secured through the Proposed Development). The beneficial changes resulting from these measures are incorporated into assessment of landscape and visual effects.

Diagram 1: Overview of the LVIA Process



A.2 Assessment of Landscape Effects

A.2.1 GLVIA 3 Paragraph 5.1 states that:

> *"An assessment of landscape effects deals with the effects of change and development on landscape as a resource."*

A.2.2 Landscape effects occur as a result of changes to the physical fabric of the landscape that may give rise to alterations to is overriding character and how this character is experienced.

A.2.3 The significance of landscape effects is derived from a combination of assessments of the **sensitivity** of the landscape receptor and the **magnitude** of effect (change) experienced as a result of the Proposed Development.

Sensitivity of Landscape Receptors

A.2.4 The sensitivity of a landscape receptor is a combination of the **value** of the landscape receptor and the **susceptibility** (in other words 'vulnerability') of the landscape receptor to the type of change proposed, using professional judgement.

Landscape Sensitivity - Value

A.2.5 The value of a landscape receptor is established during the baseline stage. The assessment of value is based on a combination of the importance of landscape-related planning designations and the following attributes (drawn from the Landscape Institute TGN 02/21 and Box 5.1 of GLVIA3:

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

A.2.6 Landscapes, including their character and features, may be designated for their landscape and visual qualities at a range of levels (national, county, and local level).

A.2.7 As a matter of principle , all landscapes are considered to be of value, as enshrined within the European Landscape Convention (ELC) 2004.The overall value for each landscape receptor is categorised as either **High**, **Medium**, or **Low** (as described below in **Table A.2.1**):

Table A.2.1: Landscape Value

Level	Criteria
High	Landscape area of distinctive components and characteristics that may also be nationally designated for scenic beauty. A landscape feature that makes a strong positive contribution to landscape character e.g. a mature tree or woodland.
Medium	Landscape area of common components and characteristics that may be designated at county or borough level for its landscape and visual qualities. A landscape feature that makes some positive contribution to landscape character.
Low	Landscape area/feature of inconsequential components and characteristics, undesignated and with little or no wider recognition of value, although potentially of importance to the local community.

Landscape Sensitivity - Susceptibility

A.2.8 The susceptibility of the landscape is a measure of its vulnerability to the type of development proposed, without undue consequences for the maintenance of the baseline situation. Landscape character/features of low susceptibility would have a high capacity to accommodate change, and landscape character/features of high susceptibility would have a low capacity to accommodate change. The following criteria are taken into consideration in the assessment of the susceptibility of landscape character, although not all criteria are equally applicable or important within a given landscape / type of development proposed:

- Landform;
- Pattern/Complexity;
- Composition;
- Landcover;
- Relationship of a given landscape area or feature to the surrounding context and/or to existing settlements or developments; and
- Potential for appropriate mitigation within the context of existing character and guidelines.

A.2.9 With regard to landscape features, susceptibility relates to the potential for loss/retention of the relevant features in relation to the type of development proposed (for example trees within a Site are potentially highly susceptible to construction of an industrial shed, whereas they might not be to construction of residential units, as the latter provides more scope to mitigate by design); and the ease with which such elements may be replaced, where appropriate. The susceptibility of each landscape receptor is categorised as **High**, **Medium**, or **Low** (as described below in **Table A.2.2**):

Table A.2.2: Landscape Susceptibility

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

A.2.10 Based on the combination of value and susceptibility, an assessment of landscape sensitivity is reached, defined as **High**, **Medium**, or **Low**. Typically a high value and high susceptibility receptor would result in a receptor of high sensitivity; and a low value and low susceptibility receptor would result in a receptor of low sensitivity.

Landscape Magnitude of Effect (Change) - Scale

A.2.11 Factors contributing to the scale of landscape change include:

- The extent/proportion of the physical landscape elements that will be altered with reference to their immediate and local/ wider contribution to the landscape;
- The degree to which aesthetic and/or perceptual aspects will be altered; and
- The geographical area that will be directly and indirectly altered.

Landscape Magnitude of Effect (Change) - Duration and Reversibility

A.2.12 Factors contributing to the duration the change is experienced in the landscape (including consideration of management plans as appropriate) include:

- Whether the change is wholly reversible or permanent; and
- Whether the change is temporary (and if so, for what period of time).

A.2.13 The landscape magnitude of effect is informed by judgements about the precise nature of the change brought about by the Proposed Development both in terms of the existing landscape character and landscape elements / features and the addition of new landscape elements / features, its scale and its duration and reversibility (as described below in **Table A.2.3**):

Table A.2.3: Landscape Magnitude of Effect (Change)

Magnitude	**Criteria**
Large	Pronounced change to the existing landscape receptor that may affect an extensive area. The change may be long-term or may be irreversible.
Medium	Partial change to the existing landscape receptor that may affect a relatively extensive area. The change may be medium-term or may be irreversible.
Small	Limited change to the existing landscape receptor that may affect a relatively limited area. The change may be short-term or reversible.
Very Small	Very slight change to the existing landscape receptor that may affect a limited area. The alteration may be short-term or reversible.
None	No change to the existing landscape receptor.

A.3 Assessment of Visual Effects

A.3.1 GLVIA 3 Paragraph 6.1 states that:

> *"An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity."*

A.3.2 The significance of visual effects is derived from a combination of assessments of the **sensitivity** of the visual receptor and the **magnitude** of effect (change) experienced as a result of the Proposed Development.

Viewpoint Selection

A.3.3 In order to assess the effects on visual receptors, a selection of publicly accessible viewpoints is made. This could include representative viewpoints (e.g. representing views of users of a particular footpath) and specific viewpoints (e.g. a key view from a specific visitor attraction).

A.3.4 Views may be categorised as either near distance, medium distance, or long distance with the relevant distances dependant on the size and nature of the development, based on professional judgement.

A.3.5 Viewpoints fall into three broad categories:

- **Representative**: selected to represent the experience of different types of receptor;

- **Specific**: chosen because they are key and sometimes promoted viewpoints within the landscape; and
- **Illustrative**: demonstrating a particular effect or specific issues.

A.3.6 The type of view is typically described as transient (i.e. experienced when moving) or fixed (i.e. from a static location). It is also described in terms of the degree of screening or openness (e.g. open or uninterrupted; filtered (including where partially screened) by vegetation or other structures; or curtailed by intervening land form, built form or vegetation) and the angle of view (e.g. frontal or oblique).

Sensitivity of Visual Receptors

A.3.7 The sensitivity of a visual receptor is a consideration of the **value** of the view and the **susceptibility** of the visual receptor, the latter being primarily based on consideration of the extent to which a visual receptor is focused on appreciation of the landscape.

Visual Sensitivity - Value

A.3.8 The value of a visual receptor is established during the baseline stage and is categorised as **High**, **Medium**, or **Low**.

Table A.3.1: Value of Views

Value	Criteria
High	View of/from a location that is likely to be of national importance, either designated or with national cultural associations.
Medium	View of/from a location that is likely to be of local importance, either designated or with local cultural associations.
Low	View of/from a location that is not designated, with minimal or no cultural associations.

Visual Sensitivity - Susceptibility

A.3.9 The susceptibility of each visual receptor is a measure of their vulnerability to the type of development proposed, without undue consequences for the maintenance of the baseline situation. The following criteria are taken into consideration in the assessment of visual susceptibility:

- The extent to which the viewers' attention is focussed on the landscape;
- The extent to which the view contributes to the viewers' amenity experience; and
- The nature of the activity the viewer is involved in (or otherwise).

A.3.10 Professional judgement is used to determine these factors, based on considerations set out in **Table A.3.1** (above) and **Table A.3.2** (below):

Table A.3.2: Susceptibility of Visual Receptor

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

A.3.11 The sensitivity of a visual receptor results from the combination of value and susceptibility and is rated as **High**, **Medium**, or **Low**. Typically a high value and high susceptibility receptor would result in a receptor of high sensitivity; and a low value and low susceptibility receptor would result in a receptor of low sensitivity.

Visual Magnitude of Effect (Change) - Scale

A.3.12 In the evaluation of the effects on views and the visual amenity of the identified receptors, the magnitude of visual effect is typically described with reference to:

- The scale of change in the view with respect to the loss or addition of features in the view and changes in its composition. Factors contributing to the scale of visual change include:
  - The angle of view in relation to the main activity of the receptor;
  - The distance of the viewer from the Proposed Development;
  - The extent of the area over which the changes would be visible; and
  - The degree of visual intrusion of the Proposed Development in the view.

Visual Magnitude of Effect (Change) – Duration and Reversibility

A.3.13 Factors contributing to the duration the change is experienced visually in the evaluation of the effects on views and the visual amenity of the identified receptors, the magnitude of visual effect is typically described with reference to:

- Whether or not the view is experienced in fixed or transient views and, in the latter, whether it is intermittent/glimpsed or continuous; and
- The duration of the change, whether temporary or permanent.

A.3.14 The criteria for the magnitude of visual effects is set out in **Table A.3.3** below:

Table A.3.3: Visual Magnitude of Effect (Change)

Magnitude	Criteria
Large	The proposals will cause a pronounced change to the existing view, resulting in the loss or addition of features that will substantially alter the composition of the view. The change may be long-term or may be irreversible.
Medium	The proposals will cause a noticeable change in the view, resulting from the loss or addition of features in the view and will noticeably alter the composition of the view. The change may be medium-term or may be irreversible.
Small	The proposals will cause a limited change in the view, which would not materially alter the composition of the view. The change may be short-term or reversible.

Magnitude	Criteria
Very Small	The proposals will cause a barely perceptible change in the view. The change may be short-term or reversible.
None	No change discernible in the view.

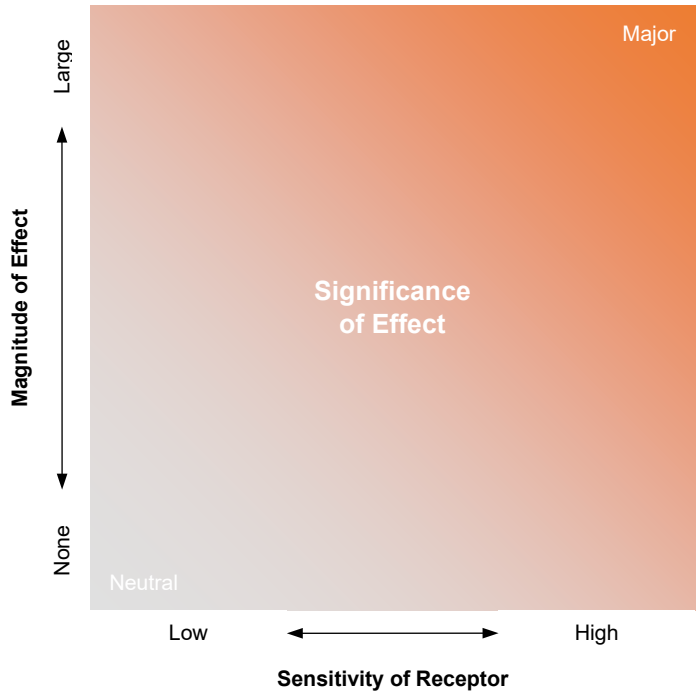
A.4 Significance of Effects

A.4.1 In order to draw conclusions about the significance of landscape or visual effects, the combination of the sensitivity of the receptors and the magnitude of effect are considered for the Proposed Development at **Day 1** of the operational phase (once the Proposed Development has been completed); and, depending on the assessment, also at a point where planting associated with the Proposed Development will be establishing e.g. **Year 15**. In certain circumstances, it may also be appropriate to consider effects at construction and on decommissioning of the Proposed Development.

A.4.2 The significance of effects are rated on a scale of Neutral to Major. The assessment of significance of effects is subject to professional judgement but in broad terms, where a receptor of High sensitivity experiences a Large magnitude of effect as a result of the Proposed Development, the significance of effect is likely to be Major.

A.4.3 Conversely, where a receptor of Low sensitivity experiences a Very Small magnitude of effect as a result of the Proposed Development, the significance of effect is likely to be Negligible or Neutral.

Figure A.4.1: Significance of Effects



A.4.4 Where it is considered that there is potential for both beneficial and adverse changes, these magnitudes of effect (change) are noted and are defined as beneficial, adverse, or neutral. This consideration is termed the 'balance of effects', factoring in both the potentially beneficial and

adverse aspects associated with a given change and is used and the balance of these considerations used to inform conclusions on significance of effect.

A.4.5 The assessment of residual effects refers to the likely effects of the Proposed Development that will remain once Secondary Mitigation measures are applied and also considers the growth of planting introduced within the Proposed Development (including where this is part of Primary or Secondary Mitigation).

A.4.6 For schemes subject to Environmental Impact Assessment, as governed by the Environmental Impact Assessment Directive (2011/92/EU), an assessment of whether or not the effect is considered 'significant' is required. This is relative to each scheme but, in general, effects of Major or Moderate (adverse/beneficial) significance are deemed 'significant'.

Table A.4.1: Significance of Landscape Effects – Criteria

Significance	Criteria
Major Beneficial	Alterations that would be substantially characteristic and result in a pronounced improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced as part of the Proposed Development.
Moderate Beneficial	Alterations that result in a partial improvement of the existing landscape resource. Valued characteristic features would be partially restored or reintroduced.
Minor Beneficial	Alterations that result in a limited improvement of the existing landscape resource. Characteristic features would be restored to a limited degree.
Negligible Beneficial	Alterations that result in a very slight improvement to the existing landscape resource, not uncharacteristic within the receiving landscape.
Neutral	Neither beneficial nor adverse effects on the existing landscape resource.
Negligible Adverse	Alterations that result in a very slight deterioration to the existing landscape resource, not uncharacteristic within the receiving landscape.
Minor Adverse	Alterations that result in a limited deterioration of the existing landscape resource. Characteristic features would be lost to a limited degree.
Moderate Adverse	Alterations that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be partially lost.
Major Adverse	Alterations that would be substantially uncharacteristic and result in a pronounced deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.

Table A.4.2: Significance of Visual Effects – Criteria

Significance	Criteria
Major Beneficial	Alterations that typically result in a pronounced improvement in the existing view.
Moderate Beneficial	Alterations that typically result in a noticeable improvement in the existing view.
Minor Beneficial	Alterations that typically result in a limited improvement in the existing view.
Negligible Beneficial	Alterations that typically result in a barely perceptible improvement in the existing view.
Neutral	Neither beneficial nor adverse effects on the existing view.
Negligible Adverse	Alterations that typically result in a barely perceptible deterioration in the existing view.
Minor Adverse	Alterations that typically result in a limited deterioration in the existing view.
Moderate Adverse	Alterations that typically result in a noticeable deterioration in the existing view.
Major Adverse	Alterations that typically result in a pronounced deterioration in the existing view.