Appendix 9

A. Appendix 9.1: Methodology

A.1 Introduction

A.1.1 *"Landscape and Visual Impact Assessment 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 people's views and visual amenity."* (GLVIA3, paragraph 1.1). Wherever possible, identified effects are quantified, but the nature of landscape and visual assessment requires interpretation by professional judgement. In order to provide a level of consistency to the assessment, the prediction of magnitude and assessment of significance of the residual landscape and visual effects have been based on pre-defined criteria.

A.1.2 The Guidelines for Landscape and Visual Assessment (Third Edition) (GLVIA3) states that "*professional judgement is a very important part of the LVIA*" (paragraph 2.23) and that "*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.*" (paragraph 2.24). It goes on at paragraph 3.32 to state that "*there are no hard and fast rules about what effects should be deemed 'significant' but LVIAs should always distinguish clearly between what are considered to be the significant and non-significant effects.*"

A.1.3 Landscape and Visual Assessments are separate, though linked processes which GLVIA3 notes are "*related but very different considerations*". The assessment of the potential effect on the landscape is carried out as an effect on the environmental resource (i.e. the landscape). Visual effects are assessed as an inter-related effect on people.

A.1.4 Landscape effects derive from changes in the physical landscape elements which may give rise to changes in its distinctive character and how this is experienced, including consideration of aesthetic and perceptual aspects.

A.1.5 Visual effects relate to 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.

A.2 Establishing the Baseline

A.2.1 The **baseline** for consideration of landscape and visual effects is evaluated through desk study and site work and is the current situation at the time of the assessment, unless noted otherwise. Existing developments and those under construction are

considered as part of the baseline and included as part of the assessment of landscape and visual effects.

A.2.2 The **future baseline** is considered to be changes to the landscape which are considered certain or likely to happen – including consented proposals which are not yet present in the landscape but are expected to be constructed. These may or may not be included as part of the landscape and visual baseline depending on individual project circumstances and the approach and reasoning is set out within the assessment.

A.3 Landscape Effects

A.3.1 The starting point for any assessment is a desk based assessment of published landscape studies, which may include landscape character assessments, sensitivity and capacity studies and/or landscape designation reviews. These documents are listed in the assessment references and relevant extracts may be included as appendices where this is judged appropriate.

A.3.2 The landscape effects of the proposed development are considered against the key characteristics of the receiving landscape. The degree to which the proposed development changes '*distinct and recognisable pattern of elements, or characteristics, in the landscape that make one landscape different from another, rather than better or worse*' ('An Approach to Landscape Character Assessment', Natural England, 2014), enables a judgement to be made as to the significance of the effect in landscape character terms.

A.3.3 Direct and indirect landscape effects are defined in GLVIA3. Direct effects may be defined as resulting *"directly from the development itself"* (paragraph 3.22). An indirect (or secondary) effect is one that results *"from consequential change resulting from the development"* (paragraph 3.22) and is often produced away from the site of the proposed development or as a result of a complex pathway or secondary association. The direct or physical landscape effects of the proposed development would generally be limited to within the planning application boundary. The indirect landscape effects are concerned with the visual effects and relate to effects associated with the introduction of the development seen in the context of the existing landscape and visual character of the view.

A.3.4 In order to reach an understanding of the effects of development upon the landscape resource it is necessary to consider different aspects of the landscape baseline including:

- **Landscape Fabric/Elements**: The individual features of the landscape, such as hills, valleys, woods, hedges, tree cover, vegetation, buildings and roads for example which can usually be described and quantified.

- **Landscape key characteristics**: The particularly notable elements or combinations of elements which make a particular contribution to defining or describing the character of an area, which may include experiential characteristics such as wildness and tranquillity.

A.3.5 The **sensitivity** (high, medium, low) of the landscape to a particular development is considered on a case by case basis and considers the susceptibility of the landscape, which varies depending on the type of development proposed and the particular site location, and the landscape value (identified as national, regional, or community). As stated in GLVIA3, '*LVIA sensitivity is similar to the concept of landscape sensitivity used in the wider arena of landscape planning, but is not the same*'.

A.3.6 **Landscape value**: The importance attached to a landscape, often used as a basis for designation or recognition which expresses national or local authority consensus, because of its special qualities/attributes. The factors which are considered in landscape include aesthetic or perceptual aspects such as scenic beauty, tranquillity or wildness or cultural associations as well as recreational/community value, conservation interests, landscape character and condition and representativeness/rarity.

A.3.7 **Landscape susceptibility** according to GLVIA3 means "the ability of the landscape to accommodate the proposed Development without undue consequences for maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies". Judgements on landscape susceptibility (high, medium, low) include references to both the physical and aesthetic characteristics and the potential scope for mitigation.

A.3.8 Susceptibility of landscape character areas are influenced by their characteristics and are often considered (though often recorded as 'sensitivity' rather than susceptibility) within landscape character assessments and capacity studies.

A.3.9 Susceptibility of designated landscapes is influenced by the nature of the special qualities and purposes of designation and/or the valued elements, qualities or characteristics, indicating the degree to which these may be unduly affected by the development proposed.

A.3.10 Sensitivity is judged taking into account the component judgments about the value and susceptibility of the receptor as illustrated by the table below. Where sensitivity is judged to lie between levels, an intermediate assessment will be adopted.

		Susceptibility		
		High	Medium	Low
Value	National	High	High/Medium	Medium
	Regional	High/Medium	Medium	Medium/Low
	Community	Medium	Medium/Low	Low

A.3.11 The **magnitude of landscape change** arising from the proposed development at any particular location is assessed in terms of its size or scale, geographic extent of the area or receptor that is influenced and its duration and reversibility.

A.3.12 The **scale** of the change takes account of:

- degree of loss or alteration to key landscape features/elements; characteristics; and for designated areas – special qualities and/or purposes of designation;
- distance from the development;
- landscape context to the development;

A.3.13 The approach to assessing effects on landscape character is to consider the key characteristics for the Landscape Character Type (LCT) within which the proposed development is located (host) and the adjacent LCT's (non-host) and identify which of these the proposed development would affect. For the host LCTs, a large scale change in landscape character is likely to occur where key characteristics would be lost or substantially changed. Where particular views are a key characteristic of a landscape type, large or medium scale landscape character effects may occur where the proposed development becomes a key feature of those views. A similar approach applies to designated landscapes, for which the effects on the defined purposes of designation and special qualities are considered.

A.3.14 Having established the size/scale of change (large, medium, small, negligible) to the landscape baseline, the geographic **extent** of the change can be identified (wide, intermediate, localised or limited) and a judgement made as to the degree of change for each landscape receptor.

A.3.15 **Duration** and reversibility can be linked depending on the nature of the development. Reversibility is a judgement about the ability and practicality of the proposed development to be reversible (such as wind farms which are predominantly reversible), partially reversible to something similar (such as mineral extraction[1]) or a permanent change in the landscape (such as housing). Duration reflects how long the change will last. The duration of the change would be considered short term when lasting less than 2 years; medium term when lasting between 2 and 10 years; or long term when lasting between 10 and 25 years, and permanent for more than 25 years.

A.3.16 Magnitude is considered taking into account the three contributory factors as illustrated by the diagrams included at section A.5 below.

[1] GLVIA3 page 91, paragraph 5.52

A.4 Visual Effects

A.4.1 In order to identify the significance of a visual effect it is necessary to establish the relative sensitivity of the viewers and the magnitude of the change they experience. In this case sensitivity is a combination of both susceptibility of the viewer to the proposed development and the value of the views obtained.

A.4.2 Those living within view of the scheme are usually regarded as the highest susceptibility group as well as those engaged in outdoor pursuits for whom landscape experience is the primary objective. The susceptibility of potential visual receptors will also vary depending on the activity of the receptor. For visual receptors susceptibility and value are closely linked - the most valued views are also likely to be those where viewer's expectations will be highest.

A.4.3 The **value** of public views, which is the focus of GLVIA3, is identified as national, regional or community and will vary depending on the nature, location and context of the view and the recognised importance of the view. Considerations include cultural associations; designation or policy protection; views of or from landmarks; and/or the scenic quality of the view. The value attributed relates to the value of the view, e.g. a National Trail is nationally valued for access, but not always for the available views from every section.

A.4.4 Visual receptor **susceptibility** is defined as high, medium, or low in accordance with the criteria below.

- High - Local residents; users of outdoor recreation focussed on the appreciation of views including footpaths, beauty spots and picnic areas; people experiencing views to or from important features of physical, visual, cultural or historic interest.
- Medium - Local road users and travellers on trains. People engaged in outdoor recreation with some appreciation of the landscape e.g. road cycling, nature conservation, golf and water based recreation.
- Low - Workers, users of facilities and commercial buildings (indoors) experiencing views from buildings. Road and rail users on fast moving commuting or trunk routes. Visual receptors where views are incidental to the activity and/or location.

A.4.5 Sensitivity is judged taking into account the component judgments about the value and susceptibility of the receptor as illustrated by the table below. Where sensitivity is judged to lie between levels, an intermediate assessment will be adopted.

		Susceptibility		
		High	Medium	Low
Valu	National	High	High/Medium	Medium
	Regional	High/Medium	High/Medium	Medium/Low

Community	High/Medium	Medium	Low

A.4.6 The **magnitude of visual change** arising from the proposed development at any particular location is assessed in terms of its size or scale (large, medium, small, negligible), geographic extent of the area or receptor that is influenced (wide, localised, limited) and its duration (short, medium, long, permanent).

A.4.7 The representative viewpoints are used as 'samples' on which to base judgements of the scale of effects on visual receptors. The wider extent of the effect and its duration are not captured in the viewpoint analysis (as a viewpoint cannot capture these factors for an entire route or area). As duration and extent are necessary considerations in determining magnitude of change; magnitude and significance judgements are provided for visual receptors and not for all representative viewpoints. The exceptions to this are specific viewpoints – where people visiting that location to look at the view are assessed as a visual receptor group.

A.4.8 With the exception of specific viewpoints, each route and receptor group will encompass a range of possible views, which might vary from no view of the development to very clear, close views. Therefore effects are described in such a way as to identify where views towards the development are likely to arise and what the scale and duration and **extent** (wide, intermediate, Localised, Limited) of those views are likely to be. In some cases this will be further informed by a nearby viewpoint and in others it will be informed with reference to ZTV studies, aerial photography and site visits. Each of these individual effects are then considered together in order to reach a judgement of the effects on the visual receptors along that route, or in that place.

A.4.9 The **scale of effect** arising from the proposed development at any particular viewpoint reflects the degree to which the nature of the views from that location would be changed and is taking into account:

- The distance of the viewpoint from the development;
- the degree to which the development is visible or screened;
- the angle of view in relation to main receptor activity or main focus of the view;
- the horizontal and vertical field of view occupied by the development; and
- the extent and nature of other built development visible.

A.4.10 The approach to assessing effects on views is to consider the full 360 degree view from any given receptor – not just those towards the development and/or shown in visualisations. It is assumed that the change would be seen in clear visibility and the assessment is carried out on that basis. Where there are operational (and consented) developments considered as part of the baseline, the visual effects

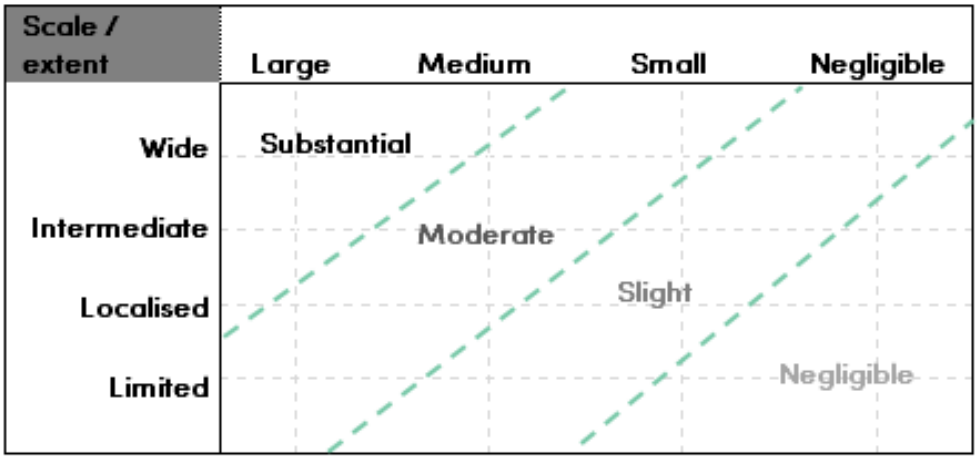
consider the effects of adding the proposed development to that baseline. Where appropriate, comment may be made on lighting and weather conditions.

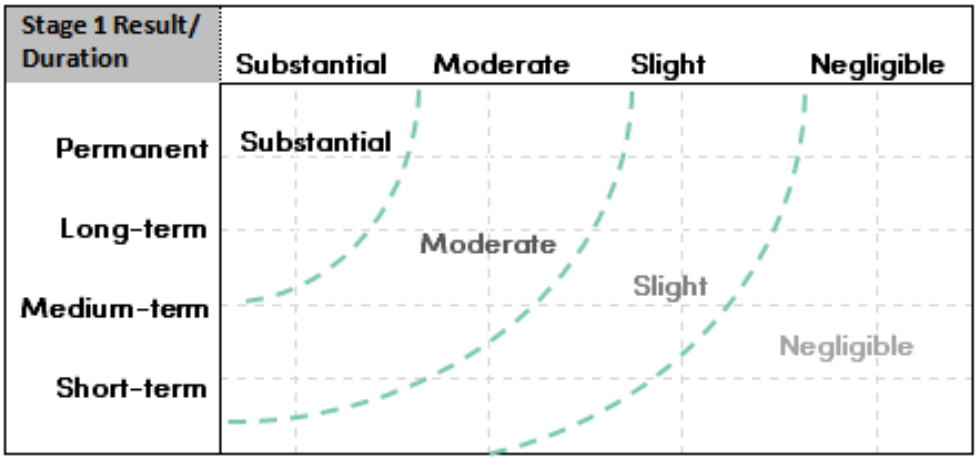
A.4.11 **Duration** reflects how long the change will last and are rated in the same way as described above for landscape effects. The effects as a result of the proposed development would be considered short term when lasting less than 2 years; medium term when lasting between 2 and 10 years; or long term when lasting between 10 and 25 years, and permanent for more than 25 years. For visual receptors moving through the landscape (e.g. road and rail users), the length of their journey during which they would see the development is reflected in the judgement of the geographic extent of effects.

A.4.12 Magnitude is considered taking into account the three contributory factors as illustrated by the diagrams included at section A.5 below.

A.5 Magnitude of Landscape and Visual Change

A.5.1 Scale of effect is the first factor in determining magnitude; which may be higher if the effect is particularly widespread and/or long lasting, or lower if it is constrained in geographic extent and/or timescale. The tables below illustrate how this judgement is considered as a two-step process. Firstly, scale and extent are considered, for which the outcomes are illustrated by the first part of the table; the second part of the table illustrates the influence of duration on this initial judgement. Where magnitude is judged to lie between levels, an intermediate assessment will be adopted.





A.6 Significance of Landscape and Visual Effects

A.6.1 The significance of any identified landscape or visual effect is assessed as major, moderate, minor or negligible. These categories are based on the consideration of sensitivity with the predicted magnitude of change. The table below is not used as a prescriptive tool and illustrates the typical outcomes, allowing for the exercise of professional judgement. In some instances a particular parameter may be considered as having a determining effect on the analysis.

	Magnitude of Change			
Receptor Sensitivity	Substantial	Moderate	Slight	Negligible
High	Major	Major/ Moderate	Moderate	Minor
Medium	Major/ Moderate	Moderate	Moderate/ Minor	Minor/ Negligible
Low	Moderate	Moderate/ Minor	Minor	Negligible

A.6.2 Where the effect has been classified as Major or Major/Moderate this is considered to be equivalent to likely significant effects referred to in the EIA Regulations. Where 'Moderate' effects are predicted, professional judgement will be applied to ensure that the potential for significant effects arising has been thoroughly considered.

A.7 Beneficial/Adverse

A.7.1 Landscape and visual effects can be beneficial or adverse and in some instances may be considered neutral. Neutral effects are those which overall are neither adverse nor positive but may incorporate a combination of both. Whether an effect is beneficial, neutral or adverse is identified based on professional judgement. GLVIA 3rd edition indicates at paragraph 2.15 that this is a "*particularly challenging*" aspect of assessment, especially in the context of a changing landscape.

A.8 Cumulative Effects

A.8.1 In a broad generic sense, cumulative impacts '*result from the incremental changes caused by other past, present or reasonably foreseeable actions together with the project.*'[2] However, an assessment of cumulative effects should focus on whether there are any potential cumulative impacts which are reasonably foreseeable and which are likely to influence the decision making of the proposed development, rather than an assessment of every potential cumulative effect[3], which in practice means focussing on other nearby development proposals and the effects that might arise from the combined influence of those developments on landscape and visual receptors.

A.8.2 As recommended by the SNH cumulative guidance, this assessment focusses on the 'additional cumulative change which would be brought about by the proposed development' (paragraph 70).

A.8.3 As noted above, operational developments are included in the baseline, Consented development which are expected to be constructed, form part of the future baseline and will be included as such. However, where there is some uncertainty regarding the future construction of consented developments, they may be considered as the first scenario of the cumulative assessment.

A.8.4 Proposals in planning considered where there is good reason to assume that the timing of decisions may be similar and significant cumulative effects are likely. The assessment of effects is considered within the cumulative assessment.

A.8.5 Proposals in scoping are noted but not considered within the cumulative assessment, as there is no certainty that these proposals will progress to planning submissions and the nature of the proposed schemes may be subject to change.

A.8.6 The assessment is based on the same landscape and visual baseline and receptor groups as the main LVIA, and the methodology is also the same in terms of forming and expressing judgements.

A.8.7 Cumulative effects on landscape receptors arise from combined direct and/or indirect effects on the same receptor – such as two developments within the same character area; or one development within, and one visible from, a designated area.

[2] GLVIA3 page 120, paragraph 7.1 quoting Hyder, 1999 ' *Guidelines for the assessment of indirect and cumulative impacts as well as impact interactions*'

[3] GLVIA3 page 121 paragraph 7.5.

A.8.8 Cumulative effects on visual receptors arise either from two (or more) developments both being visible from the same place; or from sequential views as people travel.

A.8.9 In order to simplify what may otherwise be a complex assessment, the following approaches are also used:

- The cumulative assessment considers scenarios within which developments may be 'grouped' – for instance two nearby cumulative proposals may be considered in one scenario if it is considered that the cumulative effects arising if one or both are developed are likely to be similar.
- Receptors judged to receive Negligible or Slight-Negligible magnitude effects are not considered for cumulative effects on the basis that any significant effects arising would primarily be caused by the cumulative developments and would be unlikely to be contributed to by the proposed development.
- Only those receptors judged likely to experience effects from the cumulative development(s) being considered within a given scenario are described within that scenario.

A.8.10 Qualitative assessment of design and aesthetic considerations arising as a result of cumulative development, and/or considerations set out within local guidance provided in relation to cumulative development, is also provided where relevant.

ANNEX 1: GLOSSARY OF TERMS

Term	Definition
CLVIA	Cumulative Landscape and Visual Impact Assessment.
Cumulative Effects	Cumulative effects are the additional effects arising from changes caused by a development in conjunction with other past, present or reasonably foreseeable actions.
Direct Effect	A direct (or primary) effect may be defined as an effect that is directly attributable to the development.4
GLVIA3	*'Guidelines for Landscape and Visual Impact Assessment, Third Edition'*, published jointly by the Landscape Institute and Institute of Environmental Management and Assessment 2013.
Indirect Effect	An indirect (or secondary) effect is an effect that results indirectly from the proposed project as a consequence of the direct effect, often occurring away from the site, or as a result of a sequence of interrelationships or a complex pathway. They may be separated by distance or in time from the source of the effects. 5
Key Characteristics	Those combinations of elements which are particularly important to the current character of the landscape and help to give an area its particularly distinctive sense of place.
LVIA	Landscape and Visual Impact Assessment.
Landscape Capacity	The amount of change which a particular landscape character type or area is able to accommodate without significant detrimental effects on its character. Capacity is likely to vary according to the type and nature of change proposed.
Landscape Character	The distinct and recognisable pattern of elements in the landscape that makes one landscape different from another, rather than better or worse. 6
Landscape Character Areas	These are single unique areas which are the discrete geographical areas of a particular landscape type. 7
Landscape Character Types	These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur, they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern, and perceptual and aesthetic attributes.

[4] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p155

[5] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p156

[6] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p156

[7] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p157

Landscape Effects	Effects on the landscape as a resource in its own right. 8
Landscape Elements	Individual components which make up the landscape such as trees and hedges.
Landscape Features	Particularly prominent or eye-catching elements, like tree clumps, church towers or wooded skylines.
Landscape Quality or Condition	This is a measure of the physical state of the landscape. It may include the extent to which a typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements. 9
Landscape Receptor	Defined aspects of the landscape resource that have the potential to be affected by a proposal.
Landscape Resource	The combination of elements that contribute to landscape context, character and value.
Landscape Value	The relative value or importance attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons. 10
Level of Effect	Determined through the combination of sensitivity of the receptor and the proposed magnitude of change brought about by the development.
Magnitude (of effect)	A term that combines judgements about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration.
Mitigation	Measures including any process, activity or design to avoid, reduce, remedy or compensate for adverse environmental impact or effects of a development.
Photomontage	A visualisation which superimposes an image of a proposed development upon a photograph or series of photographs.
Residential Visual Amenity	A collective term describing the views and visual amenity from a residential property, relating to the type, nature, extent and quality of views that may be experienced from the property and its 'domestic curtilage' including gardens and access driveway. Residential Visual Amenity is only one component of the overall Residential Amenity, others being for example noise, shadow flicker and access amongst others.
Residual Effects	Potential environmental effects remaining after mitigation.
Sense of Place	The essential character and spirit of an area: *genius loci* literally means 'spirit of the place'.

[8] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p157

[9] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p157

[10] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p157

Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor. 11
Significant Effects	It is a requirement of the EIA Regulations to determine the likely significant effects of development on the environment which should relate to the level of an effect and the type of effect. Where possible significant effects should be mitigated. The significance of an effect gives an indication as to the degree of importance (based on the magnitude of the effect and sensitivity of the receptor) that should be attached to the impact described. Whether an effect should be considered significant is not absolute and requires the application of professional judgement.
Type or Nature of Effect	Whether an effect is direct, indirect, temporary or permanent, positive (beneficial), neutral or negative (adverse) or cumulative.
Visual amenity	Value of a particular place in terms of what is seen by visual receptors taking account of all available views and the total visual experience.
Visual Effect	Effects on specific views and on the general visual amenity experienced by people. 12
Visual Receptors	Individuals and/or defined groups of people who have the potential to be affected by a proposal.
Visualisation	Computer simulation, photomontage or other technique to illustrate the appearance of a development. 13
Wildness	A quality of appearing to be remote, inaccessible and rugged with little evidence of human influence.
Wireframe or Wireline	A computer generated line drawing of the DTM (Digital Terrain Model) and the proposed development from a known location.
Zone of Theoretical Visibility (ZTV)	Area within which a proposed development may have an influence or an effect on visual amenity. 14

[11] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p157

[12] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p158

[13] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p158

[14] The Landscape Institute/Institute of Environmental Management and Assessment; *Guidelines for Landscape and Visual Impact Assessment*; Spon; 2013; p158

A. Appendix 9.2: Visual Aids

A.1 Guidance and Standards Used

A.1.1 All Visibility Maps (ZTVs), photography, visualisations (wirelines and photomontages) and their graphical presentation has been undertaken in line with the Landscape Institute's Technical Guidance Note 06/19, Visual Representation of Development Proposals.

A.2 The Computer Model

A.2.1 To generate ZTVs, computer models of the proposed site and study area are produced. GIS software is used to create a 3D computer model of the proposed development representing the specified geometry and position of the proposed development, and the existing landform (terrain). The landform information is derived from 5m resolution terrain data.

A.2.2 The computer models include the entire study area and all calculations take account of the effects caused by atmospheric refraction and the Earth's curvature. The computer models do not take account of the screening effects of any intervening objects and forestry, so does not show any vegetation, buildings, woodland or other non-terrain features, unless expressly stated.

A.2.3 The computer models combine the existing landform with the model of the proposed development and detailed data collected in the field to enable the output of accurate visual and graphical information and associated data for presentation as finished figures.

A.3 Visibility Maps: Zone of Theoretical Visibility

A.3.1 Zone of Theoretical Visibility (ZTV) maps have been generated using GIS to assist in in identifying areas where visibility would not occur as well as viewpoint selection, illustrate areas from where part or all of the proposed development may be visible and to indicate its potential influence in the wider landscape.

A.3.2 Unless expressly stated, the visibility maps present the extent of potential visibility on the basis of a 'bare ground' scenario: They do not account for the effects of screening and filtering of views as a result of intervening features (e.g. buildings, trees, hedgerows, etc) and so tend to over-estimate visibility, both in terms of the land area from which the project can potentially be seen and potentially in terms of the extent of the development visible from a particular viewpoint.

A.3.3 ZTVs which take into account landform and buildings may use either real height information derived from standard DSM products such as LiDAR – this approach is typically used for smaller study areas and urban areas. For larger study areas assumed heights are used which are stated on the ZTV figure. The location and extent of woodland and buildings is derived from OS Open data and assumed heights for these are added to the bare ground model. As a result, the ZTV study does not take account of all above ground features – only those included as woodland and buildings in the OS mapping available at the time the ZTV was prepared. These ZTV studies present a more realistic visibility pattern than bare ground studies, but do not take account of the detail of felling cycles, tree growth, demolition or construction.

A.4 Visualisations: Annotated Photos (Type 1)

A.4.1 Baseline photography has been undertaken at each representative viewpoint location using a high-quality digital SLR camera with full frame sensor and a 50mm fixed focal length lens – in accordance with the relevant guidance identified above. The resulting photos are either presented as single frame images or combined into panoramas using PTGui photo stitching software and saved as planar projection images. Single frame and panoramic images are presented at either A3 or on wide format sheets, in accordance with Technical Guidance Note 06/19, and are annotated to indicate the extent of the proposed development and highlight any important features within the view.

A.5 Data Accuracy

A.5.1 The Ordnance Survey (OS) provides accuracy figures for the following terrain data products expressed statistically as root-mean-square error (RMSE) in metres:

- OS Terrain®50 (50m resolution): 4m RMSE.
- OS Terrain®5 (5m resolution): Urban and major communication routes 1.5m RMSE; Rural 2.5m RMSE; Mountain and moorland 2.5m RMSE.

A. Appendix 9.3: National Planning Policy and Guidance

A.1 National Planning Policy Framework (NPPF), 2019

A.1.1 Section 12 of the NPPF focuses on good design and includes the following at para 127:

"Planning policies and decisions should ensure that developments:

a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;

b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;

c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);

d) establish or maintain a strong sense of place...."

A.1.2 Section 15 of the NPPF is headed 'Conserving and enhancing the natural environment' and includes paragraph 170 which requires that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, ... (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including ... trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;.."

A.1.3 Paragraphs 171 and 172 also note that: "*Plans should: distinguish between the hierarchy of international, national and locally designated sites*" and that "*great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues.*"

A.2 Planning Practice Guidance for Natural Environment, 21 July 2019

A.2.1 This document covers the key issues in implementing policy to protect biodiversity and landscape fabric (including green infrastructure, Ancient Woodland and veteran trees), and contains a section on landscape. This section notes that:

"Where landscapes have a particular local value, it is important for policies to identify their special characteristics and be supported by proportionate evidence. Policies may set out criteria against which proposals for development affecting these areas will be assessed."

A.2.2 In respect of designated landscapes it notes that "*the relevant management plan will contain further information on the area's particular character and beauty*". The status of management plans is also described, saying that these document "*do not form part of the statutory development plan, but they help to set out the strategic context for development... They may contain information ... which is a material consideration when assessing planning applications.*"

A.2.3 The guidance further indicates that all development within nationally designated landscapes "*will need to be located and designed in a way that reflects their status as landscapes of the highest quality*", and that "*land within the setting of these areas often makes an important contribution to maintaining their natural beauty, and where poorly located or designed development can do significant harm. This is especially the case where long views from or to the designated landscape are identified as important, or where the landscape character of land within and adjoining the designated area is complementary. Development within the settings of these areas will therefore need sensitive handling that takes these potential impacts into account.*"

A.3 Planning Practice Guidance for Design: process and tools, October 2019

A.3.1 This document sets out how well designed places can be achieved "by taking a proactive and collaborative approach at all stages of the planning process" and notes that it should be read alongside the National Design Guide. It reiterates NPPF guidance, noting that:

"permission should be refused for development of poor design that fails to take the opportunities available for improving the character and quality of an area and the way it functions, taking into account any local design standards or style guides in plans or supplementary planning documents. Conversely, where the design of a

development accords with clear expectations in plan policies, design should not be used by the decision-maker as a valid reason to object to development"

A.3.2 It further sets out ten characteristics that contribute to good design and that are expanded on in the National Design Guide.

A.4 National Design Guide: Planning practice guidance for beautiful, enduring and successful places, October 2019

A.4.1 The National Design Guide sets out the ten key characteristics of well-designed places and demonstrates what good design means in practice. It notes:

"Well-designed places have individual characteristics which work together to create its physical Character. The ten characteristics help to nurture and sustain a sense of Community. They work to positively address environmental issues affecting Climate. They all contribute towards the cross-cutting themes for good design set out in the National Planning Policy Framework."

A.4.2 In relation to the context of development it notes that:

"37 Context is the location of the development and the attributes of its immediate, local and regional surroundings.

38 An understanding of the context, history and the cultural characteristics of a site, neighbourhood and region influences the location, siting and design of new developments. It means they are well grounded in their locality and more likely to be acceptable to existing communities. Creating a positive sense of place helps to foster a sense of belonging and contributes to well-being, inclusion and community cohesion.

39 Well-designed places are:

- *based on a sound understanding of the features of the site and the surrounding context, using baseline studies as a starting point for design;*
- *integrated into their surroundings so they relate well to them;*
- *influenced by and influence their context positively; and*
- *responsive to local history, culture and heritage."*

A.4.3 In relation to the identify or character of a place it notes:

"49 The identity or character of a place comes from the way that buildings, streets and spaces, landscape and infrastructure combine together and how people

experience them. It is not just about the buildings or how a place looks, but how it engages with all of the senses. Local character makes places distinctive. Well-designed, sustainable places with a strong identity give their users, occupiers and owners a sense of pride, helping to create and sustain communities and neighbourhoods.

50 Well-designed places, buildings and spaces:

- *have a positive and coherent identity that everyone can identify with, including residents and local communities, so contributing towards health and well-being, inclusion and cohesion;*
- *have a character that suits the context, its history, how we live today and how we are likely to live in the future; and*
- *are visually attractive, to delight their occupants and other users."*

A.4.4 In relation to the importance of the natural environment it notes:

"90 Nature contributes to the quality of a place, and to people's quality of life, and it is a critical component of well designed places. Natural features are integrated into well designed development. They include natural and designed landscapes, high quality public open spaces, street trees, and other trees, grass, planting and water.

91 Well-designed places:

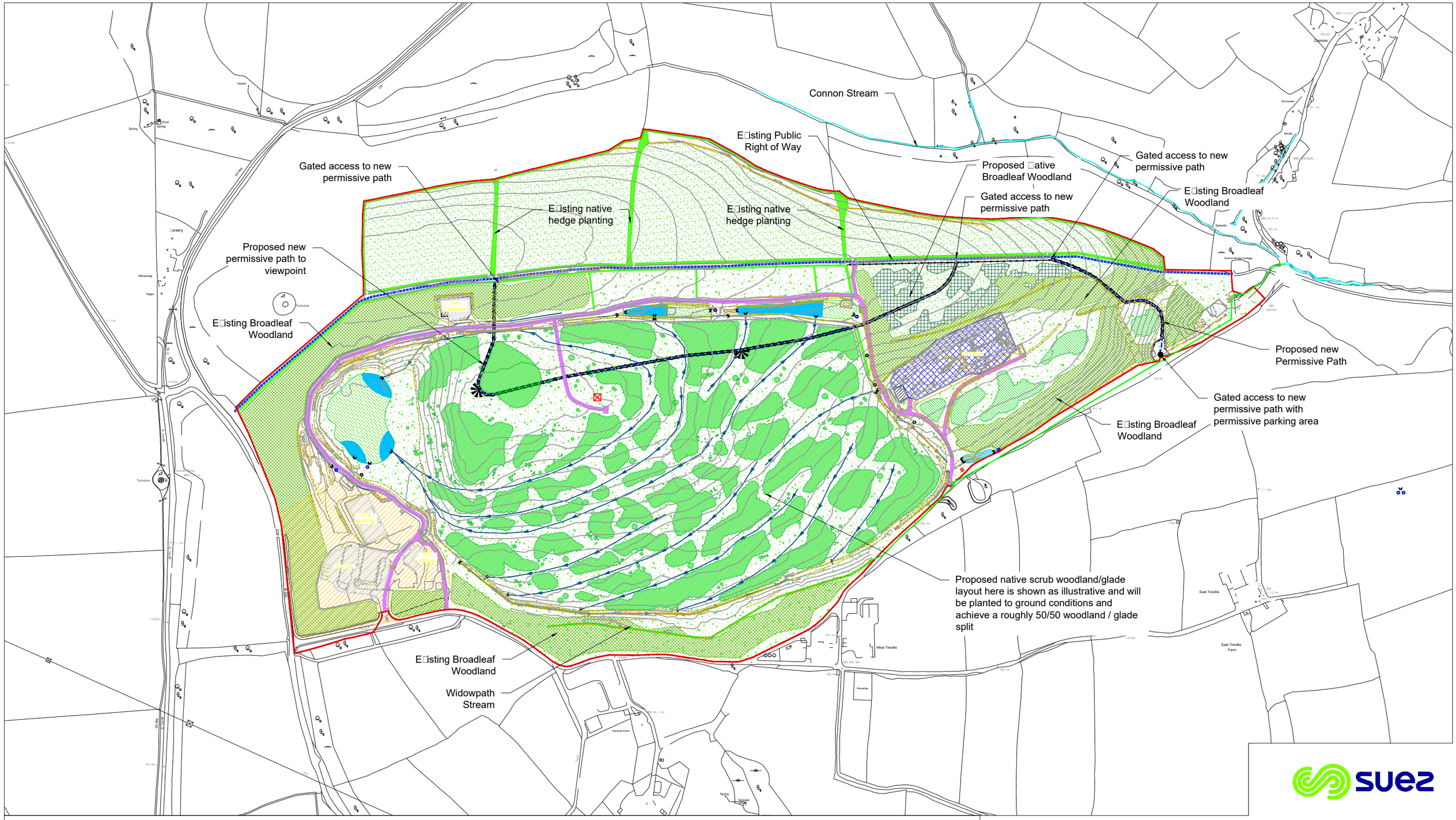
- *integrate existing, and incorporate new natural features into a multifunctional network that supports quality of place, biodiversity and water management, and addresses climate change mitigation and resilience;*
- *prioritise nature so that diverse ecosystems can flourish to ensure a healthy natural environment that supports and enhances biodiversity;*
- *provide attractive open spaces in locations that are easy to access, with activities for all to enjoy, such as play, food production, recreation and sport, so as to encourage physical activity and promote health, well-being and social inclusion."*

A.4.5 In relation to the importance of space between buildings it notes:

"99 The quality of the spaces between buildings is as important as the buildings themselves. Public spaces are streets, squares, and other spaces that are open to all. They are the setting for most movement. The design of a public space encompasses its siting and integration into the wider network of routes as well as its various elements. These include areas allocated to different users – cars, cyclists and pedestrians – for different purposes such as movement or parking, hard and soft surfaces, street furniture, lighting, signage and public art.

100 Well-designed places:

- *include well-located public spaces that support a wide variety of activities and encourage social interaction, to promote health, well-being, social and civic inclusion;*
- *have a hierarchy of spaces that range from large and strategic to small and local spaces, including parks, squares, greens and pocket parks;*
- *have public spaces that feel safe, secure and attractive for all to use; and*
- *have trees and other planting within public spaces for people to enjoy, whilst also providing shading, and air quality and climate change mitigation."*



- 🟥 Planning Boundary (PA12/0□□80)
- ▨ Existing Offices, HWRC, Transfer Station and other infrastructure retained as existing
- ▨ Gas Engine Compounds subject to separate planning permissions
- ▨ Existing Leachate Treatment Plant retained as existing
- ▬ Landfill Access Track
- — Proposed above ground drainage ditches (location and detail by others)
- ▪▪▪ Existing Public Right of Way
- - - Proposed New Permissive Path (exact route subject to ground conditions)
- •—• Proposed fencing to new permissive path
- ☒ Existing Weather Station
- ▨ Existing Broadleaf Woodland
- ▦ Proposed Native broadleaf woodland with wildflower glades
- ▨ Proposed Native scrub woodland with wildflower glades
- ▨ Existing scrub woodland to be managed to create scrub woodland with wildflower glades
- ░ Semi-improved Grassland
- ▬ Existing retained native hedges
- 🟦 Open water
- ░ Wildflower grassland
- ▨ Wetland
- ✺ Viewpoints with information panels. Precise location TBC on new permissive path.

- Drainage Infrastructure shown for information. (refer to Surface water management plan for details □5□3.SWM.D01)
- Contours are shown for illustrative purposes and represent a snapshot in time across the partially settled landfill.
- Refer to Ecology report for details of habitat typologies
- Landfill gas and leachate management infrastructure will be present on the surface but is subject to change over time to optimise efficiency of environmental management systems and is therefore not shown on the drawing.

REVISION	DATE	COMMENTS	AUTHOR / CHECKED
J	1□.05.1□	Permissive Footpath location changed, new viewpoint added, permissive parking area added, woodland location amended	RS / PO
I	24.04.1□	Added Existing Weather Station	RS / PO

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☐	PLYMOUTH	01□52	□□□3□8

TITLE
Connon Bridge
Landfill Landscape Restoration

DETAIL
Landfill Landscape Restoration Plan

DATE	SCALE	
20/05/18	1:5000 □ A3	
DRAWING No.	**REV**	**AUTHOR / CHECKED**
1802□□L01□02	J	idr

DRAWING STATUS PLANNING

A. Appendix 9.6: Viewpoint Analysis

A.1 Introduction

A.1.1 A viewpoint assessment has been carried out from a selection of key representative viewpoint locations to inform the assessment of the likely magnitude and significance of landscape and visual effects arising as a result of the Proposed Development.

A.1.2 A total of 4 viewpoint locations were selected to represent the main landscape and visual receptors found in the study area. The locations of the selected viewpoints are shown on Figure 9.3. Details for each viewpoint are provided below. Annotated photographs are provided to illustrate the existing view at each viewpoint location and the likely extent of the Proposed Development within the view (see Viewpoints 1-4), along with other notable features. A summary of the viewpoint analysis is provided in Table 9.6 in the main LVIA (see Chapter 9).

A.1.3 This viewpoint assessment considers the nature of the predicted view and the scale of change. The wider extent of the effect (beyond the individual viewpoint considered), and its duration, are not captured in the viewpoint analysis (as a single viewpoint cannot capture extent or duration), and are considered in the main body of the assessment (see Chapter 9). Extent and duration are factors in the overall judgement on magnitude of change, therefore judgements on magnitude of change and overall level of effect and significance are also provided in the main assessment.

A.1.4 The method of assessment used for the viewpoint analysis, which is described in Appendix 9.1, accords with current best-practice guidance for Landscape and Visual Impact Assessment (Landscape Institute and Institute of Environmental Management, 2013). Observations are made of the baseline landscape and visual characteristics at each of the representative viewpoints. Observations, computer modelling, and professional judgement are applied to determine the scale of change attributable to the Proposed Development (**Large, Medium, Small and Negligible**) upon landscape character and visual amenity at each individual viewpoint in order to determine the scale of effect.

A.1.5 The visual assessment takes into account the screening effect of intervening landform, vegetation and built form. It assumes excellent clear weather conditions; although the influence of different seasons, weather, sunlight and visibility conditions have been considered, where relevant.

Viewpoint 1: Connon Bridge Landfill

Location	Approximate location of viewpoint on future permissive path
Distance/ Direction from Development	150m, north east
Landscape Character Area	CA22 South East Cornwall Plateau
Visual Receptors	Recreational users of the future permissive path
Existing View	This viewpoint is not currently accessible to the public. It is located in the approximate position of the viewpoint identified on the future permissive path to be constructed as part of the final restoration of the landfill, anticipated to be complete by late June 2021. The exact position of the path and viewpoint will be determined as restoration works are undertaken although is unlikely to be notably different from that illustrated. The view looks from an elevated location across the future wetland area, towards the existing waste transfer building and site offices which are openly visible. To the right of the main waste transfer building the smaller clinical waste building can be seen adjacent to a shipping container. The existing household waste recycling facility is largely screened by bunds and trees to the left of the existing waste transfer building although in winter, when leaf cover is reduced, this would be slightly more visible. Beyond the buildings a dense shelter belt obscures views of the landscape beyond. This would also be the case in winter months due to the density of vegetation and high proportion of evergreen species.
Predicted View & Scale of Visual Change	The proposed WR building would appear to the right of the existing waste transfer building, oriented perpendicular to this with the gable end facing towards the viewpoint. The top of the water tank would be seen just above and beyond these, slightly higher but still considerably below the height of the shelterbelt beyond. The upgraded track would be seen running round the far side of the wetland area and new turning head would be visible to the far right of view. The proposals would result in a modest lateral extension to the existing built development which will be contained within a stronger landscape framework once landfill restoration works are complete. The scale of change here would be Medium/Small. The nature of the proposed development would be entirely in keeping with existing development seen from here and this change is judged to be Neutral.
Scale of Change to Landscape Character	Given the extent of existing industrial development the proposed development would not result in any notable change to landscape character here. The scale of change would be Negligible and Neutral.
Scale of Change to Designated Area	N/A

Viewpoint 2: B3359 south of site

Location	Localised high point on road
Distance/ Direction from Development	1.3km, south east
Landscape Character Area	CA22 South East Cornwall Plateau
Visual Receptors	Road users, local residents
Existing View	This viewpoint is located on the crest of a low hill and offers a brief open view towards the site for northbound road users; there is no adjacent footpath. The mound of the former landfill is seen beyond power lines crossing the nearby field and rising above intervening vegetation. To the far side of this the gas engine compound is visible and in the distance beyond there are a number of large scale farm buildings and dispersed houses visible below a horizon formed by low hills. The future wetland area adjacent to the site will be partially visible to the left of the landfill mound but the existing buildings on the site are entirely screened by landform and vegetation. Given the density of vegetation and presence of evergreen species this is also likely to be the case in winter.
Predicted View & Scale of Visual Change	Intervening landform and vegetation would largely screen views of the proposed development from here during the summer; the upgraded track and new turning head may be visible but would be largely imperceptible at this distance. In winter, when leaf cover is reduced, there may be some heavily filtered views through vegetation of the WR building although the proposed development is unlikely to be readily discernible from the existing buildings on the site. The scale of change would be Negligible and Neutral.
Scale of Change to Landscape Character	There would be no perceptible change to landscape character at this location as a result of the proposed development. The scale of change would be Negligible and Neutral.
Scale of Change to Designated Area	This viewpoint is located on the western boundary of the Looe & Seaton Valleys AGLV. Given the lack of visibility the scale of change on the AGLV here would be Negligible and Neutral.

Viewpoint 3: Connon

Location	At a field entrance on an unclassified road
Distance/ Direction from Development	2.2km, east
Landscape Character Area	CA22 South East Cornwall Plateau
Visual Receptors	Road users, local residents
Existing View	This viewpoint is located at a field entrance on an unclassified road that is lined by dense hedgerows that block outward views. It looks across arable fields towards the site. The mound of the former landfill site is visible in front of dense woodland beyond. The existing waste transfer building is partially visible above intervening landform although other built development on the wider landfill site is screened by vegetation. Scrub woodland planting being implemented as part of the landfill restoration is likely to entirely screen the waste transfer building as it matures.
Predicted View & Scale of Visual Change	The top of the proposed water tank would be partially visible just above the existing building but all other parts of the proposed development would be screened by the intervening landform. As restoration planting matures this would become entirely screened from view. The scale of change would be Negligible and Neutral.
Scale of Change to Landscape Character	There would be no perceptible change to landscape character at this location as a result of the proposed development. The scale of change would be Negligible and Neutral.
Scale of Change to Designated Area	This viewpoint is located within the Looe & Seaton Valleys AGLV. The proposed development would have no influence on the noted qualities of the AGLV and the scale of change here would be Negligible and Neutral.

Viewpoint 4: Pennellick

Location	At a field entrance on an unclassified road
Distance/ Direction from Development	1.5km, north east
Landscape Character Area	CA22 South East Cornwall Plateau
Visual Receptors	Road users, local residents
Existing View	This viewpoint is located at a field entrance on an unclassified road that is lined by dense hedgerows that block outward views. It looks out across rolling fields defined by hedgerows set amongst more extensive woodland. The north eastern part of the former landfill site can just be made out, undergoing restoration, although the majority of the former landfill and all of the existing built development is screened from view by intervening landform and vegetation.
Predicted View & Scale of Visual Change	Intervening landform and vegetation would entirely screen views of the proposed development from here. The scale of change would be Negligible and Neutral.
Scale of Change to Landscape Character	There would be no perceptible change to landscape character at this location as a result of the proposed development. The scale of change would be Negligible and Neutral.
Scale of Change to Designated Area	N/A

A. Appendix 9.7: Illustrative Photos

Illustrative View A – B3359 adjacent to site

Illustrative View B – Lane near East Trevellis Cottage

Illustrative View C – Killigorrick

Illustrative View D – Bury Down

Arboricultural Impact Assessment Report

Relating to development proposal at

Connon Bridge Landfill Site, Liskeard

Client

Suez

Aspect Ref: 05483

18th August 2020

Aspect Tree Consultancy Ltd, Unit F, Kach Business Park, Pottery Rd,
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01364 644822 www.fresh-aspect.com info@fresh-aspect.com

1 Summary

The direct and indirect effects of the proposals in relation to the trees has been assessed	A baseline site survey and structured quality assessment of the existing trees has established key arboricultural constraints to development. This report considers the direct and indirect effects of the proposals in relation to the trees and makes recommendations for control measures throughout the construction stages.
Four elements of the proposals will effect trees along the wooded bank to the west	The proposals entail the construction of a new waste building to the north of the existing building, with a fire fighting water tank and pump house to the east of the main wooded area with an access track up to the water tank. A water pipe connection is also proposed through the wooded area between the new water tank and an existing Southwest Water connection.
The quantity of tree removals should be limited but is not fully understood	The quantity of trees to be removed should be limited in terms of the overall wooded area, but will only be fully understood when the extents of soil reprofiling works and the water pipe route are established.
The magnitude of the arboricultural impact will be low and short term in duration	It is envisaged that the overall magnitude of the arboricultural impact will be low and short term in duration provided the recommendations of this report are followed and new tree planting with maintenance is carried out.
The initial stages of the site works require further Arboricultural advice and supervision	It is vital that the Project Arboriculturalist is involved in the initial stages of the site works to ensure that appropriate trees are identified and marked for removal. This will ensure retained trees are protected and are not structurally compromised.

2 Introduction

Instruction

2.1 I have been instructed by Suez to provide an arboricultural impact assessment, professional opinion and advice in relation to the proposed development.

2.2 This report includes an evaluation of the direct and indirect effects of the proposed development and the resulting impacts on trees and local amenity.

Scope

2.3 Details of the report author, a general disclaimer and the limitations of this report are included as *Appendix 1*.

Accompanying documents

2.4 This report must be read in conjunction with the following plan(s) and document(s); also instructed by the Client and/or produced as part of the design stage process:

2.5

Document/Drawing:	*Name/Ref:*	*Produced by:*
Tree Survey	05483. 12.8.2020	Aspect Tree Consultancy
Tree Constraints Plan	05483.TCP.12.8.2020	Aspect Tree Consultancy
Tree Protection Plan	05483.TPP. 12.8.2020	Aspect Tree Consultancy
PROPOSED_SITE_PLAN	E05284-CNB-200-PROPOSED_SITE_PLAN_P03	Clarkebond

Table 1 - Supporting plan & documents

3 Relevant background information

Statutory designations

3.1 The presence of Tree Preservation Orders (TPOs) and/or Conservation Area status has been checked with the Local Planning Authority. There are no TPOs covering trees on or directly adjacent to the site. The site does not fall within a Conservation Area.

4 Baseline information and data collection

Brief site overview

4.1 The site is part of a household waste recycling and recovery centre located around 1km south of the A390 between Liskeard and Bodmin.

4.2 The specific area for development is to the northwest of the existing large recycling building to the north of the main car park and offices. The general layout and juxtaposition of the existing site features including trees are shown on the following aerial image:

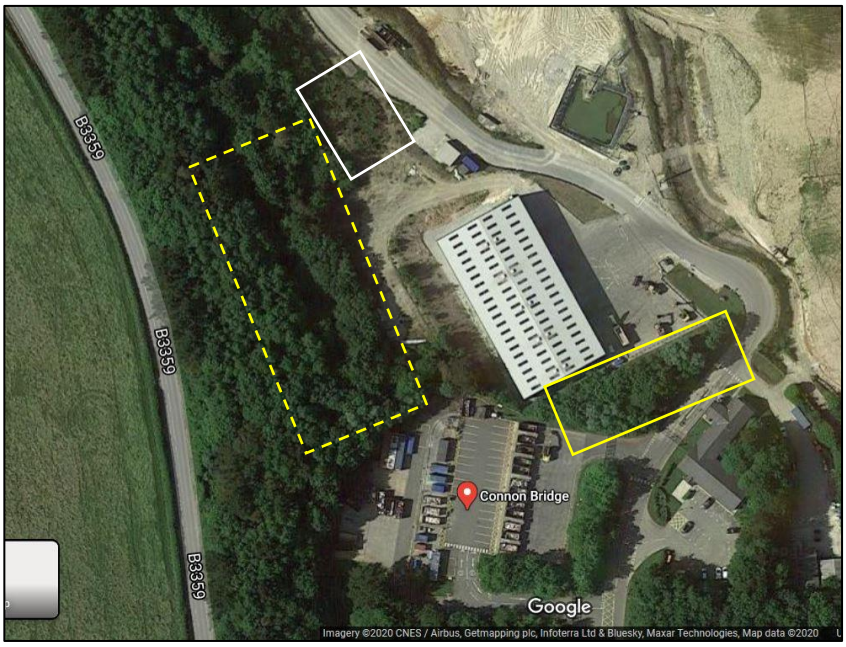


Image 1: Aerial site photo

Site survey

4.3 I undertook the site visit and tree survey assessment on the 11 August 2020. The survey methodology and the tree quality assessment criteria are described in the accompanying Tree Survey document (see *2.3*); which includes the survey data schedule.

Key trees & features

4.4 Trees surveyed comprise three main groups to the south, west and northwest of the recycling centre. All trees are located at the top of an embankment which is partially contained by a retaining wall. The most prominent group is a wooded area at the top of the embankment shown by a dashed yellow line above. The area identified by a solid white box is scrub/regenerated alder and willow which transitions into the main wooded area. The remaining yellow solid line shows another tree group which is beyond the influence of the proposals.

4.5 Dominant species are goat willow, crack willow, alder, sycamore, ash, hawthorn and with the occasional Monterey pine and oak. Trees are mostly semi mature with some approaching maturity; physiological and structural condition is generally good.

5 Proposed development

5.1 The proposals are to construct a new waste building to the north of the existing building, with a fire fighting water tank and pump house to the east of the main wooded area with an access track up to the water tank. A water pipe connection is proposed through the wooded area between the new water tank and an existing Southwest Water connection; however the precise position cannot yet be determined because clarification from SWW is required.

6 Arboricultural Impact Assessment

Terms & definitions

6.1 When describing impacts on arboricultural features; reference is made to the following parameters, as appropriate or relevant to the specific issue:

1. **Positive** or **negative**
2. **Magnitude:** Refers to the 'size' or 'amount' of an impact, determined on a quantitative basis where possible.
3. **Duration:** The time for which the impact is expected to last prior to recovery or replacement of the resource of feature, (defined in relation to the feature - rather than human time frames). The duration of an activity may differ from the duration of the resulting impact caused by the activity. For example, if short-term construction activities cause soil compaction around mature trees, there may be longer-term implications for tree health.
4. **Reversibility:** An irreversible (permanent) impact is one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) impact is one from which spontaneous recovery is possible or for which effective mitigation, is both possible and an enforceable commitment has been made.
5. **Timing and frequency:** Some changes may only cause an impact if they happen to coincide with the critical life-stages or seasons (for example, the bird nesting season). This may be avoided by careful scheduling of the relevant activities.
6. **Compensation:** Measures taken to make up for the loss of, or permanent damage to, arboricultural resources through the provision of replacements.
7. **Enhancement:** A new benefit - unrelated to any negative impact.
8. **Impact:** The way in which an arboricultural resource is affected by the project.
9. **Mitigation:** Measures taken to avoid or reduce negative impacts.

6.2 Individual trees, hedgerows, groups, woodland and other vegetative features have been assessed in relation to the submitted layout. This report is accompanied by a *Tree Protection Plan*; used to assess the overall nature and extent of the impacts on trees. Issues identified are evaluated in the following sub-sections.

Tree Removal & retention

6.3 Trees which make a positive contribution to the layout have been retained wherever possible. Indicative areas for trees to be removed are shown on the accompanying Tree Protection Plan (TPP) with a hatched red line and included on the following table:

Tree Ref:	*Species/Description of feature:*	*BS5837 category*	*Reason for removal & Impact:*
G2	Semi mature trees of mixed species along part of the wooded edge. Potential removal of several mature trees.	**B2**	To construct the access track, pump house, water tank and install the water pipe connection. The specific quantity/extent of trees for removal will not be fully understood until ground reprofiling extents have been marked on site and working methods discussed between the contractor, engineer and arboriculturalist. Until the precise location of the water pipe is determined it is not possible to fully quantify the volume of tree removals for that aspect of the proposals. However it should be limited to a corridor no wider than 6 metres in accordance with SWW easement requirements but it may be possible to reduce the width. The impact of tree removals will be low to medium in magnitude (when considering the size of the overall wooded area) and will be short term, because recovery through natural regrowth and mitigation planting is easily possible.
G3	Young to semi mature trees of mixed species/scrub on the embankment.	**C2**	Tree/scrub removal to construct the access track. This will be very low in magnitude and will be short term because recovery through regrowth and planting (if necessary) is easily possible.

Table 2 - Trees to be removed

Impact of proposed development on amenity value

6.4 The impact of the development on the amenity of the trees is going to be reasonably low when considering the area is not generally visible or accessible by members of the public and is internal to the site.

Retained trees - General minor impacts

6.5 There are a number of impacts of no discernible significance which are not discussed in detail in this report. These relatively minor issues are adequately mitigated through standard clause recommendations for construction stage tree protection measures, as indicated on the accompanying TPP.

Retained Trees - Key issue(s)

6.6 The instability of retained trees due to loss of roots or shelter from edge trees removed. This issue is individually evaluated in the following sub-section.

Key Impact 1

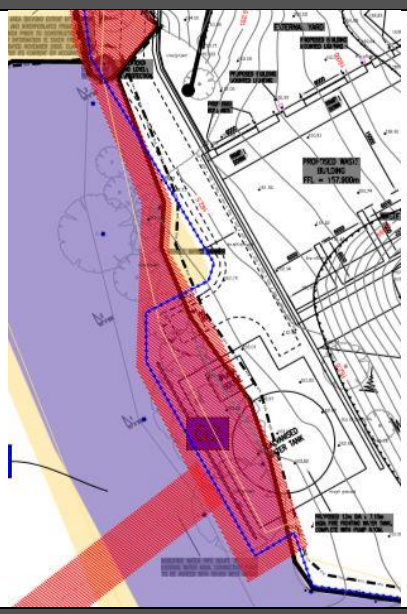
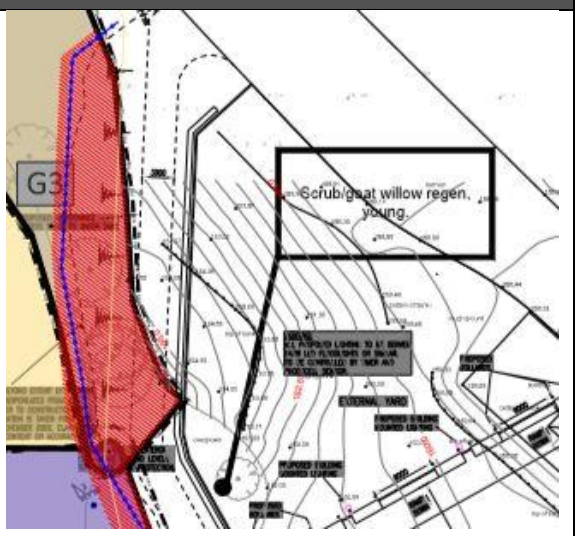
Tree Protection Plan:	
	
Description, magnitude and extent of IMPACT(s):	
6.7 The specific number of trees for removal will not be known until construction methods and soil reprofiling details have been discussed on site and then set out. This will allow for a targeted on site assessment to determine which trees will be suitable to retain as a new wooded edge within acceptable risk thresholds. 6.8 If carried out by a competent person, the most suitable trees to form the new wooded edge should limit the overall extent of removals whilst reducing the risks of further tree losses. The site tree removal assessment will also consider recovery of green infrastructure through regrowth and locations for new mitigation planting. The same principle can be applied to the installation of the water pipe when the exact route is known.	
Mitigation recommended to reduce IMPACT(s):	
6.9 Tree removals are determined on site between the Project Arboriculturalist and site contractor as part of the Arboricultural Method Statement (AMS). 6.10 Installation of the water pipe route to be carried out in accordance with a suitably worded method statement (AMS) in conjunction with the Project Arboriculturalist. 6.11 A scheme of replanting of the wooded edge to mitigate tree removals is submitted to the LPA as part of a Planning Condition along with any other planting areas identified as suitable.	

Table 3 – Key Impact

7 Mitigation Strategy

Tree Protection

7.1 No access to the RPA of any retained tree will be permitted before or during construction activity, unless detailed in an approved *Arboricultural Method Statement* or otherwise agreed in advance with the LPA following advice from the appointed specialist.

7.2 BS5837 recommends that retained trees (and areas suitable for new planting) are incorporated into CONSTRUCTION EXCLUSION ZONES (CEZs) and suitably protected throughout the development process.

7.3 The CEZs are clearly marked on the accompanying **INDICATIVE** TREE PROTECTION PLAN and general details (heads of terms) for an accompanying *Arboricultural Method Statement* are included in the appendices of this report.

Compensatory Planting

7.4 A mitigation tree planting plan for the wooded edge will be agreed with the LPA as part of planning conditions. Planting is recommended to include species similar to those removed which will best suit the growing conditions, trees will be a mix of predominantly whips with scattered 'standard' size trees.

7.5 Where new tree planting is planned it is imperative that consideration is given to future management and maintenance. It is recommended that a minimum five-year plan is constructed and submitted with the new landscape proposals.

8 Trees & Planning Policy

8.1 Trees are a material consideration throughout the planning process and therefore the arboricultural information presented in this report and accompanying plans has been aligned with the objectives of the National Planning Policy Framework (NPPF) and the general tree-related policies and development objectives of the Local Planning Authority (LPA).

9 Conclusions

9.1 When considering the entire proposals, the quantity of trees to be removed should be limited in terms of the overall wooded area but this will only be fully understood when the extents of soil reprofiling works and the water pipe route are established.

9.2 It is envisaged that the overall arboricultural impact will be low in magnitude and short term in duration provided new tree planting and maintenance is carried out immediately following the development.

10 Recommendations

10.1 The tree protection measures discussed in this report and shown on the accompanying Tree Protection Plan should be implemented.

10.2 The appropriate use of well worded planning condition(s) is considered a key element of successful tree retention during development and construction.

10.3 It is important that the tree protection measures are clearly communicated to, and understood by, the entire construction team prior to commencement of any site works – this process should involve the Local Planning Authority so as to ensure any planning conditions are not breached.

10.4 This is most effectively managed by monitoring the development on a regular basis, checking tree protection measures in relation to the Tree Protection Plan & Arboricultural Method Statement(s) and reporting to the LPA on a monthly basis.

10.5 It is recommended that development is carried out in the following order:

a) Pre-commencement site meeting between contractor, engineer and Arboriculturalist to identify trees for removal. **THIS IS A KEY STAGE.**

b) Tree works undertaken.

c) Tree protection measures installed.

d) Initial site clearance and ground works.

e) Development of site.

f) Removal of tree protection measures.

10.6 All items above to be undertaken in accordance with LPA approved arboricultural method statements.

Appendices:

A1	Appendix 1 - Disclaimer, Limitations & Author
A2	Appendix 2 - Default Tree Protection Measures
A3	Appendix 3 - AMS heads of terms
A4	Appendix 4 - Accompanying Plans

A1.1 Disclaimer

The statements made in this Report do not take account of extremes of climate, vandalism or accident, whether physical, chemical or fire. Aspect Tree Consultancy cannot therefore accept any liability in connection with these factors, nor where prescribed work is not carried out in a correct and professional manner in accordance with current good practice. The authority of this Report ceases at any stated time limit within it, or if none stated after two years from the date of the survey or when any site conditions change, or pruning or other works unspecified in the Report are carried out to, or affecting, the Subject Tree(s), whichever is sooner.

A1.2 Limitations

The survey and report are concerned with the arboricultural aspects of the site only. This report is primarily concerned with the condition of existing trees and the application of current guidance for their retention. No documented information has been provided regarding any site-specific history of ground disturbance, root damage or severance, changes in soil levels, previous utility installations or any changes in site conditions.

Trees are large dynamic organisms whose health and condition can change rapidly, therefore due to the changing nature of trees and other site considerations, this report and any recommendations made are only valid for the 12-month period following the site survey.

Subsidence Risk Assessment: Any discussion of soil characteristics is only presented where this may have a direct effect on tree growth. This report does not seek to address the specific area of subsidence risk assessment.

Foundation Design: The design and construction of foundations should be informed by appropriate soil sampling and laboratory testing in accordance with NHBC Chapter 4.2. This report does not specifically relate to risks associated with subsidence, heave or other forms of disturbance associated with tree root growth or tree removal.

Third Party Liability: The limit of Aspect Tree Consultancy indemnity over any matter arising out of this report extends only to the instructing Client. Aspect Tree Consultancy cannot be held liable for any third-party claim that arises following this report. The content and format of this Report are for the exclusive use of the Client. It may not be sold, lent, hired out or divulged to any third party not directly involved in the subject matter without the written permission of Aspect Tree Consultancy Ltd.

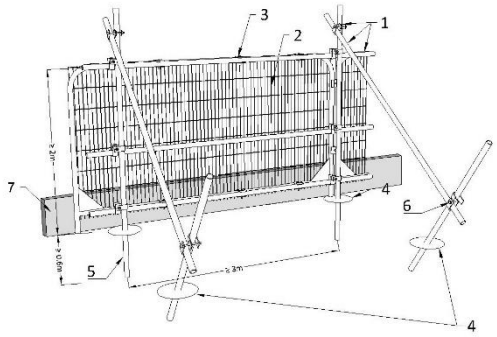
A1.3 Author

Jonathan Warren
MArborA
I am a professional tree specialist and I have skills and experience directly relating to the management of trees through the planning, development and construction processes such that I am a suitably qualified and experienced competent person as defined by **BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations [BS5837].**

A2.1 Tree Protection Measures

Retained trees should be protected by barriers and/or ground protection before any materials are brought onto site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a Construction Exclusion Zone (CEZ). Where, due to site constraints, construction activity cannot be fully or permanently excluded in this manner from all or part of a tree's RPA, appropriate ground protection should be installed.

A2.2 Default Tree Protective Fence (TPF) – Type1:

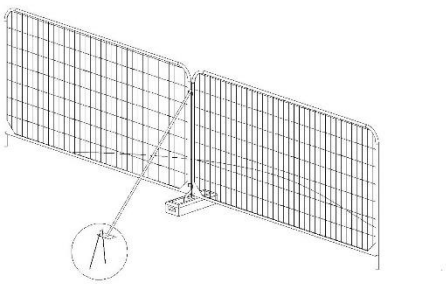


Key

1 Standard scaffold poles
2 Heavy gauge 2m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6m)
6 Standard scaffold clamps
7 Toe board 600mm to prevent soil running through fence (In timber or fabric)

A2.3 Default TPF – Type2a:

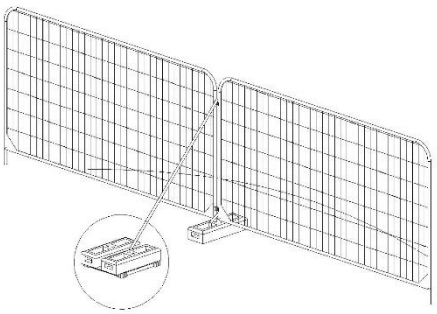
Examples of above-ground stabilizing systems



a) Stabilizer strut with base plate secured with ground pins

A2.4 Default TPF – Type2b:

Examples of above-ground stabilizing systems



b) Stabilizer strut mounted on block tray

A2.5 Example Warning Sign for TPF:

The final construction stage **Tree Protection Plan** shall be accompanied by a detailed **Arboricultural Method Statement** which will include details necessary to ensure the protection of trees throughout the demolition and construction stages of the proposed development.

A2.6 Tree Protection Plan (TPP)

The final TPP shall include details covering the following site-specific items:

1) Site Construction Access.
2) All hard surfacing within RPAs.
3) Construction Exclusion Zones.
4) Precise location of TREE PROTECTION FENCING - dimensioned – including temporary fencing & set back positions.
5) Barriers & Ground protection details – dimensioned.
6) Special protection measures (see AMS A4.2)
7) Location of utilities routes.
8) Areas for drainage / attenuation.
9) Working space for cranes, plant, scaffolding and access during works.
10) Position of site huts & welfare facilities.
11) Contractor car-parking.
12) Materials storage areas.
13) Build sequence/phasing of construction works.

A2.7 Arboricultural Method Statement (AMS)

The final AMS will be prepared and agreed with the LPA prior to start. The AMS may cover the following:

1) Pre-start Meeting.
2) Contact details for key personnel.
3) Site Monitoring Schedule.
4) Detailed Tree Work Schedule & Pruning Specification.
5) Final details of all operations within RPAs.
6) Utilities: methods of installation near trees.
7) Emergency Procedures.

A3.1 General / Standard AMS information

Pre-commencement site meeting: Prior to the commencement of the development, site clearance or groundworks a site meeting shall be arranged and held between the Site Manager, the Arboriculturist, and the Tree Protective Fence contractor.

Any defective tree protection measures will be reported to the site manager immediately and made good in the same day.

The site manager is responsible for informing the LPA or an appointed arboricultural specialist of any damage to or breaches of the Tree Protection Measures immediately.

Construction Exclusion Zone – CEZ: The CEZs are to be afforded protection at all times and will be protected by robust FENCING and/or GROUND PROTECTION as detailed. No works will be undertaken within any CEZ that causes compaction to the soil or severance of tree roots.

Tree Protective Fences (TPF): Protective fencing will be erected in accordance with the TPP prior to the commencement of any site works i.e. before any materials or heavy machinery is brought on site. The fencing may only be removed following completion of all construction works or with the formal agreement of the LPA. The location of the TPF will be as accurate as possible to the approved TPP. Any change to the position or construction of the fencing must be approved by the Arboriculturist and subsequently agreed by the LPA. No vehicles will drive or be parked within the CEZ. No materials will be stored within the CEZ.

Warning Notices will be affixed to every third panel or at 12m centres and will be made of all-weather signs.

After installation of the TPF the CEZ must be considered sacrosanct and off limits for any access or construction activity without the formal consent of the LPA or otherwise detailed on the TPP.

On-site environmental good practice guidelines:

Storage and use of Liquids and Hazardous Materials.

Liquids (fuel etc.) should be stored as far away from CEZ areas as is reasonably practicable. Spill kits and drip trays should be provided and maintained in close proximity to where liquids are stored, dispensed and used. Materials should be stored in accordance with manufacturer's Safety Data Sheets.

Drip trays or absorbent mats should be placed under filling points during the transfer/dispensing of liquids e.g. during the refuelling of plant to avoid any form of soil contamination in or immediately adjacent to CEZs or area for new landscape planting.

Responsibilities:

It is the responsibility of the Building Contract Manager (TBC) to ensure that the planning conditions attached to planning consent are adhered to at all times.

The Building Contract Manager will be responsible for contacting the LPA at any time issues are raised related to the trees on site. If at any time pruning works are required permission must be sought from the Local Planning Authority first and then carried out in accordance with BS 3998 2010.

The Building Contract Manager will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes.

Protective fences will remain in position until completion of ALL construction works on the site.

The fencing and signs must be maintained in position at all times and checked on a regular basis by an on-site person designated that responsibility.

Emergency Departures & Incident Reporting:

The contractor shall contact an appointed arboricultural specialist or the LPA Tree Officer if any breaches of the CEZ and tree protection measures occur.

An action plan to incorporate mitigation measures where necessary will be agreed and effectively implemented.

Contingency Plan - Water is readily available on site and will be used to flush spilt materials through the soil and avoid contamination to tree roots. At the time of any spillage the main contractor will contact the arboriculturist for advice.

Arboricultural Site Monitoring: Monitoring will be undertaken at a frequency agreed with the construction site manager during the initial pre-commencement site meeting.

The arboriculturist shall be present during the following **Key Stages:**

1) Pre-start meeting & initial positioning of the TPF & ground protection measures.
2) Minimum bi-monthly monitoring visit by specialist.
3) All operations near trees (as detailed in AMS) are supervised.

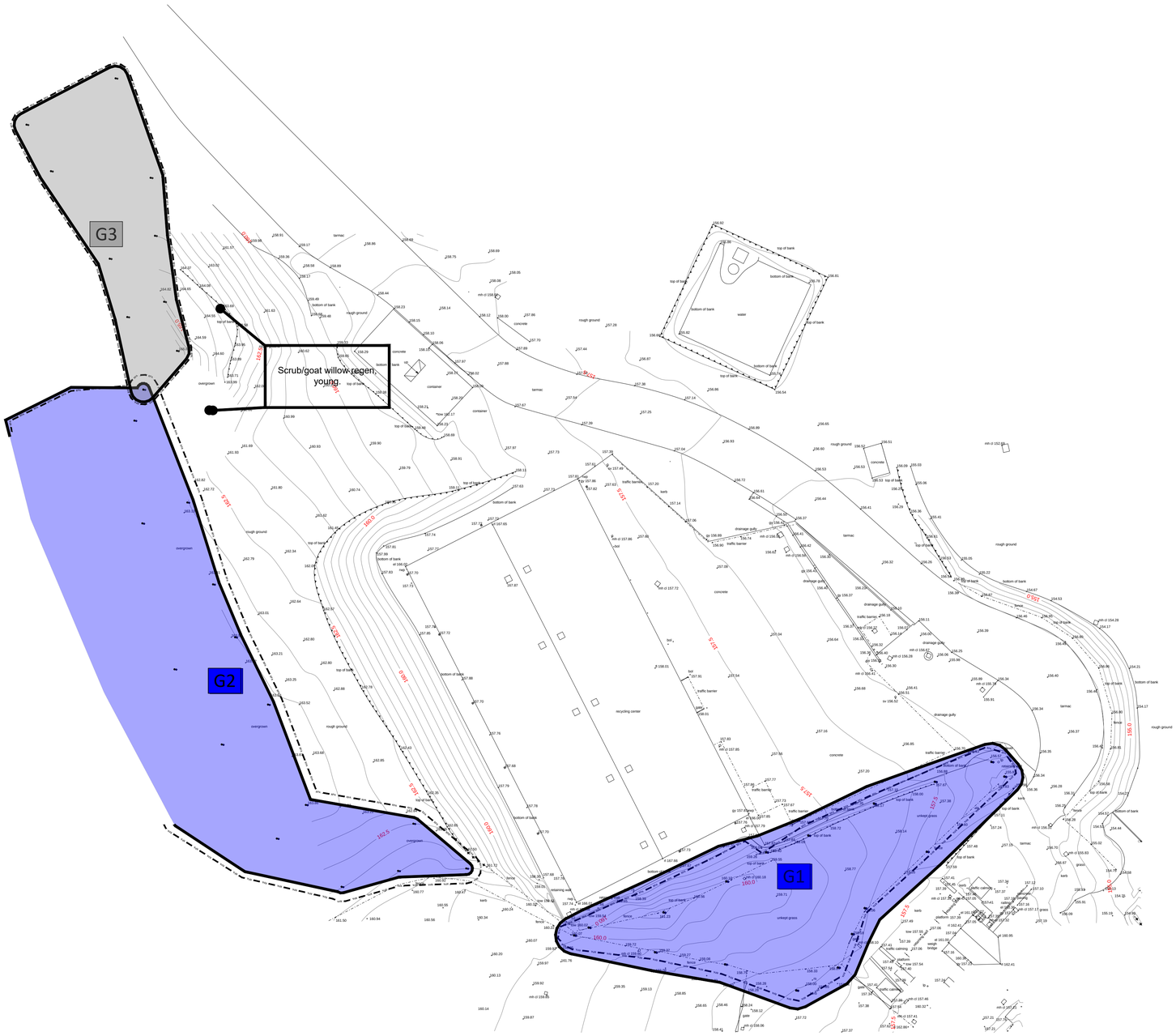
A3.2 Detailed specific AMS required

Where the accompanying TPP shows specific AMS areas outline details covering the identified issues are included on the plan.

Accompanying plans produced as part of this report are referenced to and/or attached as the following pages:

Plan Title:	Plan Ref:	Size:
Tree Protection Plan	***05483.TPP. 12.8.2020***	A1

Important Notes:
Digital plans may be issued as separate documents.
Reduced scale/size plan(s) may have been bound into hard paper copies of this report e.g. at paper size A3.
All plans should be viewed in full colour.



KEY

BS 5837:2012 Tree Category

A | B | C | U

TREE CONSTRAINTS INFORMATION

- TAG — Tree / Group Reference (by category)
- Individual tree (by category)
- Tree group/hedge (by category)
- Root protection area - RPA (BS5837)
- RPA Modified due to site conditions
- Shade arc - Axciscape

DESIGN & LAYOUT OPPORTUNITIES

- TAG — **Tree Preservation Order - TPO**
- V — **Aged/Veteran Tree - NPPF**
- **KEY Feature**

Documents/plans supplied by client for use in this drawing:
Topo Survey Quadrant 20.028 March 20

Accompanying documents which must be read in conjunction with this drawing:
05483 Tree Survey 13.8.2020

Notes

- All dimensions are in metres, unless otherwise stated.
- The original of this drawing was produced in colour, a monochrome version should therefore not be relied upon.

Client:	SUEZ		
Project:	Connon Bridge Landfill Site		
Title:	Tree Constraints Plan Location A		
Date:	13/8/2020	Sheet:	1 of 1
Scale:	1/400 @ A1	Drawn:	JW
Scale:	##### @ A3	Checked:	JW
Dwg Ref:	05483.TCP.13.8.2020		

ASPECT TREE CONSULTANCY

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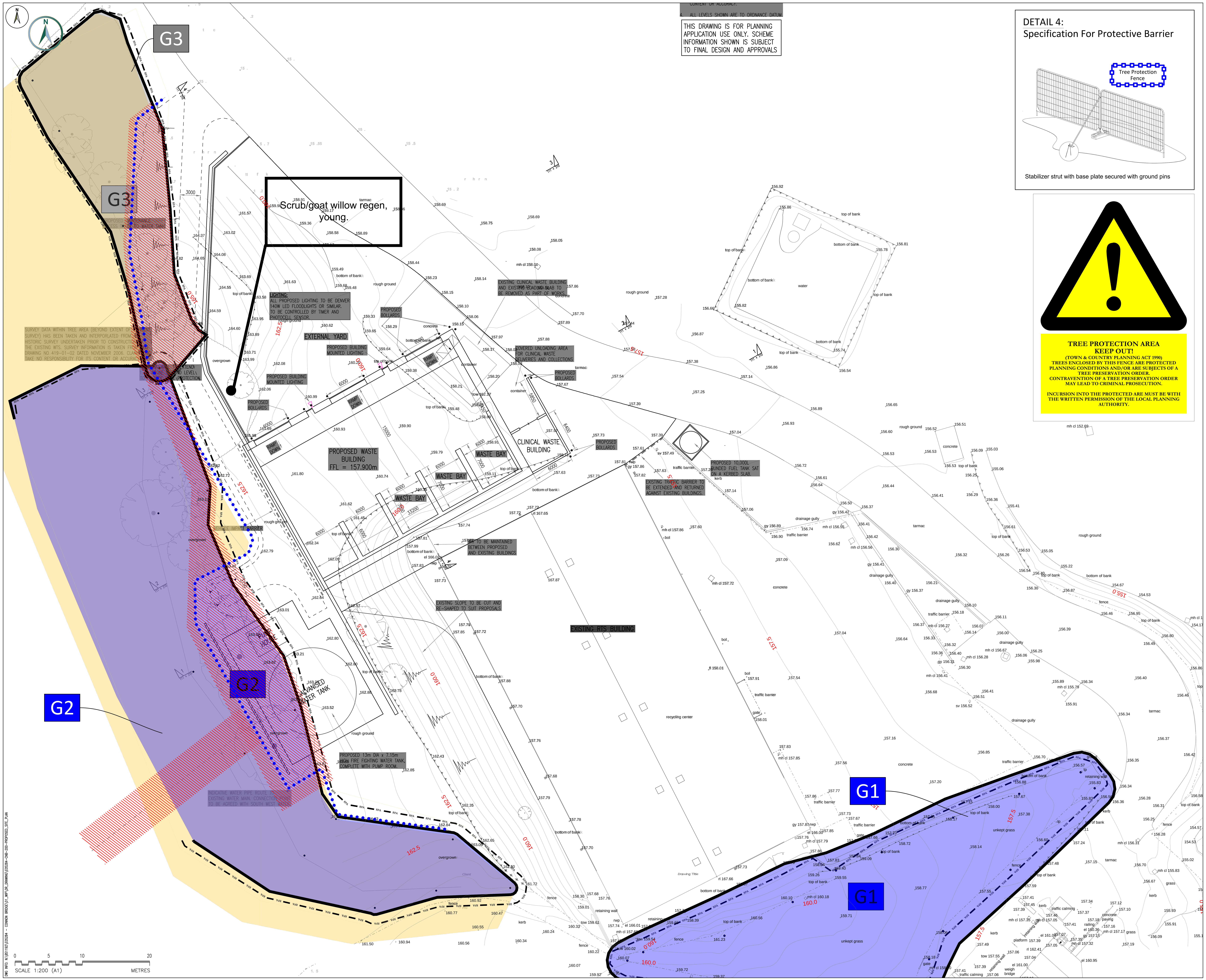

KEY

BS 5837:2012 Tree Category

A B C U

- TAG — Tree / Group Reference (by category)
- Individual tree (by category)
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- Root protection area - RPA (BS5837)
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DESIGN & LAYOUT OPPORTUNITIES

- TAG — Tree Preservation Order - TPO
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- KEY Feature

TREE PROTECTION PLAN - DETAILS

Tree / Hedge Removal

FELL — Specific trees to be removed will be marked & removed after the layout has been marked out on the ground. Trees within the AMS area are an indication of where removals may be needed.

Arboricultural Method Statement/s

All AMS areas are to be worked in strict accordance to detailed arboricultural method statements.

Indicative Special protection area - AMS

AMS: a detailed Arboricultural Method Statement to be agreed with the LPA prior to commencement of development

Construction Exclusion Zone/s

Indicative Construction Exclusion Zone - CEZ

All operations inside of Tree Protective Fencing are to be supervised by an appointed Arboriculturist.

Tree protective barrier/s

Indicative Tree protective fence / barrier position (See Detail 4).

Documents/plans supplied by client for use in this drawing:
Topo Survey Quadrant 20.028 March 20
E05284-CNB-200-PROPOSED_SITE_PLAN

Accompanying documents which must be read in conjunction with this drawing:
05483 Tree Survey 13.8.2020
05483 AIA 18.8.2020

Notes

- All dimensions are in metres, unless otherwise stated.
- The original of this drawing was produced in colour, a monochrome version should therefore not be relied upon.

Client:	SUEZ		
Project:	Connon Bridge Landfill Site		
Title:	Tree Protection Plan (indicative)		
Date:	13/8/2020	Sheet:	1 of 1
Scale:	1/400 @ A1	Drawn:	JW
Scale:	##### @ A3	Checked:	JW
Dwg Ref:	05483.TPP.13.8.2020		

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www.fresh-aspect.com

Tree Survey

In accordance with

BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'

Site Ref:	**Connon Bridge Turning Circle**

Instructed by:	**Suez**
Aspect Ref:	**05336**
Survey Date(s):	**13.11.2020**
Surveyor(s):	**JG**

Accompanying Plans:	**05336 TCP 24.11.2020 1 of 2** **05336 TCP 24.11.2020 2 of 2**

Using the Tree Survey Data

Species

Consideration should be given to whether trees are evergreen or deciduous, density of foliage, and potential nuisance factors such as susceptibility to honey dew drip, branch drop, fruit fall etc.

Canopy Spread

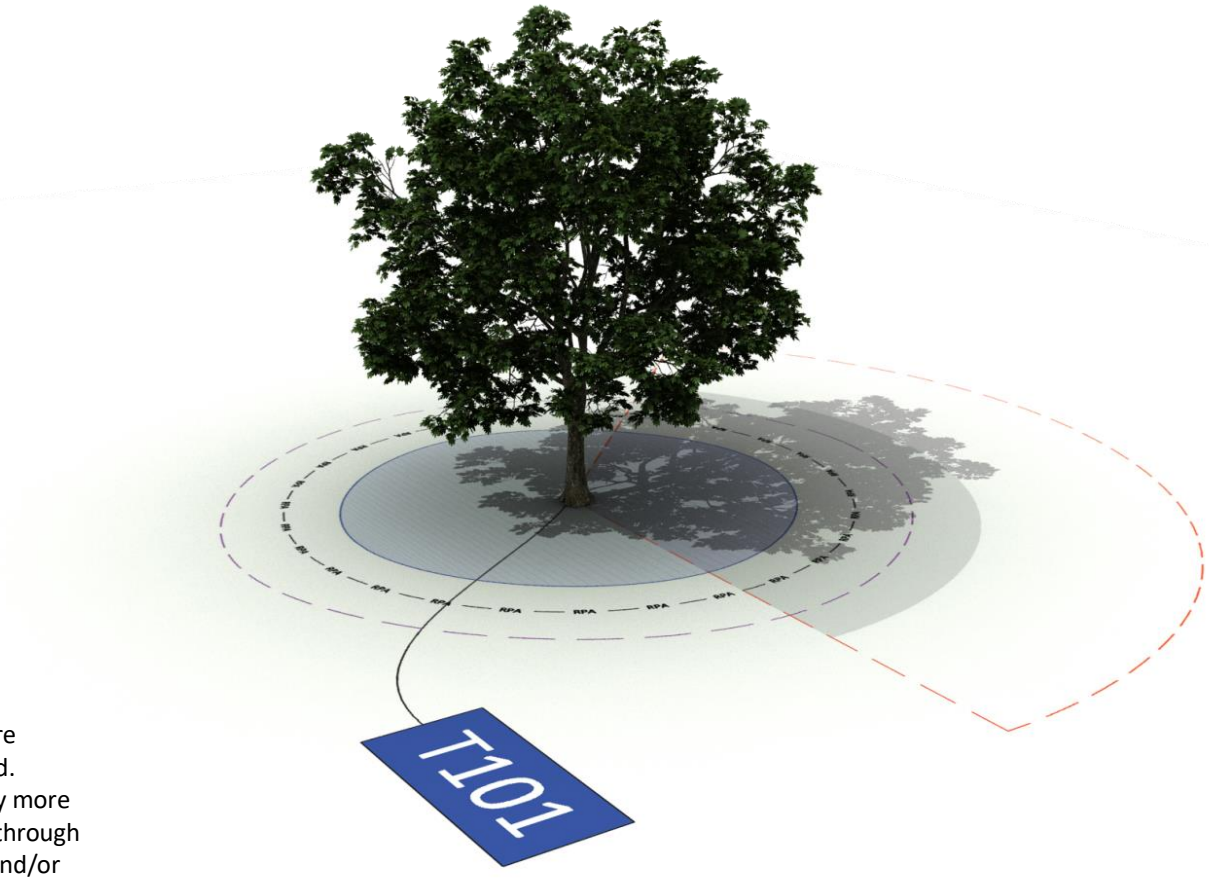
Measured on accessible compass points (estimated where access is restricted) - illustrating approximate current canopy size/shape. Consideration should be given to the existing and future spread of retained trees. Suitable separation between structures and tree canopies should be designed to avoid future nuisance, domination and unreasonable spatial relationships.

Tree Height

Tree heights are shown in the survey data and represented on plan by the shadow arc (existing height = radius of shadow arc).
Future potential height may also be shown - represented by a second arc.

Age Class

Young trees (up to ½ their potential age) generally require enough space to mature if long term retention is planned. Care must be taken with older trees as they are generally more susceptible to damage, and less tolerant of injury/harm through a) root damage; b) compaction of soil; and c) excessive and/or repeated pruning. Adequate space should be allowed for long term physical retention and future maintenance.



Root Protection Area - RPA

Radial **Root Protection Areas** assume a circular area of rooting - calculated in accordance with BS5837:2012.
RPAs represent minimum soil rooting area required to sustain the tree (capped at 707m^2).
RPAs may have been modified to reflect actual site conditions and may not be shown as circular on accompanying plans.
Incursion into the RPA during any part of the investigation, demolition, design & construction phases of the project will require specialist arboricultural input.
Early assessment of impact will facilitate the process and avoid abortive design works.
The RPA is circular by default - any deviation from this must be supported with professional arboricultural assessment.

Shadow Arc

The constraints plan shows the approximate shadow length between 6am to 6pm in 30 minute steps during mid summer using Axciscape Software (a tool used for surveying trees). Using latitude and canopy size, this is a more accurate method for measuring shadow movement than that set out in BS5837 2012.

The shadow arc represents the most significant area affected by obstruction of sunlight. It is not intended to be definitive and requires an amount of interpretation – it is a good starting point to consider shading. Where habitable buildings or useable amenity space are planned within the shadow arc areas it is recommended that further analysis is undertaken using Aspect's tailored software to assess the actual implications.

The shadow arc is not a representation of the absence of skylight/daylight and does not take into account the natural transmissivity of the trees crown – this varies depending on the species etc.

The internal layout, use of buildings and the arrangement and size of windows is also important. Heavy or prolonged shadowing (effects will be exemplified where trees form groups) of main living areas may be inadvisable whilst the shadowing of side elevations and ancillary rooms may be insignificant.

Demolition, Design & Construction Issues

When planning investigations, demolition, design & construction, layouts and configuring buildings it is important to consider the following against potential negative impacts on retained trees: Investigations (archaeological trenches); Construction space required to build the scheme; location of services/utilities; Highway visibility requirements; hard surfacing (a maximum of 20% coverage of previously undisturbed RPA may be acceptable – further specialist advice should be sought); and other infrastructure provisions such as substations, refuse stores, lighting, signage, satellite dishes and CCTV sightlines. Trees can effect and be affected by many aspects of site operations, during the conception and design process the project arboriculturist should be involved in the on-going review of layout, architectural, engineering and landscape drawings.

Proximity of trees to structures[1]: The default position should be that structures are located outside the RPAs of trees to be retained. However, where there is an overriding justification for construction in the RPA, technical solutions might be available that prevent damage to trees. Account should be taken of the proposed orientation and aspect of new buildings, the type of building, its use and location relative to the tree, and the species attributes of the tree. Buildings, footpaths and hard-standing areas should be designed with due consideration to the proximity of retained trees, especially in terms of their foliage, flowering and fruiting habits. Where conflicts might arise, detailed design should address these issues.

Planning Applications

Local Authorities have a **statutory duty** to consider the protection and planting of trees when granting planning permission for proposed development. The potential effect of development on trees, whether statutorily protected (e.g. by TPO/Con Area) or not, is a material consideration that is taken into account in dealing with planning applications. Consideration should be given to:

- Legal designations e.g. Tree Preservation Orders / Conservation Areas
- Planning policy – National policy (NPPF) / Regional / Local
- Guidance and best practice: BS8545:2014, **BS5837:2012**, BS4428:1989, NHBC Chapter 4.2, BRE CP75/75, BRE 209.

The level of arboricultural information required for planning may depend on the particular LPA or the type of application being made.

[1] Structure is defined in **BS5837:2012** as any manufactured object e.g. building, carriageway, path, wall, service run, and built or excavated earthwork.

General limitations

Trees are large dynamic organisms whose health and condition can change rapidly, therefore due to the changing nature of trees and other site considerations, this report and any recommendations made relating to tree health/condition are only valid for the 12 month period following the most recent site visit/survey, or sooner following mechanical failure from unseen defects and/or severe weather.

No documented information has been provided regarding any site specific history of ground disturbance, root damage or severance, changes in soil levels, previous utility installations or any changes in site conditions.

Subsidence risk assessment: This report is primarily concerned with the condition of existing trees and the application of current guidance for their retention. Any discussion of soil characteristics is only presented where this may have a direct effect on tree growth. This report does not seek to address the specific area of subsidence risk assessment.

Foundation design: This report does not specifically relate to risks associated with subsidence, heave or other forms of ground disturbance associated with tree root growth or tree removal. The design and construction of foundations should be informed by appropriate soil sampling and laboratory testing in accordance with NHBC[2] Standards.

Installation of utilities & services: Unless otherwise recommended in this report it is assumed that utility installations in close proximity to existing trees will be undertaken in accordance with NJUG[3] guidelines.

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Survey method: The baseline survey was of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level. Where a more detailed assessment/inspection of a particular feature is deemed necessary it is recommended in the site survey data.

The focus of the survey is to determine the suitability for the retention of trees within a proposed development in accordance with BS583:2012 Trees in relation to design, demolition and construction - recommendations; it does not relate to minor risks associated with trees such as poisoning after ingestion, debris from leaf litter or seeds/fruit.

Trees located outside of the site perimeter have been noted during the site survey where they pose an above ground risk, however, their exact location and measurements may have been visually estimated due to lack of access. The position of trees on the accompanying site plan may have been estimated.

[2] *Building near trees.* NHBC Standard, Chapter 4.2, National House-Building Council, UK (2014).

[3] Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. NJUG 10, Volume 4.

BS5837:2012 provides the following guidance relating to levels of information required for planning:

DELIVERY OF TREE-RELATED INFORMATION INTO THE PLANNING SYSTEM:

Stage	Minimum detail	Additional information
Pre-application	• Tree survey.	• Tree retention/removal plan – draft.
Planning application	• Tree survey. • Tree retention/removal plan (final). • Retained trees and RPAs shown on proposed layout • Strategic hard and soft landscape design, including species and location of new tree planting • **Arboricultural impact assessment**	• Existing & proposed levels. • Tree protection plan (TPP). • Arboricultural method statement (heads of terms). • Details for all special engineering within the RPA and other relevant construction details.
Reserved matters/ planning conditions	• Alignment of utilities (including drainage), where inside the RPA or where installed using a trenchless method. • Dimensioned TPP & Detailed AMS. • Schedule of works to retained trees. • Detailed hard/soft landscape design.	• Arboricultural site monitoring schedule. • Tree and landscape management plan. • Post construction remedial works. • Landscape maintenance schedule.

ARBORICULTURAL IMPACT ASSESSMENT (INFORMATION REQUIRED):

- Evaluation: Impact of tree losses.
- Effect of construction on amenity value.
- Shadow influence on dwellings/buildings/amenity space.
- End use of space near retained trees - risk assessment.
- Designations: Tree Preservation Orders / Conservation Areas.
- Potential incompatibilities between layout and retained trees.
- Potential for new planting to provide mitigation for any losses.
- Canopy protection during construction (extension of RPA).
- Pruning works to facilitate development.
- Future pressure for tree removal.
- Direct & Indirect Damage.
- Proximity of trees to structures.
- Excavations or changes in ground levels near retained trees.
- Installation of hard surfacing in RPAs.
- Infrastructure requirements – services etc.
- Removal of existing structures and hard surfacing.
- Construction: access, working space, storage of materials/topsoil.

BS5837:2012 - CASCADE CHART FOR TREE QUALITY ASSESSMENT

Category and definition	Criteria			Identification on plan
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other U category trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality • NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve.			RED
Category and definition	**Criteria - Subcategories**			
	1 Mainly Arboricultural values	2 Mainly landscape values	3 Mainly cultural values	Identification on plan
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual, or those that are essential components of groups, or of formal or semi-formal Arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	GREEN
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the Category A designation	Trees present in numbers usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural benefits	BLUE
Category C Those of low quality and value with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with no material conservation or other cultural benefits	GREY

Tree Survey - Key

HGT:	Height in Metres.
ST Ø:	Stem Diameter in millimetres.
Cr RAD:	Estimated average canopy radius to compass points.
CH:	Estimated height of crown clearance.
Est Cont:	Estimated remaining contribution in years.
Rad RPA:	Radial Root Protection Area in metres from stem centre.
12/9:	RPA Reduced.

Age Class:

NP:	New Planting
Y:	Young (1/5th of life expectancy)
SM:	Semi mature (2/5th of life expectancy)
EM:	Early mature (3/5th of life expectancy)
M:	Mature (4/5th beyond life expectancy and declining naturally)
OM:	Over Mature (5/5th of life expectancy)
V:	Veteran (of great age for its species or possibly of conservation value)

Condition:

P = Physiological

Good	No significant health problems
Fair	Symptoms of ill health that can be remediated
Poor	Symptoms of ill health that cannot be remediated

S = Structural

Good	No significant structural issues
Fair	Structural issues that can be remediated
Poor	Structural issues that cannot be remediated

Label/Tag Number:

H:	Hedge
T:	Individual Tree
G:	Tree group
W:	Woodland
#:	Off site

BS5837 Category (colour coded)

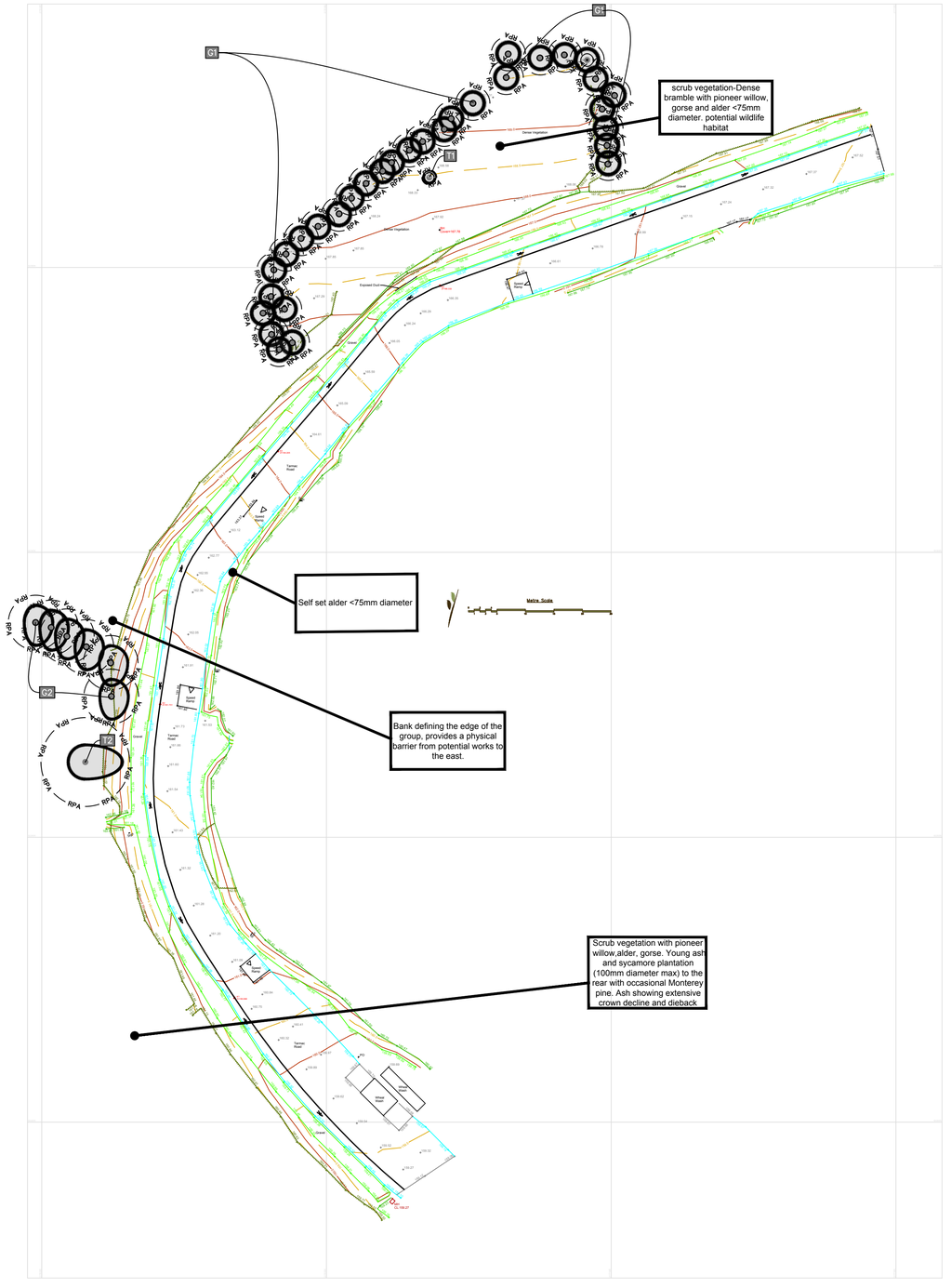
BS Cat – *Category of retention* **U:** *Removal* **A:** *High quality/value* **B:** Moderate quality/value **C:** *Low quality/value* **e:** *Estimated*

Notes: *Tree measurements up to 10m have been rounded to the nearest half meter. Measurements over 10m are rounded to nearest metre.*

Key Tree : *Trees of such stature or landscape significance that they warrant consideration as a constraint.*

Tree Ref	Species	HGT	St Ø	Cr Rad N	Cr Rad E	Cr Rad S	Cr Rad W	Cr Hgt	Age class	Physiological & Structural con'd Observations –ve/+ve Preliminary Management Recommendations	Est Cont	RPA	BS Cat
G1	**Common Alder** Alnus glutinosa **Ash** Fraxinus excelsior **Sycamore** Acer pseudoplatanus **Common Oak** Quercus robur **Wild Cherry** Prunus avium **Beech** Fagus sylvatica	8	250	2	2	2	2	1	SM	P: Fair S: Fair • Edge trees recorded. Indicative crown spreads and stem diameters given. • Uniform spacing between stems. • Ash have varying stages of dieback due to ash dieback disease and limited useful contribution. • Ash canker also noted on stems and branches. • Sycamore have Squirrel damage to stems and primary branches.	10+	3.0	C1
T1	**Common Oak** Quercus robur	2.5	110	1	1	1	1	0.5	SM	P: Good S: Good • Small self set oak centrally located in scrub vegetation	10+	1.3	C1

Tree Ref	Species	HGT	St Ø	Cr Rad				Cr Hgt	Age class	Physiological & Structural con'd Observations –ve/+ve Preliminary Management Recommendations	Est Cont	RPA	BS Cat
				N	E	S	W						
G2	**Monterey Pine** Pinus radiata	16	400	3	3	4	2	5	SM	P: Good S: Good • 1.5m bank has been created east of G2-forming a boundary from the bramble and scrub to the east. Provides a physical barrier where potential ground disturbance east of bank should cease. • Individually trees are of low quality.	10+	4.8	**C1**
T2	**Monterey Pine** Pinus radiata	16	650	3	6.5	3	3	7	SM	P: Good S: Good • Forming part of G2, Individually picked up due to larger crown size and being on the edge of the wooded area.	10+	7.8	**C1**



KEY

BS 5837: 2012 Tree Category

A B C U

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- TAG — Tree / Group Reference (by category)
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- Root protection area – RPA (BS5837)
- RPA Modified due to site conditions
- Shade arc – Axciscape

DESIGN & LAYOUT OPPORTUNITIES

- TAG — Tree Preservation Order – TPO
- Aged/Veteran Tree – NPPF
- KEY Feature

Documents/plans supplied by client for use in this drawing:
Topo Survey 20-9284-001
Accompanying documents which must be read in conjunction with this drawing:
05336 Tree Survey 13.11.2020

Notes

- All dimensions are in metres, unless otherwise stated.
- The original of this drawing was produced in colour, a monochrome version should therefore not be relied upon.

Client:	Suez		
Project:	Connon Bridge Turning Circle		
Title:	Tree Constraints Plan		
Date:	24/11/2020	Sheet:	1 of 2
Scale:	1/200 @ A1	Drawn:	JG
		Checked:	DS
Dwg Ref:	05336.TCP.24.11.2020		

ASPECT TREE CONSULTANCY
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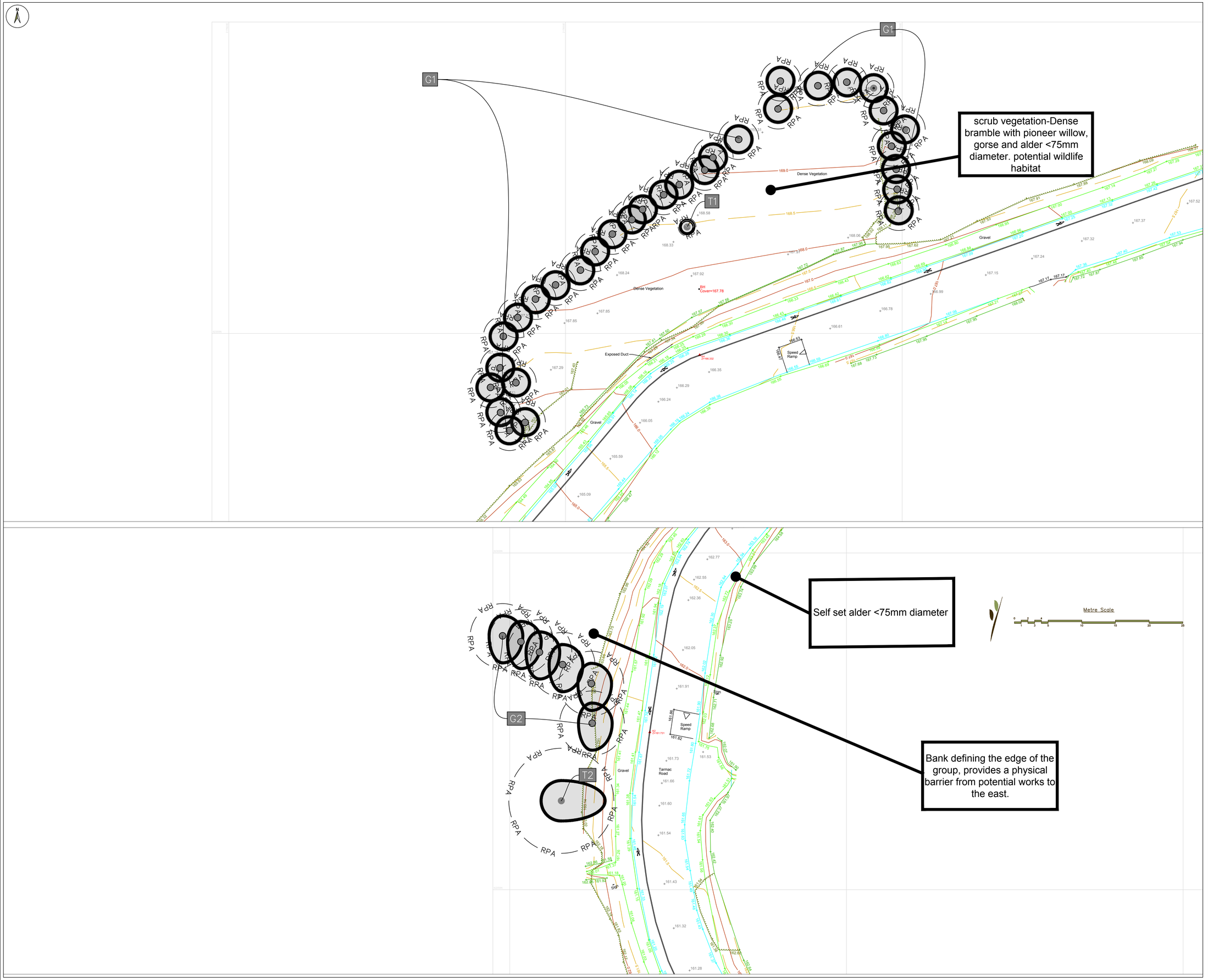
Tel: 01364 644822
www.fresh-aspect.com



KEY

BS 5837: 2012 Tree Category

A B C U

TREE CONSTRAINTS INFORMATION

- TAG — Tree / Group Reference (by category)
- Individual tree (by category)
- Tree group/hedge (by category)
- Root protection area – RPA (BS5837)
- RPA Modified due to site conditions
- Shade arc – Axciscape

DESIGN & LAYOUT OPPORTUNITIES

- TAG — Tree Preservation Order – TPO
- Aged/Veteran Tree – NPPF
- KEY Feature

Documents/plans supplied by client for use in this drawing:
Topo Survey 20-9284-001
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Appendix 9.9 - References

- Landscape Institute (LI) and the Institute for Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA 3).
- Landscape Institute (2019) Technical Guidance Note 6/19 Visual Representation of Development Proposals.
- Natural England (2014) An Approach to Landscape Character Assessment.
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- The Cornwall Local Plan: Strategic Policies 2010 - 2030 (November 2016)
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- Cornwall Landscape Character Assessment (2007) – Online [accessed on 10 August 2020]
- Cornwall Landscape Character: Best Practice Guide (June 2011)
- Cornwall Renewable Energy Planning Advice (March 2016). Annex 1: An assessment of the landscape sensitivity to on-shore wind energy & large-scale photovoltaic development in Cornwall