

Appendix 27.1

Landscape and Visual Impact Assessment (LVIA) Methodology

Appendix 27.1 Dounreay Tri

Landscape and Visual Impact
Assessment Methodology

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Introduction

The aim of the Landscape and Visual Assessment process is to identify, predict and evaluate significant effects on particular elements of the landscape and visual resources arising from the proposed development.

Landscape is defined in the European Landscape Convention (Council of Europe 2000) as “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. The term does not mean just special or designated landscapes and it does not only apply to the countryside. Landscape can mean a small patch of urban wasteland as much as a mountain range and an urban park as much as an expanse of lowland plain. It results from the way that different components of our environment - both natural (the influences of geology, soils, climate, flora and fauna) and cultural (the historical and current impact of land use, settlement, enclosure and other human interventions) - interact together and are perceived by us.’

LVIA Methodology

The methodology for the current study is based primarily on “Guidelines for Landscape and Visual Assessment 3rd Edition” Landscape Institute and Institute of Environmental Management and Assessment 2013 (GLVIA3).

In summary, this process includes the following key stages:

- Definition of Study Area;
- Confirmation of Scope;
- Description of Baseline;
- Assessment of Effects;
- Design input and Mitigation; and
- Reporting of significant residual effects.

The stages are described in further detail below.

STAGE 1: DEFINITION OF STUDY AREA

The Study Area on which the LVIA focuses is shown in Figure 27.1, extending to include all areas within which significant landscape and visual effects (as defined by EIA Regulations) are considered most likely to occur. The boundary which defines the Study Area was selected on a realistic and pragmatic basis, based on Zone of Theoretical Visibility (ZTV) mapping.

A study area defined by a 10km radius from the outer edge of the proposed development site is proposed for the LVIA.

STAGE 2: CONFIRMATION OF SCOPE

This stage includes:

- Summary of the key points that Marine Scotland (MS) The Highland Council (THC) and Scottish Natural Heritage (SNH) wish to see addressed by the LVIA, as agreed through the formal Scoping process.

STAGE 3: DESCRIPTION OF BASELINE

This stage includes:

- A desk study to establish the existing conditions, including the landscape and visual resources of the study area, and initial mapping of Zones of Theoretical Visibility (ZTVs) for the Project components;
- Field survey work, initially at strategic/reconnaissance level and later at detailed level, to verify the important landscape, and visual characteristics of the area highlighted by the desk study; and
- Identification of key landscape, and visual receptors.

Landscape Baseline

Baseline landscape character will be described by reference to

- Landscape Character Types identified in the existing published SNH assessment reports
- Designated landscapes within the Study Area will be identified and described. These include National Scenic Areas (NSAs), Special Landscape Areas (SLAs) Wild Land Areas (WLAs) and Historic Gardens and Designed Landscapes (HGDLs)

The key landscape receptors (the components of the landscape that are likely to be affected by the proposal) will be identified from the above descriptions and will include:

- Overall landscape character and key characteristics;
- Individual landscape elements or features; and
- Specific aesthetic or perceptual qualities.

The scale of mapping to be used in the assessment process has been determined as 1:50000, in accordance with guidance in SNH 2008.

Visual Baseline

The baseline studies for visual effects will establish:

- The area in which the development will be visible;
- The different groups of people who may experience views of the development (visual receptors);
- The viewpoints where they will be affected; and
- The nature of the views at those points.

The key visual receptors are the people within the area who will be affected by the changes in views and visual amenity and will include:

- People living in the area (residents);
- People working in the area (on sea and land);
- People travelling through the area on roads, ferries, or by air;
- People visiting the area (including tourists); and
- People engaged in recreation.

Viewpoints which fall within the ZTVs (and Cumulative ZTVs (CZTVs) where appropriate) which are representative of these different groups will be identified and selected. They will be selected in

accordance with criteria in GLVIA3 and specific guidance in SNH 2012, (p.4.15) as agreed with MS and statutory consultees, principally THC and SNH. The selection criteria for viewpoints will include the following.

- The full range of different types of views, e.g. popular hilltops, footpaths and other recreational routes, key transport routes (on and offshore where relevant), minor roads where the tidal array will be the focus of the view, settlements, cultural and recreational foci, and so on;
- Views from areas of high landscape or scenic value; both designated and non-designated, including NSAs, AGLVs, GDLs, SAWLs, tourist routes and local amenity spaces;
- A full representation of views from a range of distances out to the edge of the 10km study area, aspects, landscape character types and visual receptors; to include coastal views looking out to the coast and back, as well as across water to opposing shores;
- All aspects of the proposed development, i.e. illustrate it “in the round” to help in the design development and assessment processes. This will also enable assessment of a range of light conditions e.g. side-lit, back-lit and front-lit;
- Visual composition. For example focussed or panoramic views, simple or complex;
- The variety of images that the project will present from coastal areas as well as important coastal hilltops and landmarks including, for example, where the whole tidal array is visible as well as places where partial views occur;
- A range of distances and elevations out to the edge of the 10km study area;
- Recognition of the mobility of receptors, including consideration of Sequential views along specific routes; and
- Viewpoints which are already important vantage points within the landscape, for example local visitor attractions, scenic routes, or places with cultural landscape associations.

The initial proposed list of candidate Viewpoints is included in Table A below.

Table A – proposed viewpoints

VP	Name	Approx OS ref	Approx. Elevation	Key Reasons for selection
Mainland				
1	Ben Ratha	NC94972, 61078	251m	<ul style="list-style-type: none"> • Hill Walkers
3	Portskerra/Melvich	NC87745, 66118	25m	<ul style="list-style-type: none"> • Residents • Visitors/tourists • Local and regional road users on key coastal road A836 • Cyclists on NCR1 • Representative of Farr Bay, Strathy Point and Portskerra SLA
4	Drum Holliston Car Park	NC93261, 64623	90m	<ul style="list-style-type: none"> • Residents • Local and regional road users on key coastal road A836 • Cyclists on NCR1
5	Sandside Harbour Car Park	NC95777, 65913	10m	<ul style="list-style-type: none"> • Visitors/tourists
6	St Mary’s Chapel , Forss	ND02504, 70078	11m	<ul style="list-style-type: none"> • Visitors, tourist

STAGE 4: ASSESSMENT OF EFFECTS

The assessment of effects includes:

- Identification and evaluation of potential landscape effects. Landscape effects are effects on landscape as a resource and affect landscape receptors as defined in the baseline study;
- Identification and evaluation of potential visual effects. Visual effects are effects on views and visual amenity as experienced by people and affect visual receptors as defined in the baseline study; and
- Identification and evaluation of cumulative effects. Cumulative effects may occur to the landscape, or visual resource and are defined as “the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together.” (SNH 2012b).

Assessment Criteria

Landscape Sensitivity to Change

The relative sensitivity of the landscape character within each character area is specific to the proposed change and is assessed in terms of 2 sets of criteria: (GLVIA3):

- Susceptibility to the change; and
- Value of the receptor

For the purposes of this assessment the following definitions have been applied as noted in Table B below. It is stressed that in the assessment of a specific receptor/effect, the actual criteria applied may differ from the Typical Criteria noted below. In all cases a clear explanation of the reasons for the judgement of sensitivity will be given.

Table B: Definitions of landscape sensitivity

Sensitivity of receptor	Typical Criteria
Very High	<p>Susceptibility to Proposed Change Landscapes of very high quality and condition: with consistent, intact, well-defined, and distinctive attributes, well-managed, in exceptional state of repair. None of the key characteristics of the landscape relate well to the proposed development</p> <p>Value Landscapes located within and which contribute to the value of landscapes designated at national and/or international level: e.g. designated National Scenic Area, National Park, World Heritage Site. Landscapes with a very high degree of relative wildness Landscapes where there is evidence of very high value associated with natural heritage, recreational activity, cultural associations, or other special interests.</p>
High	<p>Susceptibility to Proposed Change Landscapes of high quality and condition. Few of the key characteristics of the landscape relate well to the proposed development</p> <p>Value Landscapes located within and which contribute to the value of landscapes designated or recognised at regional or local level e.g., Historic Gardens and Designed Landscapes, AGLV, SLLC, AASL. Landscapes with a high degree of relative wildness. Landscapes where there is evidence of high value associated with natural heritage, recreational activity, cultural associations, or other special interests.</p>
Medium	<p>Susceptibility to Proposed Change Landscapes of moderate quality and condition. Some of the key characteristics of the landscape relate well to the proposed development</p> <p>Value Landscapes may be locally valued but with no explicit designation or recognition of value. Landscapes dominated by agricultural or other man-modified land uses, although with some degree of relative wildness. Landscapes where there is evidence of some value associated with natural heritage, recreational activity, cultural associations, or other special interests.</p>

Sensitivity of receptor	Typical Criteria
Low	<p>Susceptibility to Proposed Change Landscapes of low or poor quality and condition, attributes poorly-managed, in poor condition and state of repair Settled landscapes, with complex land use patterns where built elements and structures are already a strong part of the landscape character. Landscape intrinsically able to accommodate proposed change with many of the key characteristics relating well to the proposed development, or unlikely to be diminished.</p> <p>Value Landscapes with few specific features of natural heritage, cultural associations, or other special interest.</p>
Negligible	<p>Susceptibility to Proposed Change Heavily developed, industrial landscapes. Landscapes of very low or very poor quality and condition, attributes very poorly-managed, in very poor condition and state of repair. None of the key characteristics are likely to be diminished by the proposed change.</p> <p>Value Landscapes with no specific features of natural heritage, cultural associations, or other special interest.</p>

Magnitude of Landscape Change

The magnitude of change to landscapes is assessed in terms of 3 sets of criteria: (GLVIA3)

- Size or scale;
- Geographical extent; and
- Duration and reversibility

For the purposes of this assessment the following definitions have been applied as noted in Table C below. It is stressed that in the assessment of a specific receptor/effect, the actual criteria applied may differ from the Typical Criteria noted below. In all cases a clear explanation of the reasons for the judgement of magnitude will be given.

Table C: Definitions of magnitude of Landscape change

Magnitude of change	Typical Criteria
Major	<p>Size or Scale High proportion of landscape unit affected High proportion of landscape elements affected. Substantial change/complete loss of, or fundamental change to key characteristics of landscape.</p> <p>Geographical Extent Large number of LCTs affected in the majority of the study area; large area affected of the LCT(s) within which the development will sit; considerable change to the immediate setting; considerable change to the site of the proposed development.</p> <p>Duration and reversibility Long term, or permanent change to landscape (25 or more years) Change difficult, or impossible to remove or reinstate</p>
Moderate	<p>Size or Scale Moderate proportion of landscape unit affected Moderate proportion of landscape elements affected. Material change to key characteristics of the landscape.</p> <p>Geographical Extent Several LCTs affected over part of the study area; medium area affected of the LCT(s) within which the development will sit; noticeable change to the immediate setting; noticeable change to the site of the proposed development.</p> <p>Duration and reversibility Medium term change to landscape (5-24 years) Change that can be partially removed or reinstated.</p>
Minor	<p>Size or Scale Small proportion of landscape unit affected Small proportion of landscape elements affected. Discernable changes to key characteristics of the landscape.</p> <p>Geographical Extent Few LCTs affected over a small part of the study area; small area affected of the LCTs(s) within which the development will sit; insignificant change to the immediate setting; insignificant change to the site of the proposed development.</p> <p>Duration and reversibility Short term change to landscape (up to 5 years) Change that can be fully removed and reinstated</p>
Negligible	<p>Size or Scale Changes which are not discernible or have no effect on the integrity of landscape elements or landscape unit.</p> <p>Geographical Extent Very few LCTs affected over part of the study area; very small area affected of the LCTs (s) within which the development will sit; imperceptible change to the immediate setting; imperceptible change to the site of the proposed development.</p>

Sensitivity of Visual Receptors to change

All visual receptors are people. The relative sensitivity of the visual receptors is specific to the proposed change and is assessed in terms of two sets of criteria (GLVIA3):

- Susceptibility of visual receptors to the proposed change; and
- Value attached to views experienced by receptors

For the purposes of this assessment the following definitions have been applied as noted in D below. It is stressed that in the assessment of a specific receptor/effect, the actual criteria applied may differ from the Typical Criteria noted below. In all cases a clear explanation of the reasons for the judgement of sensitivity will be given.

Table D: Definitions of visual sensitivity

Sensitivity of receptor	Typical Criteria
Very High	<p>Susceptibility to Proposed Change Users of strategic outdoor recreational facilities (including national long distance footpaths, national cycle routes). Visitors to important mountain summits, landmarks, heritage assets or other attractions, where views are an essential contributor to the experience Residents at home with views of the development*</p> <p>Value Attached to Views Very high value placed on the View: celebrated viewpoint included in tourist guides, view located within a landscape designated at national or international level.</p>
High	<p>Susceptibility to Proposed Change Users of outdoor recreational facilities (including local Core Paths and other recreational footpaths, cycle routes or rights of way) Special interest groups to whom landscape setting is important. Residents of communities/settlements where views are an important contributor to the landscape setting enjoyed by residents in the area. Travellers on the inter-island ferries.</p> <p>Value Attached to Views High value placed on the View: recognised viewpoint marked on maps, views within landscapes designated at regional or local level, views from recognised scenic routes/designated tourist routes, views of (or from) landscape or built features with important physical, cultural or historic attributes. View protected at local or regional level by Development Plan</p>
Medium	<p>Susceptibility to Proposed Change People engaged in outdoor sports or recreation where appreciation of the landscape setting contributes to the experience People at places of work, whose attention may be focused on their activity rather than the wider landscape. but where the setting is recognised as an important contributor to the quality of working life Travellers on road, rail, or other transport routes excluding the inter-island ferries.</p> <p>Value Attached to Views</p>

Sensitivity of receptor	Typical Criteria
	Some evidence of value placed on view, view may contribute to setting of activity
Low	<p>Susceptibility to Proposed Change People at places of work, whose attention may be focused on their activity rather than the wider landscape. People engaged in outdoor sports or recreation which does not involve or depend on appreciation of views of the landscape</p> <p>Value Attached to Views No evidence of value placed on view</p>
Negligible	Susceptibility to change of viewers and value attached to views are of a level not considered relevant to the assessment

Magnitude of Change to Views and Visual Amenity

The magnitude of change to views and visual amenity experienced by the receptor is assessed in terms of 3 sets of criteria: (GLVIA3)

- Size or scale;
- Geographical extent; and
- Duration and reversibility

For the purposes of this assessment the following definitions have been applied as noted in Table E below. It is stressed that in the assessment of a specific receptor/effect, the actual criteria applied may differ from the Typical Criteria noted below. In all cases a clear explanation of the reasons for the judgement of magnitude will be given.

Table E: Definitions of magnitude of visual change

Magnitude of change	Definition
Major	<p>Size or Scale Development will be the dominant feature in the view. High proportion of development visible, no significant screening effects. Strong contrast with key visual characteristics of the baseline view e.g. scale, horizontality, composition. Duration of view not curtailed by physical parameters.</p> <p>Geographical Extent Angle of view to development coincides with focus of receptor activity/viewpoint/road alignment, etc. Short distance from viewpoint to development Development occupying a high proportion of the view.</p> <p>Duration and Reversibility Long term/permanent change to view (25 or more years) Change difficult, or impossible to remove or reinstate</p>
Moderate	<p>Size or Scale Development will be a noticeable component of the view Development partially screened by topography, vegetation, etc. Some conflicts with key visual characteristics of the baseline view e.g. scale, horizontality, composition. Duration of view relatively short. Time to absorb or contemplate view curtailed by physical parameters.</p> <p>Geographical Extent Angle of view to development does not coincide with focus of receptor activity/viewpoint/road alignment, etc. Moderate distance from viewpoint to development Development occupying part of the view.</p> <p>Duration and Reversibility Medium term change to view (5-24 years) Change that can be partially removed or reinstated.</p>
Minor	<p>Size or Scale Development is a minor component of view Development substantially screened by topography, vegetation, etc. Development compatible with key visual characteristics of the baseline view e.g. scale, horizontality, composition. Duration of view short or transient. Glimpse or interrupted views</p> <p>Geographical Extent Angle of view predominantly away from development Long distance from viewpoint to development Development occupying a small part of the view.</p> <p>Duration and Reversibility Short term change to view (up to 5 years) Change that can be fully removed and reinstated</p>
Negligible	Changes which are not discernible.

Visualisations

Visualisations produced in order to assess visual effects will be prepared in accordance with the following guidance sources:

- Visualisations for Wind Energy Developments, The Highland Council, March 2015; and
- Visual Representation of Wind Farms (Version 2.1), SNH, December 2014

Photography will be undertaken using a Canon EOS 5D Digital Single Lens Reflex (DSLR) camera with a Canon EF 50mm lens mounted on a panoramic Manfrotto 303 Head plus tripod set to 25 degree intervals for landscape shots and 15 degrees for portrait. Camera RAW files will be provided to The Highland Council for the Single Frame images.

Photography and visualisations will be included in a bound A3 Visualisation document, with the main visualisations labelled as 'Images for Landscape Assessment', and Single Frame Images labelled as 'Images for Visual Impact Assessment', together with any additional visuals which may be requested by THC.

Photography and visualisations will also be produced in accordance with the Standards as detailed in 'Visual Representation of Windfarms', Scottish Natural Heritage, December 2014, with the main visuals as A1 width images, and a set of A3 Single Frame Viewpoint Pack images, using the appropriate method of projection as required, together with any additional visuals which may be requested by SNH.

Environmental Consequence of effect: Landscape and Visual effects

The sensitivity of the receptor and the magnitude of effect are combined to define the environmental consequence of the effect.

A clear explanation of how each judgement has been reached will be given in narrative form in the text, supported by reference to an impact matrix. It is important to note that with regard to Landscape and Visual effects this matrix has been used as a guide only. The matrix is not used as a prescriptive tool, and the analysis of specific effects must make allowance for the exercise of professional judgement. Therefore, in some instances, a particular parameter may be considered as having a determining effect on the analysis at the expense of the matrix. It should also be noted that likelihood of impact is not considered a relevant parameter for landscape and visual effects and has not been included in the assessment.

The impact matrices will need to show consistency throughout the EIA. However, there may be individual chapters that need to be addressed slightly differently.

For the purposes of the LVIA methodology, the impact matrix is presented in Table F below.

Table F: Determination of environmental consequence

Sensitivity	Magnitude				
	Major	Moderate	Minor	Negligible	Positive
Very High	Major	Major	Moderate	Minor	Positive
High	Major	Major	Moderate	Minor	Positive
Medium	Major	Moderate	Minor	Negligible	Positive
Low	Moderate	Minor	Minor	Negligible	Positive

Significance of Landscape and Visual Impacts

Again, the determination of the level of significance of the impact will be consistent throughout the EIA. However, there may be individual chapters that need to be addressed slightly differently. The table of significance of impacts is shown in G. Please note that this may change slightly in line with the overall EIA.

Table G: Determination of significance of impact

Consequence of Impact	Significance under EIA Regulations
Major	Significant Highly significant and requires immediate action. Impacts to be avoided rather than managed.
Moderate	Significant Requires additional control measures and/or active management
Minor	Not Significant May require some management to ensure remains within acceptable levels
Negligible	Not Significant Difficult to detect or measure.
Positive	Positive To be encouraged

Nature of Effect

Determination of the nature of the effect is essentially a matter of judging whether the key landscape or visual characteristics are strengthened, weakened or not affected as a result of any changes brought about by the proposed development. Therefore, the impact of a proposed development can be adverse or beneficial, or there can be no impact.

The following system of categorisation is used for the nature of the impact:

- Adverse: key characteristics of the landscape or quality of the visual experience weakened by the introduction of the proposed development;
- Neutral/No Effect: key characteristics of the landscape or quality of the visual experience not affected by the introduction of the proposed development; and
- Beneficial: key characteristics of the landscape or quality of the visual experience strengthened by the introduction of the proposed development.

Cumulative Landscape and Visual Effects

The Methodology for the assessment of Cumulative Landscape and Visual Effects will accord with key guidance in:

- Landscape Institute and Institute of Environmental Management and Assessment 2013 “Guidelines for Landscape and Visual Assessment 3rd Edition” (in particular Chapter 7 pp120-134); and
- SNH 2012b “Assessing the cumulative impact of onshore wind energy developments” (in particular pp10-21).

Outputs will be in accordance with the Advice Note included at Annex 2 of SNH 2012a.

Cumulative impacts will be defined as “the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together.” (SNH 2012b) p4)

The assessment will include cumulative impacts associated with the development proposal in combination with a list of developments to be agreed with statutory consultees which will include:

- existing development, either built or under construction;
- approved development, awaiting implementation; and
- proposals awaiting determination within the planning process with design information in the public domain.

A checklist list will be provided with the list of projects to be assessed to explain the reasons for inclusion: e.g. setting the projects against a “menu” of priorities, including distance from the proposal, certainty of construction, etc. The relevant receptors (landscape character areas, designated landscapes, designed landscapes, visual receptors, including sequential routes through the study area) will also be listed.

The projects may include the following categories of development:

- Buildings;
- Onshore windfarms;
- Offshore windfarms;
- Waterfront and coastal development;
- Existing marker buoys;
- Aquaculture;
- Cable and pipelines;
- Oil and gas infra-structure;
- Marine aggregate extraction;
- Dredging and sea disposal; and
- Tourism and recreation.

A cut-off date for of the agreement of the list of projects to be included in the assessment will be agreed between the developer and statutory consultees but is expected to be approximately 6 months prior to proposed submission of consent application documents.

STAGE 5 DESIGN INPUT AND MITIGATION

The assessment of environmental effects is regarded as an integral part of the design process. Design iteration and mitigation, including input to siting and layout, has been informed iteratively by on-going assessment of landscape and visual effects, resulting in an optimised design solution.

In this regard, specific guidance in SNH 2012 with respect to Layout and Design, and Siting and Design (Sections 5 and 6 respectively) has been taken into account.

STAGE 6 REPORTING OF SIGNIFICANT RESIDUAL EFFECTS

The assessment report (Environmental Statement) will refer exclusively to the residual effects of an agreed final scheme.