ANNEX A

LVIA Methodology

Landscape and Visual Impact Assessment
Deal Farm, Bressingham

A LVIA Methodology

Key principles of LVIA

A.1 LVIA is a tool for predicting and evaluating the effects of a development on the landscape itself, and on views and visual amenity. The assessment process aims to achieve avoidance, reduction or mitigation of detrimental effects identified, through feeding back into the site design process.

A.2 The LVIA considers the landscape and visual effects resulting from the construction and operation of the Proposed Development. Landscape and visual effects are independent but related issues. Landscape assessment judges effects on the landscape as a resource in its own right, (regardless of whether it is, or can be, viewed by people or not); changes may affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. Visual assessment judges the effects on specific views and on the general amenity of the landscape as experienced by people. It explains how particular views of the landscape might change and how the enjoyment and visual amenity of those using it might be affected by the proposals. It also considers whether cumulative impacts from other proposed developments are likely to result. These two components of the LVIA are assessed separately.

A.3 The LVIA was carried out in accordance with the approach outlined in the Guidelines for Landscape and Visual Impact Assessment Third Edition 2013[1] (GLVIA3). Reference is also made to the LI 'GLVIA3 Statement of Clarification' 1/13 10-06-13[2] and the LI TGN 'Assessing the Value of Landscapes Outside National Designations' 02-21[3]. Both of these documents are useful when assessing the value of non-designated landscapes. These two documents build on the details within GLVIA3 and introduce additional factors that should be considered as part of assessments and demonstrate the importance of the different factors used to determine landscape value.

The process begins with a baseline study which establishes the planning policy context, the scope of the assessment and the existing nature of the landscape and visual environment that forms the context for the development proposals. The design process draws on this baseline evidence and involves an iterative review of layout and options for mitigation.

A.4 The LVIA takes place in parallel with the design process and informs the layout and design of the proposals. The assessment identifies the components of the landscape likely to be affected by the development – the 'landscape receptors' and considers how and to what extent they might be affected. Similarly, it identifies the people within the vicinity of the development who will be affected by changes to views or visual amenity –the 'visual receptors'.

A.5 The LVIA identifies and describes the landscape and visual effects that are likely to occur in a systematic, transparent way, recording the judgments and explaining whether they are likely to be adverse or beneficial. Finally it assesses the likely significance of the effects identified and proposes measures designed to avoid/ prevent, reduce or offset (or compensate for) any significant adverse effects.

Landscape assessment

A.6 An assessment of landscape effects requires consideration of the nature of landscape receptors (sensitivity of receptor) and the nature of the effect on those receptors (magnitude of effect). GLVIA3 states that the nature of landscape receptors should be assessed in terms of the susceptibility of the receptor to the type of change proposed, and the value attached to the receptor. The nature of the effect on each landscape receptor should be assessed in terms of scale of effect, geographical extent, duration and reversibility.

A.7 **Step 1: Establish landscape baseline**

Both desktop research and site work was used to establish baseline conditions, e.g.:

- Identify relevant designations or policies indicating value
- Use available Landscape Character Assessments, other available appraisals, and observations from site to identify relevant characteristics and features and to evaluate contribution the Site makes to local landscape character. An

[1] Guidelines for Landscape and Visual Impact Assessment, 3rd edition Landscape Institute and Institute of Environmental Management & Assessment, 2013

[2] https://www.landscapeinstitute.org/technical-resource/glvia3-clarifications/

[3] Technical Guidance Note 02/21: Assessing landscape value outside national designations. Landscape Institute, 2021

understanding of 'An Approach to Landscape Character Assessment'[4] is vital in this process. This document details the application of Landscape Character Assessment which is important in the LVIA process which inevitably uses available Landscape Character assessment.

- Identify components of the landscape that are considered particularly sensitive to change
- Identify any historic or cultural associations
- Recognize contribution of other factors such as landscape condition and intactness, rarity, recreational value, tranquillity, habitat value, and aesthetic qualities, etc.

A.8 **Step 2: Identify landscape receptors**

Landscape receptors are the components of the landscape that are likely to be affected by the development. These can include key landscape characteristics, constituent elements of the landscape, individual landscape or vegetative features, topographic qualities, or specific perceptual aspects of the landscape such as scenic quality or tranquillity.

A.9 **Step 3: Attribute measure of sensitivity to landscape receptors**

Values of sensitivity for each landscape receptor were assessed as HIGH / MODERATE / LOW. Sensitivity is not an inherent value; rather it must be defined for different types of development depending on the specific type of effects a particular development would cause. It is judged by combining two factors, **Susceptibility** of the receptor combined with its **Value**.

Susceptibility is defined by GLVIA3 as *'the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies'* (GLVIA3 paragraph 5.40).

Landscape value is attributed to landscape receptors on the basis of any statutory designations, heritage designations or local policy designations, combined with the assessors view on a range of other factors. These include the condition of the landscape, its management and how intact its traditional features remain. They may also include consideration of its scenic qualities, its cultural value, its interest to visitors or for recreation, and the rarity or irreplaceability of the characteristic features within it (GLVIA3, paragraphs 5.44 - 5.47).

The criteria used for judging the sensitivity of landscape receptors are set out in Table A1.1

A.10 **Step 4: Predict magnitude of effects on landscape receptors**

Each of the landscape effects was evaluated in terms of its Magnitude. This was judged on a five point scale based on a combination of the following judgements:

- **Size or scale of change** in the landscape that is likely to be experienced. This depends on the extent of existing landscape elements that would be lost or changed, the proportion of the total extent that this represents, and the contribution of that element to the character of the landscape. The scale of the effect is described as being **negligible, minor, moderate or major.**
- The **geographic extent of the area** influenced by the predicted landscape effect is described as being **major** (extensive area), **moderate** (immediate surroundings) or **minor** (limited extent)
- The **duration** of the predicted landscape effect is described as being short term (typically during construction), medium term (typically during the early part of the operational phase of a development eg. 0-5 years) and long term.
- The **reversibility** of the predicted landscape effect is reported as reversible, partially reversible or irreversible (i.e. permanent), and is related to whether the change can be reversed at the end of the phase of development under consideration.

A.11 The magnitude of predicted landscape effects identifies the degree of predicted landscape change. This judgement was derived from combining the set of judgements above and rated NEGLIGIBLE / MINOR / MODERATE / MAJOR / SEVERE. In addition, the nature of the change was judged to be ADVERSE, NEUTRAL or BENEFICIAL in its effect. A value of magnitude and nature of effect was attributed during construction, at

[4] An Approach to Landscape Character Assessment, Christine Tudor, Natural England, October 2014

completion of the development and also after 15 years to evaluate the consequences of maturing boundary vegetation. The criteria scale in Table A1.2 indicates how this combined judgement was applied

A.12 **Step 5: Assess significance level**

The final stage was attributing a significance value to the impact on each receptor to understand which receptors will experience the most significant impacts and so where to focus efforts on mitigation. This was accomplished by careful consideration of the sensitivity of the landscape receptor in relation to the magnitude and nature of the predicted effect.

The assessment in based on professional judgement to take on board the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations in every instance. Table A1.4 (page 9) provides an overview of the way measures for the sensitivity of the receptor and the magnitude of effect are combined.

Table A1.1 - Criteria for judging the sensitivity of landscape receptors

Category	Criteria
High	Landscape of high sensitivity where in terms of landscape character, condition, and value, there is limited capacity to accommodate the change proposed and limited scope for mitigation i.e. having: • Valuable elements, features and land uses that combine to form an area of strong, positive and distinctive character. A landscape in a good condition that may also have some rarity and a low potential for replacement or mitigation. • Exceptionally high or high value: protected at international or national level (World Heritage Site / National Park AONB). The management objectives of these areas may be to conserve existing character. (However, some designated landscapes may also include areas of medium or low landscape sensitivity).
Moderate	Landscape of medium sensitivity exhibiting positive character though with evidence of degradation/erosion of some elements and features i.e. having: • Generally positive character, in reasonable condition, with some valuable elements and features, and/or evidence of degradation/ erosion, with opportunities for replacement or mitigation. • Medium value: protected at regional level (e.g. an Area of 'Great Landscape Value') or at a non-designated local level where there is evidence of local value and use.
Low	Landscape of low sensitivity where in terms of landscape character, condition, and value, there is greatest scope for landscape change in the form of development, mitigation and/or enhancement i.e. having: • Poorly defined character, in poor condition, with a low incidence or absence of valuable elements or features. Change is unlikely to be negative, with scope for scope restoration, enhancement or the creation of a new landscape. • Low Value: non-designated landscape which may have some redeeming elements or features, where management objectives may be more focused on landscape enhancement.

Visual assessment

A.13 'An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity' (GLVIA3, Para. 6.1). Changes in views may be experienced by people at different locations within the study area including from static locations (normally assessed using representative viewpoints) and whilst moving through the landscape (normally referred to as sequential views, e.g. from roads).

A.14 **Step 1: Establish the visual envelope and identify receptors**

The areas of land from which the development proposal may potentially be seen were mapped to show the Zone of Theoretical Visibility (ZTV). This was achieved via a two stage process. The first stage was a digital viewshed analysis using specialized computer software which modelled the ZTV in the following hypothetical circumstances:

- the 'bare earth' site (with no development);
- the assumption that the tallest building on the site is present without any mitigation; and
- the assumption that the tallest building is present, but also taking into account the screening effects of the existing urban edge and existing vegetation within the vicinity of the site. The latter was modelled either using LiDAR data (if available) or by adding an assumed average height to the principal buildings, blocks of woodland, tree belts and/or hedgerows within the vicinity of the site.

The second stage of the visibility analysis refined the digital model via a field survey. The landscape architects surveyed the visibility of the site and the surrounding landscape by walking along public rights of way and/or driving along local roads. Both stages of the assessment assumes an observer viewing height of approximately 1.6m. The preliminary ZTV was thus refined through direct observation on site, with the process resulting in a Zone of Visibility (ZV) which describes the actual visibility of the development, as perceived by observers 'on the ground'.

A.15 Within this ZV, the number and type of visual receptors were recorded - i.e. the routes, places and people that are likely to be affected by changes in views and visual amenity as a result of the proposal. All publicly accessible viewpoints (roads,

Table A1.2 - Criteria for judging the magnitude and nature of landscape effects

Category	Criteria
Severe adverse	Total alteration to key landscape elements, features or characteristics such that post development the baseline situation will be fundamentally changed
Major adverse	Extensive alteration to key landscape elements, features or characteristics such that post development the baseline situation will be largely changed but with some recognisable elements
Moderate adverse	Partial alteration to key landscape elements, features or characteristics such that post development the baseline situation will be noticeably changed
Minor adverse	Minor alteration to key landscape elements, features or characteristics such that post development the baseline situation will be largely unchanged despite discernible differences
Negligible neutral	Very minor alteration to key landscape elements, features or characteristics such that post development the baseline situation will be fundamentally unchanged with barely perceptible differences
Minor beneficial	A minor improvement to key landscape elements, features or characteristics as a result of the proposed development
Moderate beneficial	Partial or moderate enhancement to key landscape elements, features or characteristics such that post development the baseline situation will be noticeably improved
Major beneficial	An extensive enhancement of the existing landscape, such that the baseline situation will is largely changed for the better
Substantial beneficial	A fundamental enhancement of the existing landscape, such that the baseline situation will is fundamentally changed for the better

footpaths and public open spaces) from which the proposal could be expected to be seen were identified and, of these, a set of viewpoints was selected for inclusion in the assessment. The selected viewpoints aimed to be representative of the visual experience of different types of viewer, including local residents, people using the area for recreation and those passing through at speed by car, as well as views from various distances and directions. The selection also included any specific promoted or well-known viewpoints and any viewpoints that might be relevant to illustrate a particular effect or specific issue.

A.16 Photographs were taken at each of the agreed viewpoints to record the view. The methodology for undertaking viewpoint photography is in accordance with guidance from Scottish Natural Heritage (SNH, 2017) and the Landscape Institute (Landscape Institute (LI), 2011). The focal lengths used are in accordance with recommendations contained in guidance, and are stated on the figures.

As noted in the LVIA Methodology (Annex A2), the site visit and photography used to inform the assessment were undertaken in November 2016 (Autumn) and then updated in June, July and September 2022 (Summer) during full leaf cover. It should be noted that visibility of the Site would be greater in the Winter (where deciduous trees have little leaf cover) than illustrated in some of the photography presented in the LVIA. GLVIA3[5] (Para 6.28) sets out that assessments for the winter season should be provided alongside fuller screening in summer conditions. See below extract from the GLVIA3 on this point:

Consideration should be given to the seasonal differences in effects arising from the varying degree of screening and/or filtering of views by vegetation that will apply in summer and winter. Assessments may need to be provided for both the winter season, with least leaf cover and therefore minimum screening, and for fuller screening in summer conditions. Discussion with the competent authority will help to determine whether the emphasis should be on the maximum visibility scenario of the winter condition of vegetation, or whether both summer and winter conditions should be used.

[5] Guidelines for Landscape and Visual Impact Assessment, 3rd edition Landscape Institute and Institute of Environmental Management & Assessment, 2013

The timing of the assessment work and the project programme will also influence the practicality of covering more than one season.

In this particular project program pressures have required photographic survey work to be undertaken during the Summer of 2020 and thus photography for the Winter season was not possible. However, in order to acknowledge this judgements have been determined on the basis that this constraint has been considered.

The photography describes the existing baseline views and provides a robust basis to assess the predicted visual effects of the development from each of the viewpoints. The iterative process of using the baseline photographs to test the effectiveness of development layouts and planting schemes in mitigating visual effects, has been a valuable part of the design process.

A.17 **Step 2: Attribute measure of sensitivity to viewpoints**

Values of sensitivity for each viewpoint were assessed as HIGH / HIGH-MODERATE / MODERATE / MODERATE-LOW or LOW. This was judged from a combination of two factors, Susceptibility of the viewer and Value of the view.

Susceptibility was attributed a value of HIGH / MODERATE /LOW. It is a function of the occupation or activity of people experiencing the view at each location, and the extent to which their attention or interest is focused on the view (GLVIA3, para. 6.32). For example, viewers are more susceptible to change when it would be experienced from the living rooms of their home; if they were engaged in a form of recreation which depended (for enjoyment) on the scenic or tranquil qualities of the landscape; and/or if they were visitors to heritage assets. Views which contribute to a high quality and distinctive landscape setting that is enjoyed by local residents may have higher susceptibility than views which do not affect the quality of life of local communities. Less susceptible, would be views experienced by those passing through a landscape in a vehicle, where their activity does not focus on enjoyment of the landscape; views from sports facilities where the quality of the recreational experience does not depend upon appreciation of the landscape.

Value was attributed a value of HIGH / MODERATE /LOW. Value attached to views takes account of any landscape designations or policies within part or all of the view and any other indicators of value such as provision for tourists/visitors who might value the views, or any other known cultural associations.

A.18 **Step 3: Predict effects on viewpoints**

Each of the visual effects was evaluated in terms of its Magnitude. This was judged on a five point scale based on a combination of the following judgments:

- **Size or scale of visual change** in the landscape that is likely to be experienced. This takes account of: the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the proposed development; the degree of contrast or integration of any new features or changes in the landscape with the existing/remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and texture; and the nature of the view of the proposed development in terms of the relative amount of time over which it will be experienced and whether views will be partial or glimpsed. The size or scale of the visual change is described as being **negligible, minor, moderate or major.**
- The **geographic extent** of a visual change records the extent of the area over which the changes will be visible e.g. whether this is a unique viewpoint from where the proposed development can be glimpsed, or whether it represents a larger area from which similar views are gained. Geographical extent is described as being **major** (the visual change is influential across an extensive area), **moderate** (the visual change affects only the immediate surroundings) or **minor** (the visual change affects only a limited area).
- The **duration** of the predicted visual effects is described as being short term (typically during construction), medium term (typically during the early part of the operational phase of a development eg. 0-5 years) and long term.
- The **reversibility** of the predicted visual effect is reported as reversible, partially reversible or irreversible (i.e. permanent), and is related to whether the visual change can be reversed at the end of the phase of development under consideration.

A.19 Judgements on the magnitude of visual effect are recorded as NEGLIGIBLE / MINOR / MODERATE / MAJOR / SEVERE. In addition, the nature of the visual change was judged to be ADVERSE, NEUTRAL or BENEFICIAL in its effect. The nature of visual effects (beneficial, adverse or neutral) is determined in relation to the degree to which the proposal fits with the existing view and the contribution to the view that a proposed development makes, even if it is in contrast to the existing character of the view. A value of magnitude and nature of effect was attributed during construction, at

Table A1.3 - Criteria for judging the magnitude and nature of visual effects

Category	Criteria
Severe adverse	A complete change or obstruction to a view that appears as a prominent feature, directly visible in the fore/middle ground, such that post development the baseline situation will be fundamentally changed
Major adverse	An extensive change or obstruction to a view that appears as a prominent feature, directly visible in the fore/middle ground, such that post development the baseline situation will be largely changed
Moderate adverse	A moderate change or partial view of a new element within the view that is noticeable, directly or obliquely visible; includes partially screened and intermittent views, such that post development the baseline situation will be noticeably changed
Minor adverse	A low level of change, affecting a small part of the view that may be obliquely viewed or partially screened and/or appears in the background; includes moving views at speed. This type of change is such that post development the baseline situation will be largely unchanged despite discernible differences
Negligible neutral	A small or intermittent change to the view that may be obliquely viewed or mostly screened and/or appearing in the distant background or viewed at speed over short periods. This type of change is capable of being missed by the casual observer and the baseline situation will be fundamentally unchanged with barely perceptible differences
Minor beneficial	A minor improvement to the view, or part of the view, as a result of the proposed development
Moderate beneficial	A moderate enhancement of the view or addition of new positive elements within the view, such that post development that baseline situation will be noticeably changed
Major beneficial	An extensive improvement or enhancement to the existing views, such that the baseline situation is largely changed for the better
Substantial beneficial	A major improvement or enhancement to the existing views, such that the baseline situation is totally changed for the better

completion of the development and also after 15 years to evaluate the consequences of maturing boundary vegetation. The criteria scale in Table A1.3 indicates how this combined judgement was applied.

A.21 **Step 4: Assess significance level**

In the final stage a significance value was attributed to the impact on each viewpoint to understand which viewpoints would experience the most significant impacts and so where mitigation would be most effective. This was accomplished by careful consideration of the sensitivity of the visual receptor in relation to the magnitude and nature of the predicted effect. The assessment in based on professional judgement to take on board the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations in every instance. Table A1.4 (page 9) provides an overview of the way measures for the sensitivity of the receptor and the magnitude of effect are combined.

Landscape and visual assessment – Attribute Significance

A.22 For both landscape and visual effects the significance values were derived from the matrix of factors shown in Table A1.4. For the purposes of this LVIA, a significant impact value that is higher than medium adverse is considered significant and significant impacts for the construction phase are given less weight than those for completion and after 15 years, as the former is a temporary effect.

A.23 LVIA must consider whether significance values in red and orange are deemed 'significant' and strenuous effort should be made by designers to reduce the significance level. Values in green, blue and brown are not deemed significant and represent an acceptable level of landscape or visual impact. Values in yellow are dependent on context and significance should be fully discussed in the assessment. Effort to mitigate effects should be fully explored to reduce impact to a more acceptable level.

Table A1.4 - Significance values for landscape and visual effects

Magnitude of effect / Nature of effect	***Sensitivity of receptor***				
	HIGH	**HIGH MODERATE**	**MODERATE**	**MODERATE LOW**	**LOW**
Severe Adverse	Very high	Very high	High	High	Medium-high
Major Adverse	High	High	Medium-high	Medium	Medium-low
Major-moderate Adverse	High	Medium-high	Medium	Medium-low	Low
Moderate Adverse	Medium-high	Medium	Medium-low	Low	Low
Moderate-minor Adverse	Medium	Medium-low	Low	Low	Low
Minor Adverse	Medium-low	Low	Low	Low	Neutral
Minor-negligible Adverse	Low	Low	Low	Neutral	Neutral
Negligible - neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Minor Beneficial	Beneficial	Beneficial	Beneficial	Beneficial	Beneficial
Moderate Beneficial	Beneficial	Beneficial	Beneficial	Beneficial	Beneficial
Major Beneficial	Beneficial	Beneficial	Beneficial	Beneficial	Beneficial