

# Land at Teversham Road, Fulbourn: Appendix 1 - Landscape and Visual Impact Methodology

Prepared on behalf of Castlefield International Ltd

January 2017

## **APPENDIX 1: METHODOLOGY FOR LANDSCAPE AND VISUAL IMPACT ASSESSMENT**

- 1.1 The methodology employed in carrying out the landscape and visual impact assessment of the Site and Proposed Development at Teversham Road, Fulbourn has been drawn from best practice guidelines and the Landscape Institute and the Institute of Environmental Management & Assessment's "Guidelines for Landscape and Visual Impact Assessment" Third Edition (Routledge, 2013). The aim of these guidelines is to set high standards for the scope and contents of landscape and visual assessments and to establish certain principles that will help to achieve consistency, credibility and effectiveness in landscape and visual impact assessment. Guidance is contained in this publication on some approaches and techniques, which have been found to be effective and useful in practice by landscape professionals. However, the guidelines are not intended as a prescriptive set of rules, and have been adapted to the specific project.
- 1.2 Landscape and visual impact assessments may be different from other specialist studies because they are generally undertaken by professionals who are also 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 rather than as a discrete study carried out once the proposals have been finalised. Landscape and visual impact assessment, in common with any assessment of environmental effects, includes a combination of objective and subjective judgements, and it is therefore important that a structured and consistent approach is used to ensure that it is as objective as possible. Judgement should always be based on training and experience, and be supported by clear evidence and reasoned argument. Accordingly, it is recommended that suitably qualified and experienced landscape professionals carry out landscape and visual impact assessments.
- 1.3 This methodology describes the process used in assessing the Site's contribution to the existing landscape, and the effects of the Proposed Development on the landscape character and visual amenity of receptors in the vicinity of the Site.
- 1.4 Landscape and visual assessments are separate, albeit intrinsically linked, procedures. The landscape baseline, its analysis, and the assessment of landscape effects contribute to the baseline for visual assessment studies. The assessment of the potential effect on the landscape is carried out as an effect on an environmental resource in its own right, i.e. the features and elements which contribute to landscape

character. Visual effects are assessed as one of the interrelated effects on people observing the changes in the landscape.

1.5 Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character and how this is experienced. This may in turn affect the perceived value ascribed to the landscape character.

1.6 Visual effects relate to the changes that arise in the composition of the available views as a result of changes to the landscape fabric, to people's responses and perceptions to these changes, and to the overall effects with respect to visual amenity.

### **Baseline Studies**

1.7 The initial step in any LVIA is to review the existing landscape and visual resource in the vicinity of the Proposed Development – that is the baseline landscape and visual conditions and their corresponding character. The data collated forms the basis from which the visual effects of the Proposed Development may be identified and assessed. The purpose of baseline studies is to record and analyse the existing landscape features, characteristics, the way the landscape is experienced, and the value or importance of the landscape and visual resource in the vicinity of the Site.

1.8 When commencing a LVIA it is essential to visit the Site in order to review and supplement existing mapping and written data. These studies may initially extend well beyond the Site to understand the wider landscape setting and context.

### **Desktop Study**

1.9 The desktop study explores patterns and scale of landform, land use and built development, which give guidance on the general landscape character of the surrounding area. Any special values that may apply, such as designations, and specific potential receptors of landscape and visual impact. Important components of the landscape, as well as residents, visitors, travellers through the area and strategic views should also be noted.

1.10 The desktop study provides a sound basis for subsequent field survey work including the identification of landscape character areas around the Site, the likely visual envelope of both the Site and the Proposed Development, and the principal representative viewpoints.

- 1.11 Landscape character assessment is the basic tool for understanding the landscape and is generally the starting point for baseline studies. Baseline reports provide a concise description of the existing character of the Site and its surrounding landscape, including the physical and human influences that have helped to shape the landscape over a period of time and any current trends for change.
- 1.12 The existing landscape should be classified into a set of homogenous character areas or types, i.e. areas which share common features and/or characteristics. A judgement should be made on the value or importance of each landscape area identified, with the views of consultees sought, including the public, over what is important in an area and why.
- 1.13 The assessment of landscape value includes reference to policy or designation as an indicator of recognised importance. This should include an examination of the original justifications for designations and an analysis of any changes in the vicinity of the Site which may have affected the original designation. The particular characteristics of a protected area are unlikely to be spread evenly throughout, with local variations identified where pertinent.
- 1.14 The LVIA encompasses groups of properties, roads, PRow and public open space that lie within the visual envelope or zone of visual influence of the Site. The term 'properties' includes dwellings, public buildings, community facilities, places of worship and places of employment. The extent of visibility of the Site is based on a grading of degrees of visibility from a visual inspection of the Site and the surrounding area. There is, in any visual assessment, a continuum of degree of visibility ranging from no view of the Site to full open views.
- 1.15 To indicate the degree of visibility of the Site from any location, three categories are utilised:
- Truncated View: truncated / curtailed / no view of the Site or the Site is difficult to perceive;
  - Partial View: a view of part of the Site, or a filtered view of the Site or a distant view where the Site is perceived as a small part of a wider view; and
  - Open View: a clear view of the majority of the Site within the view.

### **Field Survey**

- 1.16 Information collated during the desktop study should be verified in the field, with the field survey identifying and recording specific sensitive receptors. The term receptor is used in LVIA to mean an element or assemblage of elements that would be directly or indirectly affected by the Proposed Development. Landscape receptors refer to the built form, pattern of landscape features, detailing, scale, planting and areas of open space, whilst visual receptors relate to particular groups of people.
- 1.17 The approximate visibility of the Site is determined through topographical analysis during the desktop study, with the actual extent of visibility checked in the field to identify and take account of the localised screening effects of buildings, walls, fences and planting. Photographs are taken from the identified viewpoint locations to illustrate the typical view attained by visual receptors at these locations.
- 1.18 The final stage in the field survey identifies and addresses specific sensitive receptors including landscape elements and features that may be directly affected by the Proposed Development, as well as residents, visitors and other groups of viewers. The findings are typically illustrated in a Site Context Plan, a Topographical Features Plan, a Landscape Character Plan and a Site Appraisal Plan. In the case of visual receptors, the types of viewer affected, an estimate of their numbers and whether there are few or many, duration of views, and potential seasonal screening and night-time effects are noted.
- 1.19 During the field survey the extent to which the Site is visible from the surrounding area is confirmed. The views into / towards the Site are identified, as are specific elements such as landform, buildings or vegetation which interrupt, filter or otherwise influence views. The findings are illustrated on a Visual Appraisal Plan. The locations of principal viewpoints are mapped and the existing views attained are illustrated by annotated Site Context Photographs. Photographs are taken at eye level with a landscape orientation, with an overlap allowing panoramic photographs to be produced by splicing together individual photographs digitally. The photographs are taken in accordance with the Landscape Institute Advice Note 01/11 'Photography and Photomontage in Landscape and Visual Impact Assessment', 2011.
- 1.20 Principal viewpoints within the area surrounding the Site are identified, depicting the relative visibility of the Site (and existing features) and its relationship with the surrounding landscape. The selection of viewpoints is based on the following criteria:
- 1.21 The requirement to provide an even spread of representative viewpoints within the visual envelope, and around all sides of the Site;

- 1.22 The requirement to provide representative viewpoints that consider a human's normal field of vision (i.e. panoramic views and/or channelled views);
- 1.23 From locations which represent a range of near, middle and long-distance views;
- 1.24 Whilst private views are relevant, public viewpoints i.e. from roads and PRoW and other areas of open public space, are selected as they tend to have a higher incidence of visual receptors; and
- 1.25 Views from sensitive receptors such as those at protected viewpoints or within designated areas (i.e. conservation areas or AONBs).

### **Landscape and Visual Effects**

- 1.26 This methodology describes the process used in assessing the effect of the Proposed Development on the landscape features and visual amenity receptors surrounding the Site and on the Site's contribution to the existing landscape character and its resource.
- 1.27 Landscape and visual assessments are separate, although linked, procedures. The existing landscape and its existing visual context all contribute to the existing 'baseline' for landscape and visual assessment studies. The assessment of the potential effect on the landscape capital is carried out as an effect on an environmental resource, ie. the landscape features or character. Visual effects are assessed as one of the interrelated effects on population.
- 1.28 Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character and how this is experienced. This may in turn affect the perceived value ascribed to the landscape.
- 1.29 Visual effects relate to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity.
- 1.30 The assessment of effects aims to:-
  - Identify systematically the likely effects of the development;
  - Indicate the measures proposed to avoid, reduce, remedy or compensate for those effects, primarily as part of the iterative design process and then as more specific mitigation measures;

- Provide an assessment and professional judgement on the magnitude of the effects and the nature and significance of these effects in a logical and objective well-reasoned fashion.
- 1.31 Effects may be positive (beneficial), neutral (no discernible change), or negative (adverse), direct or indirect, and can be secondary or cumulative, permanent or temporary (short, medium or long term). They can also arise at different scales (local, regional or national) and have different levels of significance. These aspects are examined in more detail in later sections of the methodology.
- 1.32 Based on the material set out above, a **Landscape Opportunities and Constraints Plan** for the Site is used to liaise with architects and guide the parameters for potential development of the Site.
- 1.33 As part of an iterative design process a **Landscape Strategy Plan** is prepared, detailing landscape measures required to assist in the absorption of the Proposed Development within the Site and its assimilation within the wider landscape. This plan is used to inform the detailed design elements expressed within the Design and Access Statement.

### **Landscape Effects**

- 1.34 Landscape effects include the direct and indirect effects of the Proposed Development on individual landscape elements and features, as well as the effect upon the general landscape character and quality of the surrounding area.
- 1.35 Effects on landscape character and quality are complex to predict and professional judgement is imperative to provide a fully reasoned objective judgement. A clear picture of likely effects is presented by referring back to the baseline landscape character assessment and describing how the Proposed Development may alter existing patterns of landscape elements and features. Should there be a high incidence of committed but not yet established development in the area it may be necessary to consider the Proposed Development against a Future Baseline landscape character.
- 1.36 The sensitivity of the landscape is reflected in the degree to which the landscape is able to accommodate a particular type of change without adverse effects on its character. This may be influenced by the extent of changes in the physical fabric of the area, condition of the landscape and the value attributed to it. These factors

influence the extent of an effect on the perceived character of the surrounding landscape.

- 1.37 Determining the sensitivity of landscape character areas is aided through an understanding of published character assessments. Using published information as a guide, an analysis of the sensitivity of the landscape character within and adjacent to the Site is undertaken to enable an assessment of effects of the Proposed Development on landscape character.
- 1.38 Each landscape character area to be assessed is assigned a degree of sensitivity based on the character, quality and value of the landscape and its ability accommodate the type of change proposed. The landscape sensitivity classifications are set out in Box 1.

**Box 1: Landscape Sensitivity Criteria**

Sensitivity	Criteria
High	A landscape of international or national importance covered by a designation e.g. National Park or AONB status. The landscape features and character are the basis for designation and are largely intact and in a good condition. The character, land use, pattern and scale are such that the landscape has limited capacity to accommodate the type of change proposed without unacceptable alteration. The provision of appropriate mitigation may be difficult to prevent adverse effects.
Medium	A landscape which is locally valued but is not afforded a statutory designation. The landscape may be in reasonably good condition. The character, land use, pattern and scale are such that the landscape may have some capacity to accommodate the type of change proposed without unacceptable alteration provided that appropriate mitigation is incorporated into the design.
Low	A landscape which is not valued in a special way by the public and features a number of detracting elements. The landscape may contain industrialised areas and may be in a poor condition. The character, land use, pattern and scale are such that the landscape has the capacity to accommodate the type of change proposed without unacceptable alteration.

- 1.39 The magnitude of landscape effects are to be described clearly and objectively, with the extent and duration of any adverse/beneficial effects quantified, determined through a combination of the scale of the Proposed Development, the type of Proposed Development and the level of integration of new features with existing elements. The landscape magnitude of change classifications are set out in Box 2.

**Box 2: Landscape Magnitude of change Criteria**

Sensitivity	Criteria
Large	A clearly evident, frequently perceived and continuous change to landscape components which may affect an extensive area. The change may be long-term and may be irreversible.
Medium	A noticeable change to landscape components, frequently perceived or continuous and over a wide area; or a clearly evident change in a restricted area that is infrequently perceived. The change may be medium to long-term and irreversible.
Small	A subtle change to landscape components over a wide area or a more noticeable change in a restricted area or change to components which are infrequently perceived. The change may be short-term.
Very Small	An imperceptible, barely or rarely perceptible change to any landscape component. The change may be short-term.
Neutral	No change discernible to any component.

## Visual Effects

1.41 The assessment of visual effects describes:

- Changes in the composition of the available views as a result of the Proposed Development; and
- Changes in the visual amenity of visual receptors.

1.42 The visual effects of a Proposed Development on a view depends upon a number of factors, including:

- The nature of the Proposed Development;
- The siting of the Proposed Development in the landscape;
- The scale of the Proposed Development;
- The detailed design of the Proposed Development;
- The position and distance from which the Proposed Development is viewed; and
- The nature of the visual receptor.

1.43 A visual assessment study involves systematically identifying the visual receptors that are likely to be affected by the Proposed Development within the visual envelope. This method seeks to assess the impact of the Proposed Development in terms of the degree of change in the view experienced by the observer. The results are presented in a systematic form which allows an informed judgement to be made as to the impact of the Proposed Development. In the assessment of views there is likely to be a continuum in the degree of visibility of the Proposed Development from no view to open view. In order to assist in the description and comparison of the effect on views, simplified categories are used which consider:

- The extent of the view that would be occupied by the Proposed Development (degree of visual intrusion i.e. full, partial, glimpse, none);
- The proportion of the Proposed Development or particular features that would be visible (full, most, partial, limited, none);
- The distance of the observer from the Proposed Development and whether viewers at that location would focus on the Proposed Development due to

proximity, or the Proposed Development would form one element in a panoramic view; and

- Whether the view is transient or one of a sequence of views, as from a moving vehicle or PRow.

1.44 The sensitivity of visual receptors is dependent upon:

- The location and context of the viewpoint;
- The expectation and occupation or activity of the receptor; and
- The importance of the view (may be determined with respect to its popularity or numbers of people affected, its appearance in guide books or tourist maps, or reference to it in literature or art).

1.45 The most sensitive receptors generally include:

- Users of outdoor recreation facilities, including PRow and open space, whose attention or interest may be focussed on the landscape;
- Visitors and tourists to protected viewpoint locations;
- Communities where the Proposed Development results in changes in the landscape setting or value of views enjoyed by the community at large; and
- Occupiers of residential properties with views affected by the Proposed Development.

1.46 Other receptors include people engaged in outdoor sport and recreation, people travelling through or past the affected landscape in vehicles, and those at their place of work. The least sensitive receptors are likely to be people at their place of work, of those engaged in similar activities whose attention will be focussed on their respective activity. Box 3 sets out the visual receptor sensitivity classifications.

1.47 Visibility of an object will begin to fall away rapidly with increasing distance. Visibility will reduce substantially beyond 1.5 km (1 mile), and beyond 5 km (3 miles). Binoculars or some other aid to visibility would probably be necessary in order to perceive any detail of the Proposed Development at these distances.

**Box 3: Visual Receptor Sensitivity Criteria**

	Criteria
High	Activity resulting in considerable interest or appreciation of the view (e.g. residents or people engaged in outdoor recreation whose attention is largely focused on the landscape) and/or a high amenity view (e.g. within a National Park or AONB).
Medium	Activity resulting in some interest or appreciation of the view (e.g. people engaged in outdoor recreation that does not largely focus on an appreciation of the landscape i.e. cyclists) and/or a medium amenity view (e.g. suburban residential areas).
Low	Activity resulting in little interest or appreciation of the view (e.g. people at work or motorists travelling through an area on fast roads) and/or a low amenity view (e.g. industrial areas or derelict land).

1.49 In the evaluation of the effects on views and the visual amenity of the identified receptors, the magnitude of visual effect is 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;
- The degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements;
- The duration and nature of the effect, whether temporary or permanent, intermittent or continuous;
- The angle of view in relation to the main activity of the receptor;
- The distance of the viewpoint from the Proposed Development; and
- The extent of the area over which the changes would be visible.

1.50 Changes in visual amenity may arise from both built or engineered forms, and soft landscape elements of the development. Consideration is given to the impacts on completion of development and at Year 15, so that the residual effects of the development after mitigation are identified.

1.51 The contribution that areas of planting introduce as part of the Proposed Development are considered, and the height of this planting for assessment purposes is assumed to be as follows (based on assumed growth rate of 1m in 3 years):-

Planting at Year 1 : Up to 3 metres

Planting at Year 25 : Up to 8-11 metres

Planting at maturity : Up to 20 metres

1.52 Consideration should also be given to the seasonal differences in effects arising from the degree of vegetative screening and/or filtering of views that would apply in summer and winter. Thus assessment may be provided for "average" and "worst-case" situations (the latter being the season with least leaf cover and therefore minimal vegetative screening).

1.53 The magnitude of visual effects result from a combination of the degree of change to the view resulting from the Proposed Development with consideration of the extent of the area over which the changes would be visible, the period of exposure to the view and its reversibility. The magnitude of visual effect classifications are set out in Box 4.

**Box 4: Visual Magnitude of change Criteria**

	Criteria
Large	A clearly evident change in the view, likely to be at a close distance, which affects a substantial part of the view. The change may be continuously visible for a long duration or may obstruct important elements of the view. Likely to be an open view. The change may be medium to long-term and may be irreversible.
Medium	A noticeable change in the view, likely to be at an intermediate distance. The change may result in the introduction of a distinct new element in a prominent part of the view, or a more wide-ranging less concentrated change across an expansive area. Likely to be a partial view. The change may be medium to long-term and may be irreversible.
Small	A subtle change in the view, likely to be at a long distance, or perhaps a change which is visible at an oblique angle from a short distance which blends in to an extent with the existing view. Likely to be an interrupted or glimpsed view. The change may be short-term.
Very Small	A change which is barely or rarely perceptible and likely to be at a long distance. The change may be visible for a short duration, at an oblique angle, or perhaps blend in with the existing view. Likely to be an interrupted or glimpsed view. The change may be short-term.

	Criteria
Neutral	No change discernible in the view.

### Significance of Effects

1.54 Significance is not absolute and can only be identified in relation to each individual development and its unique location. It is important that any assessment of significance adopts an informed and well-reasoned judgement, supported through a clear justification as to how the conclusions about significance for each effect have been derived. It should be emphasised that whilst this methodology is designed to be robust and transparent, professional judgement is ultimately applied to determine the level of significance applied to each effect.

1.55 The two principal criteria determining the significance of effects are the scale or magnitude of change, and the environmental sensitivity of the location or receptor. With regard to visual receptors, a high significance of effect would be from high sensitivity receptors such as residential properties and public rights of way where they would receive a major change in the view. A low significance of effect would be from the least sensitive receptors, such as transport corridors, as viewers would be affected for a smaller period of time as they would experience transient views. Where no change is identified the significance is assessed as neutral.

1.56 Example visual assessment categories are listed below:

**Major Adverse:** Typically proposed changes would cause a pronounced deterioration in the existing view.

**Moderate Adverse:** Typically proposed changes would cause a noticeable deterioration in the existing view.

**Minor Adverse:** Typically proposed changes would cause a minor deterioration in the existing view.

**Neutral:** Typically proposed changes would cause no discernible deterioration or improvement in the existing view.

**Minor Beneficial:** Typically proposed changes would cause a minor or barely discernible improvement in the existing view.

**Moderate Beneficial:** Typically proposed changes would cause a noticeable improvement in the existing view.

**Major Beneficial:** Typically proposed changes would cause a pronounced improvement in the existing view.

### Significance Thresholds

These thresholds will be determined by combining sensitivity and magnitude, with reference to any general terminology accepted for the whole Environmental Statement. Numerical scoring is not recommended in the "Guidelines for Landscape and Visual Impact Assessment". Effects which are graded as being major or moderate considered significant in landscape and/or visual terms. Effects which are graded as minor or below still constitute effects which warrant being brought to the attention of the decision-maker, although they are not considered significant in landscape and/or visual terms.

#### Box 5: Significant Effects Matrix

		Magnitude				
		Neutral	Very Small	Small	Medium	Large
Sensitivity	Low	Neutral	Negligible	Negligible	Negligible / Minor	Minor / Moderate
	Medium	Neutral	Negligible	Negligible / Minor	Minor / Moderate	Moderate / Major
	High	Neutral	Negligible / Minor	Minor / Moderate	Moderate / Major	Major

- 1.58 The significance matrix provided in Box 5 is presented as a guide only. Each case is assessed on its own merits using professional judgement and experience. There is no clear defined boundary between differing levels of significance.

### Mitigation

- 1.59 The purpose of mitigation is to avoid, reduce and where possible remedy or offset, any significant, negative (adverse) effects on the environment arising from the Proposed Development. Mitigation is thus not solely concerned with "damage limitation", but may also consider measures that could compensate for unavoidable residual effects. Mitigation measures may be considered under two categories:-

- Primary measures that intrinsically comprise part of the development design through an iterative process;
- Secondary measures designed to specifically address the remaining (residual) negative (adverse) effects of the final Proposed Development.

1.60 Strategies to address likely negative (adverse) effects include:

- Avoid or reduce impact by changing form of development;
- Remediation of impact, for example by planting to 'soften', absorb and assimilate development into the landscape;
- Compensation of impact, for example by replacing felled trees with new trees, and
- Enhancement, for example the creation of new landscape or habitat.

1.61 Guidelines for Mitigation:

- All negative (adverse) landscape and visual effects that are likely to occur throughout the project life cycle should be considered for mitigation, although the statutory requirement is limited to significant effects;
- Consultation with local community and special interest groups on the proposed mitigation measures is important;
- Landscape mitigation measures should be designed to suit the existing landscape character and needs of the locality, respecting and building on local landscape distinctiveness and helping to address any relevant existing issues in the landscape.
- It must be recognised that many mitigation measures, especially planting, are not immediately effective. Where planting is intended to provide 'softening' and assist in 'visually absorbing' the development, it may also be appropriate to assess residual effects for different periods of time, such as day of opening, and Year 25 when maturing.
- The developer should demonstrate a commitment to the implementation of mitigation measures to agreed programme and budget.

- The proposed mitigation measures should address specific issues and performance standards should be identified for the establishment, management, maintenance and monitoring of new landscape features.
- A programme of appropriate monitoring may be agreed with the regulatory authority, so that compliance and effectiveness can be readily monitored and evaluated.

1.62 Common Mitigation Measures include:

- Sensitive location and siting;
- Site layout;
- Choice of Site level;
- Appropriate form, materials and design of buildings. It is not always practical or desirable to screen buildings. In these cases the scale, design, colour and texture of building should be carefully considered;
- Lighting;
- Ground Modelling: for immediate screening effect but may in itself be an adverse impact unless carefully matched to existing landform;
- Planting: Structural planting can help to integrate and soften development as well as being of potential value as a wildlife habitat; and
- Use of recessive colouration.

**Residual Effects**

1.63 The identification of potential landscape and visual effects is an important part of the iterative design process because it can help avoid or minimise potential adverse effects of the development and, where appropriate, will also help to identify opportunities for landscape and visual enhancement. This includes recommendations for mitigation measures and design considerations to offset or reduce identified adverse effects. Where appropriate, the effects are reassessed on the basis of the Proposed Development being implemented with mitigation in place, 15 years after completion.