Using this toolkit

Please take a little time to read these instructions as it will ensure you make the most of this interactive PDF document.

The Toolkit contains guidance and tools.

The guidance is organised in sections. At the start of each section is an interactive index, as seen on the left of this page. This allows you to see where you are in the Guidance using colour coding, and allows you to jump to any other section easily should you wish.

The tools include checklists, briefing papers and existing study examples. Tools are grouped by development theme; wind, settlement and aquaculture; so that they can be printed as a batch, in either landscape or portrait format. Detailed printing instructions are in the resources section.

At the end of each briefing paper etc., are links that will return you to the place you linked from, or take you to the print version. As these are intended for printing they do not have the links embedded so you need to set up the Back button in the Reader (right).

The blue header text (A Guide to...) on every page links back to this page, acting as a Home button.

Setting up your Reader

Although as an interactive PDF document the Toolkit has navigation features to make it easy to move from section to section, it can not be used like a website. It is designed to be viewed with a document reader program, such as Acrobat Reader or Preview.

These programs come with ‘Previous/Next’ buttons to move from one page to the next page in the sequence of the document, but to make it easier to resume reading at a page when you have clicked a link to another section in the document, such as the Tools or Scenarios, you will need to activate two additional buttons in the reader toolbar.

In Acrobat Reader these buttons are the ‘Previous View/Next View’ buttons in the ‘Tools>Customize Toolbar’ menu.

In Preview on a Mac these buttons are the ‘Back/Forward’ buttons in the ‘View>Customize Toolbar’ menu.

It can not be over emphasised how much easier using this document will be if you enable these additional buttons!

A plain text version of the content of the Toolkit can be found here.
Introducing this toolkit

This toolkit is for planning authorities and other bodies who are planning to commission a landscape capacity study. It is designed to be used by the project manager.

You, the project manager, should use this toolkit when you are beginning to prepare to commission a landscape capacity study – it offers advice which is relevant from the very start of a project.

Aims of this toolkit:

- To help you, the project manager on behalf of the planning authority, commission, project manage and use landscape capacity studies;
- To provide advice on how to get the most useful products from a landscape capacity study; and
- To provide links to resources and supporting information about landscape capacity studies.

The toolkit is the result of an extensive SNH review - "Landscape capacity studies in Scotland – a review and guide to good practice" that can be found here.

What is a landscape capacity study?

‘Landscape capacity study’ has become a broad term, which embraces a number of different types of studies all of which explore how sensitive a landscape is to changes brought about by a specified development.

Definition

Landscape capacity is defined as

‘the degree to which a particular landscape character type or area is able to accommodate change without significant effects on its character, or overall change of landscape character type. Capacity is likely to vary according to the type and nature of change being proposed.’

www.landscapecharacter.org.uk/lca/guidance

A landscape capacity study is most commonly used when you want to:

- Explore whether or not a landscape can accommodate a specified development without significant change to its character or amenity;
- Find the best place to accommodate a specified development with the least disruption to the landscape character; and
- Identify which areas are likely to be most sensitive to changes brought about by introducing a specified development into the landscape.

Each of these aims are different, but they all involve some sort of landscape sensitivity assessment.

A landscape capacity study does not define the precise limit of development which can be accommodated within a given landscape.

Nevertheless, all studies give an indication of the capacity, or ability, of the landscape to accommodate change brought about by the specified development.

For more detail about common features found in a landscape capacity assessment, go to this page.
Common features of landscape capacity studies

During a recent survey most landscape capacity studies were found to share these features:

- Studies focus on a single, specified development type. The planning authority is usually expected to accommodate an expansion of the specified development.
- Studies include an assessment of the sensitivity of the landscape and visual amenity to likely changes introduced by the specified development.
- The sensitivity assessment will be based on a list of ‘criteria’. These are characteristics and qualities of the landscape and sometimes visual amenity, which are most likely to be affected by the specified development.
- A mapped subdivision of the landscape into character types or areas is usually used as the geographic basis of the assessment, generally based on the existing landscape character assessment.
- Studies include an assessment of either the sensitivity of each of the character areas to the specified development, or conversely the potential of the character areas to accommodate the specified development, based on the ‘criteria’ identified.
- Study conclusions usually include maps illustrating the sensitivity of the landscape to the specified development (or conversely, its potential to accommodate the specified development).
- Conclusions sometimes also include guidance on how the development might best be designed to fit in with the individual character areas.

Find out more


‘Landscape capacity studies in Scotland – a review and guide to good practice’, SNH commissioned report no 385, 2010
Can be accessed here

Glossary

A Glossary drawing upon the ‘Landscape Character Assessment Guidance for England and Scotland’ can be found with this document here.
## Potential uses of landscape capacity studies

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Settlement</th>
<th>Wind farms</th>
<th>Aquaculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development plan/management plan, including Local Plans</td>
<td>Yes – especially to inform location of housing allocations for draft plans</td>
<td>Yes – particularly spatial policies such as identifying areas of search</td>
<td>Yes – largely to inform marine spatial plans</td>
</tr>
<tr>
<td>Development plans and topic based strategic management plans</td>
<td>Yes – by identifying and describing landscape sensitivities and constraints as well as opportunities for built development. There may also be additional guidance on mitigation of development</td>
<td>Yes – by providing guidance on siting and design of wind farms, and by identifying landscape and visual sensitivities</td>
<td>Yes – by providing guidance on siting and design of aquaculture development, and by identifying landscape and visual sensitivities</td>
</tr>
<tr>
<td>Development management – advice on enhancement/mitigation</td>
<td>Yes, including advice on advance site landscape works and general settlement enhancement</td>
<td>Yes – by providing guidance on design and mitigation</td>
<td>Yes – by providing guidance on design and mitigation</td>
</tr>
<tr>
<td>Specific, one off advice on casework or Public Local Inquiries (PLI)</td>
<td></td>
<td>Yes – there have been specific commissions to deal with overwhelming casework loads or to assist councils in PLIs</td>
<td></td>
</tr>
<tr>
<td>One off assessment of cumulative effects of development</td>
<td></td>
<td>Yes – there have been specific commissions either to inform a conjoined PLI or to advise on cumulative effects of multiple applications</td>
<td>Yes, for example to inform rationalisation of fish farms</td>
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</tbody>
</table>
### Clarifying purpose

*This part of the toolkit is all about helping you to clarify the purpose of the capacity study before you start to prepare the brief.*

In order to clarify the purpose of your study, it is helpful to:

- Identify specific planning policy and development management needs;
- Decide your own objectives; and
- Review other studies.

Identify planning policy and development management needs

Sometimes, a study is commissioned for one planning purpose and then inadvertently used for another.

Sometimes, the output of a study does not give you the exact information you need to meet the planning authority’s requirements.

To make sure you get the outputs you really need, you will need to think through how the study might:

- Contribute to meeting national planning policy requirements and advice;
- Provide a spatial planning focus for development plan policies – this usually requires ‘lines on maps’;
- Respond to specific local planning needs identified by the planning authority, such as assessing the impacts of development bids for

(contd.)
housing, or the cumulative effects of several concurrent applications for wind farms;
- Be used to **justify recommendations made by development managers** in response to planning applications – this usually requires text which can be lifted from the study and quoted in letters;
- Provide **supporting design guidance** to demonstrate how the specified development can best fit in with the landscape;
- Provide the **basis for supplementary guidance to the development plan** – you will need to establish clearly what format is likely to be acceptable to your planning committee; and
- Demonstrate a **clear rationale which will be used to support recommendations** at Public Local Inquiries.

### Decide your objectives

Clarifying purpose is an **iterative process**, and it is useful to spend time with colleagues making yourself familiar not only with your own planning objectives, but also with experience gained from elsewhere.

Your objectives will relate to the **type of development** for which the study will be commissioned and to **your planning needs**.

The following briefing papers, prepared by development topic, can be used to discuss project objectives with your colleagues:

**Briefing Paper:**
**Objectives for wind farm studies**

**Briefing Paper:**
**Objectives for settlement expansion or housing studies**

**Briefing Paper:**
**Objectives for aquaculture studies**

### Review other studies

It can be helpful to refer to other studies such as those listed here, updated by SNH.

**Table of Existing Landscape Capacity Studies**

When reviewing existing studies, it can be difficult to know how to work out what has been effective. Often you can flick through studies without really understanding the content.

It is useful to have a **structured approach** to carrying out a desk review, and it is also **very useful to discuss the strengths and weaknesses of existing studies** with those who commissioned them.

These tools will help you undertake a review of the studies which are relevant to your commission:

**Checklist:**
**Where to focus a desk review of other landscape capacity studies**

**Checklist:**
**Topics for discussion with those who have commissioned landscape capacity studies**
Preparation a brief

This part of the toolkit is all about helping you prepare a brief for a landscape capacity study and then going on to make the most of the commissioning process.

Before you start to prepare a brief you will need to:

- Identify a project steering group;
- Establish realistic timescales; and
- Familiarise yourself with your procurement process;

When you actually begin to draft a brief you will then need to:

- Agree the detailed contents of the brief.
Identifying a steering group

The steering group will (hopefully) help you prepare the brief as well as manage the project. You will need to think about:

- Who will use the study? – For example, is it aimed at development policy planners, development management, or advisers, like landscape architects? They are the most likely to want to be involved, and will be committed to the study;

- Do you want ‘external’ advice? – such as someone from SNH or a neighbouring authority, on the steering group, or is it a requirement of external funding?

- If possible, identify someone who is not on the steering group, and who has not become over familiar with the study, but who will be able to look at a later draft of the report with ‘fresh eyes’, this could be a more senior colleague, or even someone in SNH; and

- If more than one planning authority is involved, identify people who can give adequate time to the study, as a study is unlikely to be of equal priority across all authorities, especially if development plans are not all at the same stage.

Establishing realistic timescales

Landscape capacity studies are frequently commissioned to input to other planning work, and timescales may be fixed.

However, if possible, careful thought should be given to programming – it is a common complaint from consultants that timescales for this type of study are invariably tight.

When preparing a timetable for the project, you should take into account:

Preparation and setting up

- Allow time to clarify planning aims, agree specific objectives and prepare the brief with the help of colleagues and possibly SNH.

The procurement process

- This may include a pre-qualification questionnaire, a main tender and an interview (which all together may take at least six weeks), as well as the time required to meet your in-house procedures.

The existing commitments of your successful tenderer

- It is very rare that a successful consultant is sitting waiting for a tender to arrive. It makes sense to allow several weeks before a consultant will be available to give their full attention to a new project.

Field work relative to the size of the study area

- Both the physical size of the area and its accessibility will affect the amount of time allocated to field work; and

- It is also useful, even at this stage, to factor in time for the less accessible viewpoints which you may expect consultants to visit – are there Munros, islands, views from the sea?
Time of year
- In winter, **limited daylight and unpredictable weather** can restrict opportunities for field work, which can then take twice as long as in the summer; and
- In summer, both consultants and the steering group will have **holiday** commitments.

Piloting of the method and possible revisions of method
- The steering group will need to have time to **reflect on the method**, perhaps through fieldwork with the consultants or the use of a **pilot study**; and
- It is not uncommon for the purpose of a study to become clearer as a study progresses, or there may be a need to alter the emphasis of a study to respond to initial findings. You may need to allocate some time to **allow for a change in direction, focus or output**.

Availability of the steering group
- The project manager and steering group will have **other commitments**, including holidays and these should be taken into account as far as possible;
- Plan adequate time for **reading, reflection and commenting on drafts** – at least two weeks for each draft; and
- Make sure that there is also time for the consultants to **respond to feedback** and incorporate comments.

Time to edit
- Draft reports often include terminology, text, concepts and assumptions with which the contractor and the steering group have become almost over-familiar. If you can, build in time for a period of reflection, or **editing, by someone unfamiliar** with the study but who will need to use it.

Mapping requirements
- **Final mapping** onto GIS does not usually take place until the final report is approved, so an extra few weeks may need to be allocated for this to take place along with final editing.

Availability of funds from other sources
- For some bodies, including the planning authorities and SNH, funds are only available for a **limited period of time**. The project timescale may be limited by the availability of these resources.

(continued)
Getting the best from procurement

The procurement process should be an opportunity not only to secure the best tender, but also to give you confidence in the study and what it can achieve.

To do this, it is suggested that you use a three stage process. This takes more time, but is likely to give you a better chance at identifying the right contractor for your study.

The 3 stage procurement process

- Undertaking an initial ‘sieving’ process, using a pre-qualification questionnaire (PQQ) which is advertised as an open tender (link to example of PQQ – to be supplied by SNH). This stage should be used to identify a short list of contractors, all of whom you should be happy to commission to do the study.

- The shortlisted tenderers are then invited to tender a full submission in response to a more detailed brief. This stage should allow you to focus on the different approaches of each tenderer, including comparing methods if required

- Finally, you may then wish to invite the preferred tenderers for an interview. By this stage, your thinking about the study will have been influenced by the tender submissions, and an interview allows you to tease out issues and refine tender requirements based on the experience you have gained during the tender process.

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Agreeing the content of the brief

Agree which assessment method should be used

There are various ways of including a method in the brief each with advantages and disadvantages.

Option one:

Identifying and describing a method which **you know well**, and which you are very confident will produce what you need.

- This has the advantage that you will have a clear idea of the **expected study outputs**.
- The disadvantages are that you are **less likely to see innovation** from the tenderers, and that your description of the method might be misinterpreted by tenderers.

Option two:

Inviting **consultants to outline a method** when they submit their tender. To do this effectively, the brief must clearly set out the study aims and objectives.

- This has the advantage of using the tender process to assess the range and potential of different, sometimes **innovative approaches**. You also get to tap into the experience of the tenderers.
- The disadvantage is that there can then be **great disparity in prices and methods**, which make it difficult to judge one tender against another.

Option three:

Tenders can also take a **middle path** between these two approaches, outlining not only aims and objectives but also what the expected outcomes and products of the study should be, but not advising on a specific method.

- This has the advantage of allowing the consultants to develop and present a method which **achieves specified outputs** which reflect the planning authority priorities. It also provides a relatively **level playing field** for assessing tenders.
- The disadvantage is that the description of the required outputs can be **misinterpreted** by the tenderers.

**Sensitivity**

For more detail on methods of assessing landscape sensitivity, follow this link

**Topic Guidance:**

Landscape sensitivity assessments

(Contd.)
Agree development scenarios

A development scenario, or typology, is a description of the type, or types, of development on which the landscape capacity assessment is focused. A landscape sensitivity assessment works best if it is targeted at a very specific type of development.

Some studies have more than one type of development scenario, which are then assessed individually – this is particularly the case in studies assessing the sensitivity of the landscape for wind farms or aquaculture.

The following briefing papers, prepared by development topic, can be used to discuss development scenarios with your colleagues:

Briefing paper:
Development scenarios for wind farms

Briefing paper:
Development scenarios for settlement expansion and housing studies

Briefing paper:
Development scenarios for aquaculture studies

Think about other requirements of the brief

Study outputs will primarily depend on your objectives. Guidance on how to clarify the purpose and identify objectives of a landscape capacity study can be found here.

When preparing the brief it is also helpful to:

- Clearly define the study area. The study area is likely to vary according to the development type. For example, a wind farm related assessment may include landscape which lies within neighbouring planning authorities, settlement studies might be more open-ended, while an aquaculture study will often aim to extend over a whole loch system;

- Consider the topic scope of the assessment. It is generally preferable to limit the capacity assessment to ‘landscape issues’, which in this context means issues associated with understanding landscape character, experience, perception and values. Some housing or settlement studies have explored ‘sustainability’ as a separate, complementary assessment;

- Indicate an appropriate or preferred scale of mapping. There may be in house or logistical reasons for having maps at a particular scale, but the scale should suit the purpose of the study. If you want detailed information, for example in a housing study, then 1: 10 000 scale is appropriate, but for wind farms, 1: 50 000 scale mapping might be more sensible;

- Ensure software compatibility. Make sure that the outputs are compatible with your in house GIS system and any other software programmes that are available to you – be specific about what you can cope with and bear in mind that the consultants may have software which is more up to date than yours! and

- Request mitigation and design guidance. In addition to undertaking a landscape sensitivity assessment, many landscape capacity assessments provide guidance on the siting and design of the specified development.

There is more information on this topic here. Design Guidance
Project management tips

All projects benefit from good project management. This includes adopting and imposing realistic timescales, ensuring that there are opportunities to learn from the outcomes as the project progresses, and maintaining a good record of agreed changes to method and output.

When managing a landscape capacity study it is also useful for the steering group to:

- Test the transparency and accessibility of the proposed method or possible methods of assessing landscape sensitivity through a pilot study;
- Undertake a field visit (or two), for the consultants to demonstrate the proposed method and everyone can see the process of assessing the sensitivity of the landscape in action;
- Review the criteria selected for undertaking the assessment of landscape sensitivity – are they understandable, unambiguous, clearly explained and systematically assessed?
- Interrogate and scrutinise the method of assessing landscape sensitivity to make sure that it still addresses the brief and the planning needs;
- Take time out to make sure that it is easy to explain the ‘trail of reasoning’ or rationale behind the recommendations to someone else – think about explaining it at a PLI for example;
- Ask someone else, who is not on the steering group, to look at the draft of the output, to make sure that the method is accessible and that it is easy to understand how the recommendations or conclusions have come about; and

Make sure, if the report is to be supplementary planning guidance, that it is presented in a form which is likely to be adopted by the Council.

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Pilot studies

Pilot studies can be used to:

- **Test methods of assessing landscape sensitivity** – by checking that the criteria are comprehensive and applicable to the different landscape areas and development scenarios, for example;

- **Check that the different development scenarios** make sense on the ground;

- **Review the format, accessibility and clarity of the presentation**;

- **Make sure that information is available and easy to use** on site visits; and

- **Ensure that the maps are at an appropriate scale** for the client's needs.

Value of pilot studies

Pilot studies are a useful way of exploring and testing both methods and presentation options. They have the potential to make the final outcome more robust and accessible.

More detailed advice on two topics can be accessed by following the relevant links, below:

- Report format
- Follow up

(contd.)
Report format

The report format should reflect the aims of the brief and any technical requirements.

These technical requirements will include the specifications associated with electronic formats and GIS. In addition, the consultants will have valuable experience about presenting the findings of this type of study.

Nevertheless, it is also likely to be useful to consider:

- The **logic of the report structure** – is it easy to link recommendations to the relevant section of analysis?
- The **clarity of the presentation** – would a table or matrix be more accessible than a list or narrative text, or vice versa?
- Would **illustrations or well chosen photographs** clarify a point or make the report more accessible – or replace a long paragraph?

Wind farm studies

The ‘Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Isles’ presented the sensitivity assessment for each landscape character area as a **table**, with a sensitivity rating for each of the criteria accompanied by explanatory text and followed by a brief conclusion. This is then followed by an assessment of potential capacity based on visual catchment areas;

Preliminary

(contd.)

Presentation

Findings can be presented in a variety of ways, such as:

- Table
- Matrix
- Bullet points
- Maps
- Narrative with maps
- Table with maps
- Maps with bullet points
- Descriptions with matrix

Examples of each of these methods are to be found by following the links to these studies.
The ‘Ochil Hills and South Highland Perthshire Windfarm Capacity Assessment’) presented the landscape sensitivity assessment in a matrix, with some broad explanatory text;

The ‘Landscape Capacity Study for Wind Turbine Development in East Lothian’ presented the sensitivity assessment as a short description followed by an assessment in bullet point text form and a sensitivity rating for each of the criteria;

The ‘Stirling Landscape Sensitivity and Capacity Study for Wind Energy Development’ presented individual landscape constraints and sensitivities on individual as well as combined maps for each development scenario.

Settlement expansion and housing studies

The Perth Landscape Capacity Study presented the sensitivity assessment by combining a narrative description and analysis with a summary of key constraints and landscape potential. This was presented in a table and accompanied by an explanatory map;

The assessment of the sensitivity of the landscape in the settlement expansion studies for Moray Council included an assessment of development bids and the sensitivity assessment was presented in a table followed by a summary of opportunities and constraints. Again, this was accompanied by maps for each landscape area illustrating the areas of opportunities and constraint

The ‘North and South Kintyre Landscape Capacity Study’ is an example illustrating the presentation of the findings from a rural housing study. The assessment is presented as mapped information supported by narrative analysis and bullet point opportunities and constraints.

Aquaculture studies

The ‘Landscape/Seascape capacity for aquaculture and coastal infrastructure: Sound of Mull’ study presents the sensitivity assessment in a table followed by a bullet point summary of opportunities and constraints and then conclusions, accompanied by explanatory maps for each landscape area.

The ‘Landscape Capacity Study for Marine Aquaculture Development in the Orkney Islands’ includes descriptions of each area accompanied by the sensitivity analysis presented in a matrix and a concluding assessment.

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Follow up

The use of the final report can be enhanced through additional, follow up actions.

These may include:

- **Workshops and site visits** demonstrating its use to colleagues who were not on the steering group. This allows users of the assessment to have a deeper understanding of the process, become familiar with the findings and to ask the consultant questions;

- **Presentation(s)** to Councillors. Similarly, this allows the councillors to understand the process and have confidence in the findings;

- **The adoption of the report**, or part of it, as supplementary planning guidance. This gives added weight to the conclusions; and

- Securing the consultant to **represent the Council** at Public Local Inquiries (PLI). If the findings robustly withstand scrutiny at a PLI then this gives added credibility to the assessment as a whole.

All of these activities consolidate understanding of the assessment findings and foster confidence in the report.
Landscape sensitivity assessments

The purpose of this section of the toolkit is to provide additional information on methods of landscape sensitivity assessment.

Landscape capacity assessment is likely to comprise some desk review of existing studies and background information.

Subsequent fieldwork to assess the sensitivity of the landscape, or its potential to accommodate change brought about by a specified development, will be at the heart of the landscape capacity assessment.

Some understanding of methods or approaches to landscape sensitivity assessment can be useful when drawing up the brief for your study.

Advice on the basic decisions to make at this stage can be found here: Think about how to secure the best assessment method.

Methods

There are three reasons for you to have some knowledge of method and approaches to landscape sensitivity assessments:

- Firstly, to help you draw up the brief, assess the methods produced by tenderers and to interview potential consultants effectively;
- Secondly, to be able to ask your consultants questions and challenge them if necessary when they are drawing up and refining the methodology to be used for your study; and
- Thirdly, to make sure that you understand the method and how it is presented as the study progresses.

While they often have common elements, methods vary because they are usually 'tailor made' to meet the specific requirements of a well drafted brief. This toolkit therefore does not recommend a preferred methodology. Instead, it offers pointers to those elements which have been identified as having value in past studies, and provides links to examples of methods for you to look at.
What is a landscape sensitivity assessment?

A landscape sensitivity assessment is a process by which individual areas of landscape are examined to work out how much their character is likely to be altered by the addition of a specified development.

Based on this analysis, each area is then given a rating which reflects its sensitivity to the specific changes likely to be brought about by the specified development.

A sensitivity assessment is usually carried out for individual areas of consistent landscape character or for individual landscape character types.

Most landscape sensitivity assessments refine these character assessments, or produce a more detailed assessment, to provide baseline landscape character areas, or landscape types, which are tailor-made to suit the study.

Summary of process

The contractor starts by identifying those landscape characteristics, experiences and features that are most likely to either positively accommodate or be negatively affected by a specified development.

These are usually called the ‘assessment criteria’. Some sensitivity assessments also examine visual amenity, visibility and valued landscapes and include criteria which relate to these topics.

The contractor then goes on to assess the potential effects of the specified development against each of the criteria in each of the landscape areas.

The contractor then weighs up these potential positive and negative effects and comes to a view on how sensitive each landscape area is to the specified development.

For more detail on maximising effectiveness, go to this briefing paper.

Getting the most out of a landscape sensitivity assessment

For more detail about landscape sensitivity assessments by development topic, including examples for you to look at, follow the topic based links below:

Briefing paper: Wind farm studies
Briefing paper: Settlement expansion and housing studies
Briefing paper: Aquaculture studies

Landscape Character Assessments

Most landscape sensitivity assessments are based on character areas or types defined in the existing Landscape Character Assessments which were commissioned by SNH.

These can be found on the SNH website

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Assessing capacity

The current Guidance on Landscape Character Assessment, accompanied by Topic Paper 6 states that:

"Landscape capacity refers to the degree to which a particular landscape character type or area is able to accommodate change without significant effects on its character, or overall change of landscape character type. Capacity is likely to vary according to the type and nature of change being proposed."

The paper goes on to explain that to make this judgement, it is necessary to carry out an analysis of the sensitivity of the physical character of the landscape to the changes brought about by the specified development. This then is combined with an assessment of the 'more subjective, experiential or perceptual aspects' of the landscape and the value attached to the landscape. (Topic Paper 6, paragraph 6.1)

Most landscape sensitivity assessments carried out to inform landscape capacity assessments in Scotland undertake this analysis, along with some sort of visual assessment. It is accepted that some type of professional judgement is used during this assessment process to recommend ‘capacity.’

Expressing capacity: settlement studies and aquaculture studies

The way in which actual capacity is expressed varies. For many settlement and aquaculture studies, the capacity is expressed through the identification of areas where additional development can most readily take advantage of the opportunities presented by the landscape. These will be areas likely to contain or provide a positive setting for the development in terms of scale, complexity and immediate context.

For both these developments, it is often relatively simple to state or calculate relative quantities which can be accommodated.

For aquaculture, the number of developments and scale is often specified, and there are proximity limits (for biosecurity), which additionally limit the number of developments.

For settlement studies, the areas marked on the maps can be quickly measured and number of units can be calculated, depending on the size and type of housing development recommended.

Expressing capacity: wind farm studies

Wind farm studies rarely come up with such relatively ‘quantifiable’ conclusions, and frequently the assessment of ‘capacity’ is expressed as ‘indicative capacity’, set out with caveats. This is due to:

The constantly changing technology – particularly the height of the turbines used in wind farms but also more recently the rapid increase in applications for small and single turbines;

- The high visibility of the turbines, which means that relatively small changes to the baseline scenario might have a big cumulative visual impact;
- The difficulty in predicting the size, layout and design of future developments; and
- The quickly changing baseline scenario – as developments receive consent, perceived or potential capacity can alter quite quickly.

Examples of how to express ‘capacity’ therefore vary considerably from study to study, but include:

- Assessing the sensitivity or capacity of the landscape to absorb extensions to existing and consented wind farms;
- Analysing visual catchment to establish compartments which have limited inter-visibility with neighbouring areas, within which the capacity of the landscape character can then be assessed; and
- Summarising the likely potential capacity for each of the landscape character types identified as having potential to accommodate wind farm development.

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Shetland Islands

The Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Islands divides the islands into ‘visual compartments’ related to visual catchment.

These form the basis of the final analysis of indicative landscape capacity, which includes suggesting an appropriate number and type of development for each area where potential has been identified.

North Ayrshire

The Landscape Capacity Study for Wind Turbine Development in North Ayrshire summarises the potential capacity based on the sensitivity of the character areas, which are relatively large areas.

The study then goes on to outline a ‘spatial strategy’ to accommodate wind farms, setting out broad geographic principles. This study also analyses the potential capacity to extend existing wind farms.
Design Guidance

Many landscape capacity studies provide additional guidance on how the development might be sited, designed or mitigated.

This guidance can be expressed as:
- **Generic guidance**;
- Guidance for each *individual landscape character type or area*; or, more likely
- Guidance associated with those areas which have been identified as having some sort of potential to accommodate the specified development.

(continued)

Wind farm studies

The ‘Stirling Landscape Sensitivity and Capacity Study for Wind Energy Development’ gives ‘key guidance for wind farm development where capacity exists’, accompanied by sketch illustrations, specific to each character type.

The ‘Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Isles’ provides *generic landscape locational and design guidelines* within Section 6 of the report.

Settlement studies

The ‘Edinburgh Greenbelt Study Stage 2 Report’ includes *advice* on the appropriate size of housing and detailed siting as well as advice on mitigating the affects of potential development within the overall recommendations for each area identified as having potential for housing.

The assessment of the sensitivity of the landscape in the settlement expansion studies for Moray Council includes *advice* on mitigating the effects of settlement expansion and indicative proposals for enhancing the setting of the settlement in both written text and on indicative maps.

Aquaculture studies

The ‘Landscape/Seascape capacity for aquaculture and coastal infrastructure: Sound of Mull’ study provides *generic illustrated guidance* on siting and scale issues for fin fish farms in the introductory section, then *detailed advice* on mitigation in of developments in areas which were identified as having potential capacity for development.

The ‘Landscape Capacity Study for Marine Aquaculture Development in the Orkney Islands’ includes *general guidance* for siting and design of aquaculture developments’ in section 6 of the report.
**Cumulative assessment**

*This topic is particularly relevant to wind farm studies, although it is also discussed in studies for siting aquaculture development.*

**Wind farms**

Assessing potential cumulative effects of wind farm developments is closely linked to the discussions on defining potential landscape capacity in concluding sections of the studies.

Gathering and processing information about existing consents, as well as the difficulties inherent in identifying logical and realistic multiple development scenarios to assess, are only two of the problems encountered when thinking about how to assess cumulative effects.

It is acknowledged that attempting to define cumulative landscape or visual effects before individual development applications have come forward is very difficult. This is because the ‘playing field’ changes rapidly as wind farm technology changes and as consents are issued. In addition, the high visibility and inter-visibility of these large developments ensures that any addition to the landscape may have a large consequential effect. As a result, in most studies commentary on cumulative assessment is couched with caveats.

Nevertheless, some studies have tackled potential cumulative landscape and visual issues, usually by:

- Identifying those landscapes which have the potential to accommodate extensive wind farm coverage without immediate cumulative effects;
- Exploring the relative inter-visibility between character areas or types to suggest likely cumulative visual effects which should be avoided; or
- Using ‘visual catchment’ based subdivisions of the landscape to define areas within which cumulative visual and landscape character issues are analysed as an integral part of the assessment of indicative capacity.

**Wind farm studies**

In 2008, Angus Council commissioned a landscape capacity study for wind farms which specifically aimed to assess cumulative effects of several proposed developments. This study was commissioned to inform the Council’s stance on landscape at a conjoined PLI.

The Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Islands divides the islands into ‘visual compartments’ related to visual catchment. These form the basis of the final analysis of indicative landscape capacity, which includes suggesting an appropriate number and type of development.

The Landscape Capacity Study for Wind Turbine Development in North Ayrshire uses the existing, consented and proposed wind farm developments (including those which have been withdrawn), as a combined scenario to identify likely cumulative visual impacts, drawing on visualisations which were produced for this analysis as well as those which were available in Environmental Statements. It also explores the scope for extending existing wind farms.
This section contains all the material you will need to help you obtain the best landscape capacity study for your requirements.

There are briefing papers, checklists, links and other materials that are gathered into batches by topic.

All the material you need for a commissioning a wind farm study, for example, is gathered together, meaning you will not be side tracked by references to aquaculture, settlement or housing developments.

This means, however, that because generic material such as checklists are included in each section you will encounter some repetition if you try reading it all sequentially.

You are encouraged to print off only what is essential to share information and document findings. The 'print only' 'portrait' versions are here:

- Windfarm resources
- Settlement / housing resources
- Aquaculture resources
Resources

Windfarm development material

This material is in the same ‘landscape’ format as the main toolkit, and contains links within the toolkit and to external sources. It is the primary resource.

To print this whole batch of resources in landscape format, print pages 26 to 40 inclusive.

It is also provided in ‘portrait’ format which may be preferred for printing purposes, but lacks any of the live links in the main ‘landscape’ batch.

To print this whole batch of resources in portrait format, print pages 119 to 133 inclusive.

Print only version

Siting windfarms

Advice on siting wind farms in the landscape can be found in SNH publications available from SNH website - http://www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/

Relevant publications include:
‘Siting and designing windfarms in the landscape’
‘SNH Guidance: Cumulative effects of windfarms’
Briefing paper

Objectives for wind farm studies

Purpose of paper

This briefing paper should be used to prompt discussion about the purpose of a landscape capacity study for wind farm developments with colleagues.

Context for study

Landscape capacity studies for wind farms need to be considered in the context of:

Scottish Planning Policy
Paragraphs 182 – 192

Planning Advice Note 45 Annexes,

Renewable energy technologies

Spatial frameworks and supplementary planning guidance for wind farms

Planning for micro renewables

Scottish Policy Context

The Scottish Government is committed to increasing the amount of electricity generated from renewable sources. The current target is to meet 50% of Scotland’s electricity requirement from renewable sources by 2020.

The Scottish Planning Policy seeks to support these initiatives. Planning authorities are expected to ‘support the development of a diverse range of renewable energy technologies, guide development to appropriate locations and provide clarity on the issues that will be taken into account when specific proposals are assessed’

(Scottish Planning Policy, February 2010, paragraph 184)
Objectives: development policy

Planning authorities are not expected to adopt an ‘allocation’ for wind farms. Nevertheless, there is a clear expectation in the current SPP (Para 189) that planning authorities should ‘set out in the development plan a spatial framework for on shore wind farms of over 20 megawatts generating capacity.’

It is likely that the study will be used to inform development plan policies. Specifically, the study will need to inform the spatial framework for wind farms generating 20MW of electricity.

The spatial framework is expected to identify:

- **Areas requiring significant protection** from wind farms or additional wind farms;
- **Areas with potential constraints**, where ‘proposals will be considered on their individual merits against identified criteria’; and
- **Areas of search**, where ‘appropriate proposals are likely to be supported subject to detailed consideration against identified criteria’.

One output from a landscape capacity study is therefore likely to be maps indicating where different types of wind farms can best be accommodated in the landscape. You will need to clarify:

- Do you want the study to identify preferred areas for wind farms? These may be the areas least sensitive to wind farms in landscape terms in your study area – but they still may have some identified landscape and visual sensitivities;
- Alternatively, the study method could undertake an ‘open ended’ study of landscape and visual sensitivity. This will assess all landscapes against the changes brought about by wind turbines, but may conclude that there are no potential areas for wind farms;
- Or would you prefer the study to identify the landscapes which are ‘most sensitive’ and ‘least sensitive’ to wind farm development, with an accompanying rationale? and
- Should the study identify areas where cumulative effects of wind farms on the landscape are likely to become a significant constraint?

Objectives: development management

The SPP expects development plans to set out the criteria against which applications for all wind farms, including extensions to existing wind farms, will be assessed.

If you want the study to be used for development management, then you will need to consider:

- Do you want the study to identify the landscape sensitivities, constraints and opportunities which can be used when assessing wind farm applications?
- Do you want the study to address extensions to existing wind farms?
- If the study is to provide text that can be used when responding to planning applications, it needs to provide easy to understand justifications for all the recommendations, including the areas identified as having little or no potential for development;
- Do you want guidance on how best to accommodate different types of wind farms in the areas identified as having potential to accommodate wind farms or turbines? and
- Will the study need to address different development scenarios – such as small wind turbines and wind farms of less than 20MW?
Examples of objectives

Here are some examples of potential objectives:

- Identify preferred ‘areas of search’ for specified sizes of wind farm developments – ie identify the best locations relative to all the locations available within the study area, even if the selected areas might be ‘sub-optimal’ and have some landscape or visual sensitivities;

- Undertake an assessment to identify the ability of all the landscape character areas (or types) to accommodate specified sizes of wind farm developments, even if this means that no potential is identified for specific development scenarios;

- Identify areas where there are specified landscape and visual sensitivities or constraints which are likely to limit specified wind farm development scenarios;

- Identify opportunities to expand existing wind farm developments;

- Identify where existing and consented wind farms are likely to limit further wind farm development due to cumulative landscape and/or visual impacts; and

- Develop design guidance, eg in relation to size, siting and layout, for areas identified as having some potential to accommodate wind farms.

Specific objectives

Some landscape capacity assessments are commissioned for very specific tasks. Often this is in response to an upsurge in wind farm applications. These studies have very specific briefs, which tackle this ‘one off’ situation.

Objectives may include:

- Undertake an assessment of the potential cumulative impacts of specified wind farm applications; and

- Test scenarios, based on hypothetical locations, numbers, and heights of wind farms, to assess the best way to accommodate wind farms in the landscape.

These are all very different purposes and outputs, and it is important to maintain a focused brief.
Checklist
Undertaking a desk review of other capacity studies

Purpose of checklist

*This checklist is a list of key issues to look at when undertaking a desk review of existing landscape capacity studies.*

It can be difficult to work out what is effective when you are leafing through a document with which you are not familiar. Generally, it can be most helpful to:

- First, **identify the planning purpose and the specific objectives** of the study, and what **outputs** were required: remember, there may be more than one output – mapped recommendations for areas of search, for example, and perhaps also design guidance;

- Go to the **recommendations or conclusions**, and see if the outputs reflect the objective(s) identified;

- Analyse one example of the recommendations or conclusions, which may be as maps and text, or guidance – and **work backwards to see how the recommendations have been justified in the analysis** – can you see how the method has led to the conclusions?

- It is easier to identify a **small number of landscape areas or one bit of the landscape**, and follow it through the whole study, from analysis to conclusions, or vice versa, than to read all the document. Try to pick two or three landscape areas with different characters or conclusions, and see how these work;

- Look at the **sensitivity assessment more closely** – are there gaps in the train of thought, difficult terms or concepts that you might find difficult to justify at a Public Local Inquiry? and

- Finally, is the **document clearly structured**, are the maps an **appropriate scale**, and are illustrations **useful**, adding value to the text?

Once you have done this, you should consider speaking to someone in the planning authority who was involved in commissioning or using the study.

Checklist
Discussion topics with those who have commissioned landscape capacity studies

Purpose of checklist

*This checklist lists topics which you can use to discuss the effectiveness of existing landscape capacity studies when speaking to those who commissioned them, or who now use them.*

Context

It can be difficult to work out what is effective when you are leafing through a document with which you are not familiar. **Once you have undertaken a brief desk review, it is generally more effective to speak to someone who commissioned the study, or who uses it now, to find out what aspects of the study were most and least successful.**

Checklist of topics for discussion

It is very useful to speak to planners who commissioned the studies you are reviewing, as they are most familiar with shortcomings in the contract administration. However, while they are often the people who use a study, this is not always the case, and sometimes it might be useful to speak to a planner who uses the study, but was not involved in its preparation.
Checklist of topics for discussion

Background
- Clarify the purpose of the study, the background and need for it
- Establish objectives
- Involvement of other partnership organisations
- Timescale – any pressures?
- Budget

Method
- Where did the method come from?
- Is the commissioning authority happy with the method overall?
- Are there any particular strengths or weaknesses in the sensitivity assessment, especially now in retrospect?
- Is the method easy to understand and can it be explained to you?

Involvement of Steering Group
- Who was on the steering group?
- How involved was the steering group in managing the project – was the interaction adequate?

Product/Presentation
- Is the output presented in a way that it meets the objectives and purpose of the study?
- How useable and accessible has the product been?
- Has the product been presented to anyone else, such as the Planning Committee?

Use of Product
Has the study been used in any of the following, and what has been the experience of the commissioning authority:
- Development Plan preparation
- Supplementary Planning Guidance
- Development management case work
- PLI
- In the preparation of landscape frameworks or masterplans?

General
- On reflection, what are the strengths and weaknesses of the landscape capacity study, and how might it be improved?
- Has it achieved its objectives, met with the client’s expectations?
- What advice would the commissioning authority offer others who were going to commission a piece of work like this?
Briefing paper

Development scenarios for wind farms

Purpose of paper

This briefing paper introduces various approaches and scenarios encountered when assessing a wind farm development.

Scope

Approaches and scenarios can range from small wind turbines, associated with farms and perhaps even fitted onto houses, to very large developments, such as groups of turbines over 125m high. Some studies aim to assess the sensitivity of the landscape to off shore turbines.

It may not be possible to carry out the same landscape sensitivity assessment for a dispersed pattern of small, single turbines and a series of large wind farms. The developments are so different in their potential impacts, they are likely to require separate landscape sensitivity analyses.

Approaches

There are different ways to approach wind farm scenarios or typologies:

- It is possible to describe different typologies by the size of the group of turbines and amount of power likely to be generated. An example of this approach can be found here: Wind farm development scenario 1

- It is also possible to describe different typologies largely by the height and number of turbines. An example of this approach can be found here: Wind farm development scenario 2

- It is also possible to combine these and have typologies which tackle variable layouts associated with numbers and height combined. An example of this approach can be found here: Wind farm development scenario 3

When you prepare the brief, the range, if not the detailed sizes, of the development scenarios should be explicit.

Scenarios

- Wall or roof mounted wind turbines
- Micro or small scale wind turbines, as single structures or in small groups (perhaps influenced by the prevailing incentives to encourage certain sizes or types of turbines)
- Single or small groups of wind turbines and wind farms
- Wind farms of more or less than 20MW (which will inform the spatial framework as expected in the Scottish Planning Policy)
- Extensions to existing wind farms
- Off shore wind farms

The selection of scenarios will be influenced by the project priorities, but may also be influenced by the amounts of time and funding available for the landscape capacity assessment.
Purpose of paper

*This briefing paper summarises the key elements to consider when commissioning landscape capacity assessments for wind farm studies*

Key issues

- **Clarify purpose, especially in relation to planning needs**, and consider how the outputs will fit within existing Scottish Planning Policy and associated advice;

- **Define the project objectives clearly** – they can be very varied, ranging from identifying ‘areas of search’, to assessing cumulative effects of a small number of specified proposals;

- **Think about the implications of the likely shelf life of the output and how that might affect the focus of the study**. Shelf life might be limited due to changes in size of turbines, changing emphasis of incentives and the changing context of decision making as proposals receive consent;

- **Establish development scenarios which reflect the diversity of likely developments**. The diversity is now so great, however, that it makes some sense to think of these as separate developments, and may even be handled separately within some studies;

- **Make sure that the geographic scope of the study takes into account landscape sensitivities beyond the Planning Authority area** – this is often now being done, so there will be ‘overlapping’ study areas, which may form a further complication;

- **It is likely that both an assessment of landscape sensitivity and visual sensitivity will be commissioned**. It may be that these are better handled as separate, complementary topics in terms of analysis, even if at some point in the study, their conclusions are combined to inform recommendations;

- **Studies seem to be most accessible where character areas are largely based on known LCA landscape character areas or types**, perhaps with some additional refinement of boundaries or merging of areas to create areas which take into account the development attributes;

- **Develop criteria which relate very specifically to the likely effects of the development scenarios on the landscape and visual amenity**. Studies which demonstrate these likely effects, showing how the individual criteria are affected by developments to create landscapes of ‘High’ and ‘Low’ sensitivity, are more likely to be clearly understood;

- **Encourage the steering group to interrogate and test the criteria**, making sure that they are relevant to the landscape of the area, and that the criteria make sense in the field;

- **Encourage the consultants to clarify the difference between ‘visual amenity’ and ‘visibility’ in the capacity assessments**. Being visible does not automatically make an area of landscape ‘sensitive’, although it is recognised that visibility is a key issue for councillors and the public. Methods should make it clear, however, exactly how visual issues have influenced the study conclusions;

- **If the contractor is going to use a more complicated method than a three or five scale assessment of landscape sensitivity or potential**, **be confident that this gives added value**;

- **Ensure that the consultants provide a justification or rationale for areas where landscapes are considered to be too sensitive for development, not just the areas where potential is identified**;
- If possible, methods should avoid ‘weighting’ of criteria or complex layering and aggregation of sensitivities which build additional assumptions into the method;

- In discussion with the successful tenderer, agree how to address landscape designations, and other recognised landscape values, such as SNH’s ‘Wild Land Search Areas’, within the study method. Most studies choose to ignore the designations at this stage, leaving Planning Authorities to bring in the value of the landscape as a separate layer of information when selecting Broad Areas of Search;

- Methods which used GIS to process information, as opposed to simply being used to map the outcome may be difficult to unravel and explain to others, as there is a real danger of accumulated assumptions being built into the process and not being easily identified in retrospect;

- Expect the consultant to back up the sensitivity assessment with a short written analysis of the issues identified in the assessment for each landscape area assessed, which can then be used by development managers when responding to planning applications;

- There can be a particular value in securing guidance on the siting and design of wind farms or turbines as an output to these studies. The guidance should be presented in a form which relates to the landscape character areas or types used for the assessment; and

- The way in which cumulative issues are addressed in the studies continues to evolve, although there are now studies which assess the potential to extend existing developments, tackle the identification of areas where landscape and visual cumulative effects might be reaching a ‘tipping point’, identify where extensive areas of wind farms might be appropriately sited and how inter-visibility affects adjacent character areas.
Getting the most from a landscape sensitivity assessment

Purpose of paper

This briefing paper is intended to maximise the effectiveness of a landscape sensitivity assessment. The process should be transparent, and the assessment of potential sensitivity clearly explained.

To achieve transparency and clarity, sensitivity assessments should aim to:

- Identify criteria which are clearly relevant to the specified development and the landscape which is being assessed;
- Provide a clearly presented assessment of the sensitivity of each individual criterion in each landscape area;
- Make sure that all relevant information is presented in an accessible form – there should be no ‘leaps of faith’, you should be able to understand exactly how the consultants have come up with the sensitivity rating;
- Avoid complexities, such as adding together scores through a series of stages to provide difficult to unravel aggregate scores;
- Avoid ‘weighting’ criteria without a clear rationale – ie making some of the criteria more important than the others – unless the reason for doing this is easy to understand and robust;
- Minimise ‘double counting’ or ‘cancelling out’ ie when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive in relation to one criterion, but then is allocated a lower rating in another criterion;
- Make sure that there is a clear rationale linking analysis, assessment and recommendations or conclusions; and
- Keep it as simple as possible – it needs to be used by people who are not on the steering group. It is important to scrutinise the method to make sure that it is transparent and that it is easy to understand how the overall, final assessment of sensitivity has come about.

For more detail about landscape sensitivity assessments, including examples for you to look at, follow the topic based links:

Briefing paper: Wind farm studies
Briefing paper: Settlement expansion and housing studies
Briefing paper: Aquaculture studies

What is ‘weighting’?

‘Weighting’ occurs when one or some of the criteria are considered to be more important than others.

All assessments incorporate necessary professional judgements, and it is difficult to avoid some form of ‘weighting’ when summing up to describe the final overall sensitivity rating allocated to a landscape area.

However, some methods use complex weighted scoring systems which are sometimes further complicated by amalgamating scores at different stages in the process. This can be further confused by inadvertent ‘cancelling out’ or ‘double counting’ so that the final assessments are difficult to unravel.

To achieve transparency and clarity, sensitivity assessments should aim to:

- Identify criteria which are clearly relevant to the specified development and the landscape which is being assessed;
- Provide a clearly presented assessment of the sensitivity of each individual criterion in each landscape area;
- Make sure that all relevant information is presented in an accessible form – there should be no ‘leaps of faith’, you should be able to understand exactly how the consultants have come up with the sensitivity rating;
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For more detail about landscape sensitivity assessments, including examples for you to look at, follow the topic based links:

Briefing paper: Wind farm studies
Briefing paper: Settlement expansion and housing studies
Briefing paper: Aquaculture studies
What is double counting?

Double counting can happen when the same characteristic of a landscape is (often inadvertently) assessed under two different criteria. For example:

‘Wildness’ can be identified as a characteristic of the landscape which then limits development. It can then also be an attribute which is assessed separately as a landscape value, which again may be assessed as having a constraint on development.

It can be fine to ‘double count’ in this way if the process is clear, and everyone understands that wildness is contributing to different aspects of the landscape.

To make this clear in the assessment, wildness could be assessed as an aspect of landscape character or experience under one criterion, and perhaps a more independent evaluation, such as SNH’s ‘Search Areas for Wild Land’, could be used when assessing whether or not wildness contributes to landscape value.

What is ‘cancelling out’?

Cancelling out can happen when an attribute of the landscape is scored ‘positively’ in one criterion, but then ‘negatively’ for another criterion. For example:

An area where ‘wildness’ is a key characteristic might score highly sensitive to a new development in landscape character terms. In visual terms though, the same qualities which make the landscape relatively ‘wild’ – for example having a low number of receptors – can result in a low sensitivity score in a visibility analysis.

It can be fine to have apparently contradictory assessments in this way, as long as the method is transparent, and the final assessment demonstrates how the overall sensitivity assessment has been determined.
Briefing paper
Landscape sensitivity assessments for wind farm studies

Purpose of paper

This briefing paper explains how sensitivity assessments for wind farms or turbines are usually commissioned to inform spatial planning policy and guidance for development managers.

Scope

Studies tend to focus on large turbines and wind farms, which reflect the need for planning authorities to identify areas of search for wind farms which generate more than 20MW.

In addition, the studies are frequently expected to consider extensions to existing wind farms, and locations for offshore turbines.

More recently, studies have also assessed the sensitivity of the landscape for small scale wind proposals, including groups of small and medium sized wind turbines, usually located in more lowland areas.

Defining landscape areas for the sensitivity assessment

Most landscape sensitivity assessments for wind farms identify landscape areas based on the Landscape Character Assessments for each planning authority area which have been commissioned and published by SNH.

They are often refined – either through a process of amalgamation or subdivision – to identify landscape areas which are at an appropriate scale for the study.

Choosing criteria for the landscape sensitivity assessment

Landscape sensitivity assessments to accommodate wind farms generally include:

- An assessment of the sensitivity of the landscape character. This will include physical characteristics of the landscape, such as scale and openness, and experiential or perceptual characteristics such as sense of wildness, which are most likely to both readily accommodate or conversely, be compromised, by wind turbines;

- An analysis of visual sensitivity. This may identify how visible wind farms might be from recognised or representative viewpoints. Alternatively, the visual assessment might focus on those aspects of the landscape which are visually prominent or contribute to visual amenity. Further information on visual assessment can be found here: Visual sensitivity assessment for wind farm studies; and

- A landscape sensitivity assessment might also take into account landscape value. This may include assessing the sensitivity of designated areas, for example, or other recognised valued viewpoints, such as scenic routes.

The selection and presentation of the criteria will vary according to the objectives of the landscape capacity assessment and the experience of the consultant.
Examples

Different approaches to identifying and analysing criteria can be found in these examples:

This example explores landscape character, visibility and value, and combines the individual sensitivity assessments into an aggregate assessment.
Wind farms example 1

This example focuses on landscape character and visual criteria, but also takes into account National Scenic Area designations, which raise the sensitivity ratings automatically.
Wind farms example 2

This example focuses only on landscape character and criteria related to visual amenity.
Wind farms example 3

This example takes into account landscape character, visual amenity and visibility criteria. Designated areas were not automatically excluded from the assessment.
Wind farms example 4
**Briefing paper**

**Visual sensitivity assessment for wind farm studies**

**Purpose of paper**

*This briefing paper outlines the two broad approaches to carrying out visual sensitivity assessments.*

**Scope**

An analysis of visual sensitivity may be:

An **assessment of visibility** which will identify how visible wind farms might be from recognised or representative viewpoints; or

An **assessment of visual amenity**, which will identify those aspects of the landscape which are visually prominent or contribute to visual amenity.

When discussing the study method, it is important to **clarify exactly what output is likely to be useful**, as this is one area where the available technology has the potential to confuse both clients and consultants.

**An assessment of visibility**

A visibility assessment broadly explores how visible a wind farm or turbines might be within the landscape. This can be undertaken in a number of different ways:

- Some studies use a simple ‘dead ground’ analysis of potential visibility. This approach maps those areas of land not visible from agreed recognised or representative viewpoints. The mapped output is usually an aggregate of all the land not visible from these viewpoints. An example of a study which uses this approach can be found [here](#);

- Alternatively, a more complex analysis of visibility has been calculated in some studies, by undertaking ‘whole area’ studies of landscape inter-visibility. An example of a study which uses this approach can be found [here](#); or

- Some studies have used ‘visual catchment’ to form the boundaries for the areas which have been then used to present the study conclusions. These boundaries approximate to the limits of inter-visibility between landscapes. An example of a study which uses this approach can be found [here](#).

**An assessment of visual amenity**

Some studies focus on how the **attributes of the landscape contribute to visual amenity or visual composition**.

These studies usually identify the **key qualities of the physical landscape which contribute to visual amenity** – such as skylines, land mark features, vistas, prominent ridgelines – and assess these in terms of their sensitivity for each character area. Where these features are present, these are likely to be landscape character areas with higher sensitivity to wind farms.
Other visual assessment tools

Some studies use ‘wirelines’ of different heights of turbine, or similar tools, creating simple visualisations of different heights of turbines from specified viewpoints. These are simple tools, often used in field work to help assess what the impact of the height of a turbine is on the scale of the visible landscape.

Choosing a preferred approach

If an assessment of visual sensitivity is to be included in the landscape capacity study, you should discuss the options with the consultant to clarify:

- **Is a visibility assessment useful**, or would it be more helpful to focus on visual amenity, or even include both?

- **How much ‘added value’ would an assessment of visibility contribute to the study?** While visibility is an important consideration, and is rated highly by councillors and the public, an analysis of ‘visibility’ per se is so dependant on the selected viewpoints, the digital terrain model and the height of the turbines, that care should be taken to considering exactly how useful this potential output will be;

- **How will the results of the assessment of visual sensitivity be incorporated** into the overall landscape sensitivity assessment? Will the visual assessment be rolled into the overall ratings, or will it be explained independently?

- **Which approach is likely to be most appropriate for the landscape of the study area?** More complex visual challenges, on islands where there is irregular topography and off shore viewpoints, for example, may require a different approach to relatively simple approaches in areas where the landscape of a whole region is readily inter-visible;

- If a visibility assessment is required, **how many viewpoints will you need and what are the criteria for identifying preferred locations?** The viewpoints selected will become an in-built assumption to the study, so must be selected with care;

- **What will be the shelf life of the output?** Turbine designs are increasing in size, and different sizes are available. Zones of Theoretical Visibility (ZTV), or analysis of ‘dead ground’ are often linked to a specific size of turbine, so may have a very limited shelf life. In addition, as new developments are approved and being built, the context for visualisations changes rapidly;

- **Would a list of key viewpoints (with grid references) be a useful output,** possibly as a basis for monitoring of landscape change, or cumulative effects?
### Establishing a timescale - Tasks

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<th>Task</th>
<th>Time required</th>
<th>Cumulative timescale</th>
<th>Possible key dates</th>
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<td>Agree study objectives</td>
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<td>Prepare brief</td>
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<td>Identify time required for procurement process</td>
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<td>Allow time delay to project start for consultant’s existing commitments</td>
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<td>Desk review and initial inception meeting – include time to make information available from the council to the contractor</td>
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<td>Assess amount of time required for field work</td>
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<td>Adjust field work allocation to reflect time of year</td>
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<td>Piloting the method, and interim discussion with steering group</td>
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<td>Preparing draft report(s)</td>
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<td>Consultation and feedback from steering group</td>
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<td>Consultation and feedback from someone unfamiliar with the project who can look at the output with a ‘fresh pair of eyes’</td>
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<td>Preparing final report</td>
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<td>Preparing GIS of final conclusions</td>
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**Additional considerations:**

- Availability of steering group – holidays, other commitments
- Time constraints in relation to funding sources/ end of financial year
- Deadlines for outputs relative to planning requirements

Return to Guidance

Portrait format for print
Resources

Settlement and housing development material

This material is in the same ‘landscape’ format as the main toolkit, and contains links within the toolkit and to external sources. It is the primary resource.

To print this whole batch of resources in landscape format, print pages 42 to 53 inclusive

It is also provided in ‘portrait’ format which may be preferred for printing purposes, but lacks any of the live links in the main ‘landscape’ batch.

To print this whole batch of resources in portrait format, print pages 135 to 146 inclusive

Print only version
Briefing paper
Objectives for settlement expansion or housing studies

Purpose of paper

This briefing paper should be used to prompt discussion about the purpose of a landscape capacity study for settlement expansion or housing development with colleagues.

Context for study

Landscape capacity studies for settlement expansion and housing development need to be considered in the context of:

Scottish Planning Policy
Paragraphs 67 - 96 and

Planning Advice Notes (PANs)
which advise on the siting of housing, including:

PAN 44
Fitting new housing development into the landscape

PAN 72
Housing in the Countryside

PAN 83
Masterplanning

Scottish Policy Context

The Scottish Planning Policy expects planning authorities to ‘set out a settlement strategy in the development plan to provide a long term context for development’ Planning authorities are encouraged to promote the creation of successful places and achieving quality residential environments, in part through the selection of housing sites as well as through detail design.

Paragraph 78 of the SPP explains that ‘the siting and design of new housing should take account of its setting, the surrounding landscape, topography, character, appearance, ecologies and the scope for using local materials. The aim should be to create places with a distinct character and identity…’

It is within this context that landscape capacity studies for settlement expansion and housing development should be undertaken.

(Scottish Planning Policy, February 2010, paragraph 77)
Objectives: development policy

Planning authorities are expected to adopt an ‘allocation’ for housing provision based on housing need and demand to both ensure a continuing supply of effective land and to deliver housing.

It is likely that a landscape capacity study will therefore be used to inform development plan policies. Specifically, the study will need to inform the spatial allocation of housing land.

One output from a landscape capacity study is therefore likely to be maps indicating where it might be best to locate housing, or indeed other forms of built development, in the landscape.

You will need to clarify:

- Do you want the study to identify preferred areas for a specified housing allocation? These may be areas least sensitive to housing development or settlement expansion in landscape terms in your study area – but they still may have some identified landscape and visual sensitivities;
- Do you want the study to assess the landscape sensitivities of proposed development bids which have been put forward by developers in advance of preparing a development plan?
- Alternatively, the study method could undertake an ‘open ended’ study of landscape and visual sensitivity in relation to housing development. This will assess all landscapes against the changes brought about by development types, but may conclude that there are no potential areas for housing or settlement expansion;
- Or would you prefer the study to identify the landscapes which are ‘least sensitive’ to settlement expansion or housing development, with an accompanying rationale?
- Do you need the consultants to assess the sensitivity of all the landscape around the settlement(s), and provide a justification or rationale for areas which are sensitive to development as well as those which are less sensitive? and
- Should the study identify the preferred sequence of development?

Objectives: development management

The landscape capacity study might also provide information which provides the basis for responses to planning applications.

If you want the study to be used for development management, then you will need to clarify:

- Do you want the study to identify the landscape sensitivities, constraints and opportunities which can be used when assessing planning applications for housing development?
- If the study is to provide text that can be used when responding to planning applications, it needs to provide easy to understand justifications for all the recommendations, including the areas identified as having little or no potential for development;
- Do you need guidance on how best to accommodate different types of housing in the areas identified as having potential to accommodate built development? And
- Will the study need to address different development scenarios – such as industrial land, housing of different densities or the location of a business park?

If you want the output to be adopted by your Council, then think about the format of any supplementary guidance required for this to be effective.
Examples of objectives

Here are some examples of potential objectives:

- Identify the **best sites for a specified housing allocation in landscape terms** (this may require more areas to be identified than the allocation requires, as some of the sites may not be acceptable for other planning related reasons);
- Identify **which areas can best accommodate housing in landscape terms**, regardless of allocation;
- Identify areas where there are **specified landscape and visual sensitivities or constraints** which are likely to limit housing development or settlement expansion;
- Provide an **assessment of the landscape sensitivities which can be used to undertake an SEA** of the settlement expansions proposed in the development plan;
- Provide **recommendations on the mitigation of adverse landscape and visual effects of settlement expansion**; and
- Provide **design guidance**, e.g. for layout, densities and housing styles which may then inform development briefs.

Specific Objectives

Some landscape capacity assessments are commissioned for very specific tasks. Often this is in response to a particular planning need identified in the scoping for the revision of the development plan. These studies have very specific briefs, which tackle this ‘one off’ situation.

Objectives may include:

- Undertake a **review of the green belt and its ability to accommodate settlement expansion**. This may result in no allocations for settlement expansion being identified; and
- Assess the **landscape sensitivity of sites identified by developers** as part of a ‘development bid’ process.

These are very different purposes and outputs, and it is important to maintain a focused brief.
Checklist

Undertaking a desk review of other capacity studies

Purpose of checklist

*This checklist is a list of key issues to look at when undertaking a desk review of existing landscape capacity studies.*

It can be difficult to work out what is effective when you are leafing through a document with which you are not familiar. Generally, it can be most helpful to:

- First, **identify the planning purpose and the specific objectives** of the study, and what **outputs** were required: remember, there may be more than one output – mapped recommendations for areas of search, for example, and perhaps also design guidance;

- Go to the **recommendations or conclusions**, and see if the outputs reflect the objective(s) identified;

- Analyse one example of the recommendations or conclusions, which may be as maps and text, or guidance – and **work backwards to see how the recommendations have been justified in the analysis** – can you see how the method has led to the conclusions?

- It is easier to identify a **small number of landscape areas or one bit of the landscape, and follow it through the whole study, from analysis to conclusions**, or vice versa, than to read all the document. Try to pick two or three landscape areas with different characters or conclusions, and see how these work;

- Look at the **sensitivity assessment more closely** – are there gaps in the train of thought, difficult terms or concepts that you might find difficult to justify at a Public Local Inquiry? and

- Finally, is the **document clearly structured, are the maps an appropriate scale, and are illustrations useful**, adding value to the text?

Once you have done this, you should consider speaking to someone in the planning authority who was involved in commissioning or using the study.

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Checklist

Discussion topics with those who have commissioned landscape capacity studies

Purpose of checklist

*This checklist lists topics which you can use to discuss the effectiveness of existing landscape capacity studies when speaking to those who commissioned them, or who now use them.*

Context

It can be difficult to work out what is effective when you are leafing through a document with which you are not familiar. **Once you have undertaken a brief desk review, it is generally more effective to speak to someone who commissioned the study, or who uses it now, to find out what aspects of the study were most and least successful.**

Checklist of topics for discussion

It is very useful to speak to planners who commissioned the studies you are reviewing, as they are most familiar with shortcomings in the contract administration. However, while they are often the people who use a study, this is not always the case, and sometimes it might be useful to speak to a planner who uses the study, but was not involved in its preparation.
Checklist of topics for discussion

Background
- Clarify the purpose of the study, the background and need for it
- Establish objectives
- Involvement of other partnership organisations
- Timescale – any pressures?
- Budget

Method
- Where did the method come from?
- Is the commissioning authority happy with the method overall?
- Are there any particular strengths or weaknesses in the sensitivity assessment, especially now in retrospect?
- Is the method easy to understand and can it be explained to you?

Involvement of Steering Group
- Who was on the steering group?
- How involved was the steering group in managing the project – was the interaction adequate?

Product/Presentation
- Is the output presented in a way that it meets the objectives and purpose of the study?
- How useable and accessible has the product been?
- Has the product been presented to anyone else, such as the Planning Committee?

Use of Product
Has the study been used in any of the following, and what has been the experience of the commissioning authority:
- Development Plan preparation
- Supplementary Planning Guidance
- Development management case work
- PLI
- In the preparation of landscape frameworks or masterplans?

General
- On reflection, what are the strengths and weaknesses of the landscape capacity study, and how might it be improved?
- Has it achieved its objectives, met with the client’s expectations?
- What advice would the commissioning authority offer others who were going to commission a piece of work like this?
Briefing paper

Development scenarios for settlement expansion and housing studies

Purpose of paper

This briefing paper introduces various approaches and scenarios encountered when assessing a settlement or housing development.

Scenarios

- Identifying sites for residential houses, including sites for individual houses, especially in rural areas
- Proposing land allocation for residential development, with or without a limit on the amount of land, but perhaps an indication of housing density
- Assessing sites already proposed by developers for housing allocation
- Identifying sites for business and/or other industrial or commercial use
- Identifying locations for broad brush settlement expansion
- Identifying locations for new settlements

The selection of scenarios will be influenced by the project priorities, but may also be influenced by the amounts of time and funding available for the landscape capacity assessment.

Scope

Most settlement expansion studies focus on residential development. In rural areas this may range from single houses to small groups of houses and modest settlement expansion. For larger towns and cities, more extensive areas of land for residential development may be required. Some settlement based studies also expect consultants to assess the sensitivity of the landscape for industrial or business use.

Approaches

There are different ways to approach settlement expansion or housing scenarios or typologies:

- It is possible to describe different scenarios by specifying the type of development and indicating a housing allocation. An example of this approach can be found here: Settlement expansion development scenario 1
- It is also possible to describe different scenarios by making the limits of the study very clear. An example of this approach can be found here: Settlement expansion development scenario 2
- It may also be that the purpose of the study is to assess the landscape sensitivities associated with development bids proposed by developers. The typologies then relate to that which are proposed by the developer.

When you prepare the brief, the range, if not the detailed sizes, of development scenarios should be explicit.
Briefing paper
Managing settlement and housing studies

Purpose of paper

This briefing paper summarises the key elements to consider when commissioning landscape capacity assessments for settlement and housing studies

Key issues

- Clarify purpose, especially in relation to planning needs;
- If a review of the green belt is required, consider this in light of a wider strategy for housing allocations, and be clear in the project objectives;
- Decide whether or not the consultants should identify sites to accommodate a specified housing allocation, for example as a series of preferred sites, or whether the study is best managed as an ‘open ended’ assessment with no allocation to take into account;
- Different types of development – housing, industrial estates, for example, have quite different landscape effects, and so will require different assessments;
- Consider whether or not incorporating ‘sustainability’ as well as landscape-related criteria into the assessment might be appropriate;
- Make sure that the scope and method leads to an assessment which extends around the whole settlement, and does not focus exclusively on the areas with potential;
- Ensure that the consultants provide a justification or rationale for areas where landscapes were considered to be too sensitive for development, not just the areas where potential was identified;
- Interrogate the criteria, making sure that an understanding of the ‘whole settlement’ informs the study, that the character of the settlement as well as the landscape is taken into account, and that the criteria reflect those issues most likely to be affected by settlement or housing expansion;
- If the contractor is going to use a more complicated method than a three or five scale assessment of landscape sensitivity or potential, be confident that this gives added value;
- Expect the consultant to back up the sensitivity assessment with a short written analysis of the issues identified in the assessment for each landscape area assessed, which can then be used by development managers when responding to planning applications; and
- Expect detailed mapping, preferably at 1:10,000 scale.
Briefing paper

Getting the most from a landscape sensitivity assessment

Purpose of paper

This briefing paper is intended to maximise the effectiveness of a landscape sensitivity assessment. The process should be transparent, and the assessment of potential sensitivity clearly explained.

To achieve transparency and clarity, sensitivity assessments should aim to:

- Identify criteria which are clearly relevant to the specified development and the landscape which is being assessed;
- Provide a clearly presented assessment of the sensitivity of each individual criterion in each landscape area;
- Make sure that all relevant information is presented in an accessible form – there should be no ‘leaps of faith’, you should be able to understand exactly how the consultants have come up with the sensitivity rating;
- Avoid complexities, such as adding together scores through a series of stages to provide difficult to unravel aggregate scores;
- Avoid ‘weighting’ criteria without a clear rationale – ie making some of the criteria more important than the others – unless the reason for doing this is easy to understand and robust;
- Minimise ‘double counting’ or ‘cancelling out’ ie when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive in relation to one criterion, but then is allocated a lower rating in another criterion;
- Make sure that there is a clear rationale linking analysis, assessment and recommendations or conclusions; and
- Keep it as simple as possible – it needs to be used by people who are not on the steering group. It is important to scrutinise the method to make sure that it is transparent and that it is easy to understand how the overall, final assessment of sensitivity has come about.

For more detail about landscape sensitivity assessments, including examples for you to look at, follow the topic based links:

Briefing paper: Wind farm studies
Briefing paper: Settlement expansion and housing studies
Briefing paper: Aquaculture studies

What is ‘weighting’?

‘Weighting’ occurs when one or some of the criteria are considered to be more important than others.

All assessments incorporate necessary professional judgements, and it is difficult to avoid some form of ‘weighting’ when summing up to describe the final overall sensitivity rating allocated to a landscape area.

However, some methods use complex weighted scoring systems which are sometimes further complicated by amalgamating scores at different stages in the process. This can be further confused by inadvertent ‘cancelling out’ or ‘double counting’ so that the final assessments are difficult to unravel.

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However, some methods use complex weighted scoring systems which are sometimes further complicated by amalgamating scores at different stages in the process. This can be further confused by inadvertent ‘cancelling out’ or ‘double counting’ so that the final assessments are difficult to unravel.
What is double counting?

Double counting can happen when the same characteristic of a landscape is (often inadvertently) assessed under two different criteria. For example:

‘Wildness’ can be identified as a characteristic of the landscape which then limits development. It can then also be an attribute which is assessed separately as a landscape value, which again may be assessed as having a constraint on development.

It can be fine to ‘double count’ in this way if the process is clear, and everyone understands that wildness is contributing to different aspects of the landscape.

To make this clear in the assessment, wildness could be assessed as an aspect of landscape character or experience under one criterion, and perhaps a more independent evaluation, such as SNH’s ‘Search Areas for Wild Land’, could be used when assessing whether or not wildness contributes to landscape value.

What is ‘cancelling out’?

Cancelling out can happen when an attribute of the landscape is scored ‘positively’ in one criterion, but then ‘negatively’ for another criterion. For example:

An area where ‘wildness’ is a key characteristic might score highly sensitive to a new development in landscape character terms. In visual terms though, the same qualities which make the landscape relatively ‘wild’ – for example having a low number of receptors – can result in a low sensitivity score in a visibility analysis.

It can be fine to have apparently contradictory assessments in this way, as long as the method is transparent, and the final assessment demonstrates how the overall sensitivity assessment has been determined.
Briefing paper
Landscape sensitivity assessments for settlement expansion and housing studies

Purpose of paper

This briefing paper explains how sensitivity assessments for settlement expansion and housing studies are usually commissioned to inform spatial planning policy and guidance for development managers.

Scope

‘Settlement’ type studies are very wide ranging in their application. They can be commissioned to advise on settlement expansion, or to assess the landscape sensitivity of development bids. Landscape sensitivity assessment can also be used to identify potential housing sites on a smaller scale in rural areas, or to review an existing green belt designation with a view to identifying potential new housing allocations.

Defining landscape areas for the sensitivity assessment

Most landscape sensitivity assessments for settlement expansion and housing studies identify landscape areas which are tailor-made for the study. The landscape areas tend to be small and focussed.

These areas are often much smaller than those used in the Landscape Character Assessments for each planning authority area which have been commissioned and published by SNH – but they may ‘nest’ within them. They are also likely to use the existing LCA descriptions as the basis for more detailed work.

Choosing criteria for the sensitivity assessment

Landscape sensitivity assessments to accommodate settlement expansion and housing studies generally include:

- An assessment of the sensitivity of the landscape character. This will usually include characteristics of the physical landscape, including the existing settlement pattern, and of the experience of the landscape which are most likely to both readily accommodate or conversely, be compromised, by specified built development;

- An analysis of visual sensitivity. This may identify how visible housing or settlement expansion might be from recognised or representative viewpoints. The visual assessment might also identify on those aspects of the landscape which are visually prominent, contribute to visual amenity or the quality of the setting of the existing settlement or landmark features; and

- A landscape sensitivity assessment might also take into account landscape value. This may include assessing the sensitivity of designated areas, for example, or other recognised valued viewpoints, such as scenic routes.

The selection and presentation of the criteria will vary according to the objectives of the landscape capacity assessment and the experience of the consultant.

Landscape sensitivity assessments for settlement expansion and housing can also be expressed in the form of constraints and opportunities for development.
Examples

Different approaches to identifying and analysing criteria can be found in these examples:

This example explores character of the landscape and settlement form, visibility, visual amenity and landscape value as the basis for analysing landscape sensitivity.
Settlement expansion example 1

This example illustrates how character of the landscape and settlement form, visibility, visual amenity is assessed, and in addition how an assessment of potential effects on sustainability has been conducted separately.
Settlement expansion example 2

This example illustrates a method developed assessing the landscape sensitivity in relation to small and individual house sites in rural areas.
Sensitivity of the landscape to individual houses and small sites

This example illustrates how landscape sensitivity assessments can also be incorporated into a review of the green belt, particularly if there is a need to identify locations for future settlement expansion within the green belt.
Sensitivity of the landscape in the greenbelt
### Establishing a timescale - Tasks

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<tr>
<th>Task</th>
<th>Time required</th>
<th>Cumulative timescale</th>
<th>Possible key dates</th>
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<tbody>
<tr>
<td>Agree study objectives</td>
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<td>Prepare brief</td>
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<td>Identify time required for procurement process</td>
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<td>Allow time delay to project start for consultant’s existing commitments</td>
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<td>Desk review and initial inception meeting – include time to make information available from the council to the contractor</td>
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<td>Assess amount of time required for field work</td>
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<td>Adjust field work allocation to reflect time of year</td>
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<td>Piloting the method, and interim discussion with steering group</td>
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<tr>
<td>Preparing draft report(s)</td>
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<td>Consultation and feedback from steering group</td>
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<td>Consultation and feedback from someone unfamiliar with the project who can look at the output with a ‘fresh pair of eyes’</td>
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<td>Preparing final report</td>
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<td>Preparing GIS of final conclusions</td>
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**Additional considerations:**

- Availability of steering group – holidays, other commitments
- Time constraints in relation to funding sources/ end of financial year
- Deadlines for outputs relative to planning requirements
Resources

Aquaculture development material

This material is in the same ‘landscape’ format as the main toolkit, and contains links within the toolkit and to external sources. It is the primary resource.

To print this whole batch of resources in landscape format, print pages 55 to 65 inclusive.

It is also provided in ‘portrait’ format which may be preferred for printing purposes, but lacks any of the live links in the main ‘landscape’ batch.

To print this whole batch of resources in portrait format, print pages 148 to 159 inclusive.

Print only version

Siting aquaculture

Advice on siting aquaculture in the landscape can be found in SNH publications available from SNH website -

Relevant publications include:


‘Marine aquaculture and the landscape: The siting and design of aquaculture developments in the landscape’ (2001, currently being updated)
Objectives for aquaculture development

Purpose of paper

This briefing paper should be used to prompt discussion about the purpose of a coastal landscape capacity study (sometimes referred to as a 'landscape/seascape' study) for aquaculture development with colleagues.

Context for study

Coastal landscape capacity studies for aquaculture development need to be considered in the context of:

Scottish Planning Policy - fin fish farming section
Paragraphs 104 - 109

SNH
Guidance for Seascape/Landscape Capacity for Aquaculture

Scottish Policy Context

The Scottish Planning Policy expects planning authorities to 'support the development of new and modified fish farms in appropriate locations. Paragraph 105 of the SPP states that 'development plans should identify areas which are potentially suitable for new or modified fish farm development and sensitive areas which are unlikely to be appropriate for such development. In potential development areas fish farm development may be appropriate, subject to locational and environmental considerations. Sensitive areas are unlikely to be suitable for fish farm development unless adverse impacts can be adequately mitigated. When designating potential development areas and sensitive areas, planning authorities should take into account carrying capacity, landscape, natural heritage and historic environment interests, potential conflict with other users and other regulatory controlled areas.'

It is within this context that coastal landscape capacity studies for aquaculture development should be undertaken.

(Scottish Planning Policy, February 2010, paragraph 104)
**Objectives: development policy**

Planning authorities are not expected to identify an ‘allocation’ for aquaculture development, but the SPP does suggest that planning authorities should set out fish farming framework plans, published as supplementary guidance, which would set out the planning authority's approach to fish farm development in specific areas.

It is therefore likely that a coastal landscape capacity study will be used to inform development plan policies, associated supplementary guidance or coastal zone management strategies.

One output from a coastal landscape capacity study is therefore likely to be maps indicating where aquaculture developments can best be accommodated in the landscape. The study could also identify opportunities to expand existing fish and shell fish farms, or remove those which have are located in constrained areas.

You will need to clarify:

- Should the study identify preferred areas for aquaculture? These may be areas least sensitive to aquaculture in landscape terms in your study area – but they still may have some identified landscape and visual sensitivities;

  (contd.)

- Alternatively, the study method could undertake an ‘open ended’ study of landscape and visual sensitivity in relation to aquaculture development. This will assess all the coastal landscapes against the changes brought about by aquaculture, but may conclude that there are no potential areas for aquaculture expansion;

- Or would you prefer the study to identify the coastal landscapes which are ‘most sensitive’ and ‘least sensitive’ to aquaculture development, with an accompanying rationale?

- Should the study identify opportunities to expand existing aquaculture sites?

- Should the study identify where the landscape would benefit from the removal of, or modifying, an existing development? and

- Should the study identify areas where cumulative effects of aquaculture on the landscape are likely to become a significant constraint?

**Objectives: development management**

The coastal landscape capacity study might also provide information which provides the basis for responses to planning applications.

If you want the study to be used for development management, then you will need to clarify:

- Do you want the study to identify the landscape sensitivities, constraints and opportunities which can be used when assessing planning applications for aquaculture? and

- If the study is to provide text that can be used when responding to planning applications, it needs to provide easy to understand justifications for all the recommendations, including the areas identified as having little or no potential for development;

- Do you need guidance on how best to accommodate different types of development in the areas identified as having potential to accommodate aquaculture development? and

- Will the study need to address different development scenarios – such as shell fish lines, even oyster beds, as well as fish farms of different sizes, and related on shore development?

If you want the output to be adopted by your Council, then think about the format of any supplementary guidance required for this to be effective.
Examples of objectives

Here are some examples of potential objectives:

- Identify preferred sites for aquaculture development in landscape terms;
- Identify which areas can best accommodate aquaculture in landscape terms;
- Identify opportunities to expand existing aquaculture developments;
- Identify areas where there are specified landscape and visual sensitivities or constraints which are likely to limit aquaculture development;
- Provide an assessment of the landscape sensitivities of cumulative development of aquaculture sites in the study area; and
- Provide recommendations on the mitigation of adverse landscape and visual effects of aquaculture development in the study area.

Specific objectives

Some landscape capacity assessments are commissioned for very specific tasks. Often this is in response to a particular planning need identified in the scoping for the revision of the development plan. These studies have very specific briefs, which tackle this 'one off' situation.

Objectives may include:

- Assess the landscape and visual sensitivity of existing development, and provide recommendations as to their appropriateness in landscape terms – perhaps to inform an aquaculture rationalisation study.

This is a very different purpose and output and it is important to maintain a focussed brief.
Checklist

Undertaking a desk review of other capacity studies

Purpose of checklist

This checklist is a list of key issues to look at when undertaking a desk review of existing landscape capacity studies.

It can be difficult to work out what is effective when you are leafing through a document with which you are not familiar. Generally, it can be most helpful to:

- First, identify the planning purpose and the specific objectives of the study, and what outputs were required: remember, there may be more than one output – mapped recommendations for areas of search, for example, and perhaps also design guidance;
- Go to the recommendations or conclusions, and see if the outputs reflect the objective(s) identified;
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- It is easier to identify a small number of landscape areas or one bit of the landscape, and follow it through the whole study, from analysis to conclusions, or vice versa, than to read all the document. Try to pick two or three landscape areas with different characters or conclusions, and see how these work;
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- Finally, is the document clearly structured, are the maps an appropriate scale, and are illustrations useful, adding value to the text?

Once you have done this, you should consider speaking to someone in the planning authority who was involved in commissioning or using the study.

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It can be difficult to work out what is effective when you are leafing through a document with which you are not familiar. Once you have undertaken a brief desk review, it is generally more effective to speak to someone who commissioned the study, or who uses it now, to find out what aspects of the study were most and least successful.

Checklist of topics for discussion

It is very useful to speak to planners who commissioned the studies you are reviewing, as they are most familiar with shortcomings in the contract administration. However, while they are often the people who use a study, this is not always the case, and sometimes it might be useful to speak to a planner who uses the study, but was not involved in its preparation.
Checklist of topics for discussion

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- Clarify the purpose of the study, the background and need for it
- Establish objectives
- Involvement of other partnership organisations
- Timescale – any pressures?
- Budget

Method
- Where did the method come from?
- Is the commissioning authority happy with the method overall?
- Are there any particular strengths or weaknesses in the sensitivity assessment, especially now in retrospect?
- Is the method easy to understand and can it be explained to you?

Involvement of Steering Group
- Who was on the steering group?
- How involved was the steering group in managing the project – was the interaction adequate?

Product/Presentation
- Is the output presented in a way that it meets the objectives and purpose of the study?
- How useable and accessible has the product been?
- Has the product been presented to anyone else, such as the Planning Committee?

Use of Product
Has the study been used in any of the following, and what has been the experience of the commissioning authority:
- Development Plan preparation
- Supplementary Planning Guidance
- Development management case work
- PLI
- In the preparation of landscape frameworks or masterplans?

General
- On reflection, what are the strengths and weaknesses of the landscape capacity study, and how might it be improved?
- Has it achieved its objectives, met with the client’s expectations?
- What advice would the commissioning authority offer others who were going to commission a piece of work like this?
Briefing paper
Development scenarios for aquaculture

Purpose of paper

This briefing paper introduces various approaches and scenarios encountered when assessing an aquaculture development.

Scope

Most aquaculture studies have focussed on the siting of off shore fin fish farms, and their on shore infrastructure, but there are other scenarios.

Approaches

There are different ways to approach aquaculture scenarios or typologies:

- It is possible to describe different typologies by specifying the type of aquaculture development. An example of this approach can be found here: Aquaculture development scenario 1

- It is also possible to describe different typologies by type of aquaculture development and size. However, it should be borne in mind that oyster racks, for example, are very different in the potential effects on the coastal landscape to large fin fish farms and it may not be possible to carry out the same landscape sensitivity assessment for both types of development. In addition, the industry equates size with volume output, but for a landscape assessment, the surface of the water covered by cages, or lengths of shellfish lines are likely to be more important. An example of this approach can be found here: Aquaculture development scenario 2

When you prepare the brief, the range, if not the detailed sizes, of the development scenarios should be explicit.

Scenarios

- Off shore fin fish farms and their associated on shore bases, including yards, roads and offices or storage sheds, with several size options based on the number and size of cages and whether or not a shore base can be shared

- Shellfish lines, perhaps using different lengths to create the development scenarios. They too might have a shore base of some type.

- Oyster racks and trestles, which are located on the shoreline, and appear when the tide is out.

- Other line or buoy based shellfish industries

The selection of scenarios will be influenced by the project priorities, but may also be influenced by the amounts of time and funding available for the landscape capacity assessment.
Briefing paper

Managing aquaculture studies

Purpose of paper

This briefing paper summarises the key elements to consider when commissioning landscape capacity assessments for aquaculture studies.

Key issues

- Clarify purpose, especially in relation to planning or other coastal management needs;
- Decide whether or not the consultants should identify potential new sites for aquaculture development, review existing sites or consider the expansion of existing developments;
- Different types of development – shellfish lines, oyster beds and fin fish farms, for example, have quite different landscape effects, and so will require different assessments;
- Make sure that the scope and method leads to an assessment which extends around the whole coastline, and does not focus exclusively on the areas with potential;
- Ensure that the consultants provide a justification or rationale for areas where landscapes were considered to be too sensitive for development, not just the areas where potential was identified;
- Interrogate the criteria, making sure that an understanding of the likely effect of aquaculture on the coastal landscape including the seascape informs the study and that the criteria reflect those issues most likely to be affected by settlement or housing expansion;
- If the contractor is going to use a more complicated method than a three or five scale assessment of landscape sensitivity or potential, be confident that this gives added value; and
- Expect the consultant to back up the sensitivity assessment with a short written analysis of the issues identified in the assessment for each landscape/coastal area assessed, which can then be used by development managers when responding to planning applications.

SNH has published ‘Guidance on Landscape/Seascape Capacity for Aquaculture’, available from the SNH publications website.
Briefing paper

Getting the most from a landscape sensitivity assessment

Purpose of paper

This briefing paper is intended to maximise the effectiveness of a landscape sensitivity assessment. The process should be transparent, and the assessment of potential sensitivity clearly explained.

To achieve transparency and clarity, sensitivity assessments should aim to:

- Identify criteria which are clearly relevant to the specified development and the landscape which is being assessed;
- Provide a clearly presented assessment of the sensitivity of each individual criterion in each landscape area;
- Make sure that all relevant information is presented in an accessible form – there should be no ‘leaps of faith’, you should be able to understand exactly how the consultants have come up with the sensitivity rating;
- Avoid complexities, such as adding together scores through a series of stages to provide difficult to unravel aggregate scores;
- Avoid ‘weighting’ criteria without a clear rationale – ie making some of the criteria more important than the others – unless the reason for doing this is easy to understand and robust;
- Minimise ‘double counting’ or ‘cancelling out’ – ie when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive in relation to one criterion, but then is allocated a lower rating in another criterion;
- Make sure that there is a clear rationale linking analysis, assessment and recommendations or conclusions; and
- Keep it as simple as possible – it needs to be used by people who are not on the steering group. It is important to scrutinise the method to make sure that it is transparent and that it is easy to understand how the overall, final assessment of sensitivity has come about.

For more detail about landscape sensitivity assessments, including examples for you to look at, follow the topic based links:

Briefing paper: Wind farm studies
Briefing paper: Settlement expansion and housing studies
Briefing paper: Aquaculture studies

What is ‘weighting’?

‘Weighting’ occurs when one or some of the criteria are considered to be more important than others.

All assessments incorporate necessary professional judgements, and it is difficult to avoid some form of ‘weighting’ when summing up to describe the final overall sensitivity rating allocated to a landscape area.

However, some methods use complex weighted scoring systems which are sometimes further complicated by amalgamating scores at different stages in the process. This can be further confused by inadvertent ‘cancelling out’ or ‘double counting’ so that the final assessments are difficult to unravel.

To achieve transparency and clarity, sensitivity assessments should aim to:

- Identify criteria which are clearly relevant to the specified development and the landscape which is being assessed;
- Provide a clearly presented assessment of the sensitivity of each individual criterion in each landscape area;
- Make sure that all relevant information is presented in an accessible form – there should be no ‘leaps of faith’, you should be able to understand exactly how the consultants have come up with the sensitivity rating;
- Avoid complexities, such as adding together scores through a series of stages to provide difficult to unravel aggregate scores;
- Avoid ‘weighting’ criteria without a clear rationale – ie making some of the criteria more important than the others – unless the reason for doing this is easy to understand and robust;
- Minimise ‘double counting’ or ‘cancelling out’ – ie when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive in relation to one criterion, but then is allocated a lower rating in another criterion;
- Make sure that there is a clear rationale linking analysis, assessment and recommendations or conclusions; and
- Keep it as simple as possible – it needs to be used by people who are not on the steering group. It is important to scrutinise the method to make sure that it is transparent and that it is easy to understand how the overall, final assessment of sensitivity has come about.

For more detail about landscape sensitivity assessments, including examples for you to look at, follow the topic based links:

Briefing paper: Wind farm studies
Briefing paper: Settlement expansion and housing studies
Briefing paper: Aquaculture studies
What is double counting?

Double counting can happen when the same characteristic of a landscape is (often inadvertently) assessed under two different criteria. For example:

‘Wildness’ can be identified as a characteristic of the landscape which then limits development. It can then also be an attribute which is assessed separately as a landscape value, which again may be assessed as having a constraint on development.

It can be fine to ‘double count’ in this way if the process is clear, and everyone understands that wildness is contributing to different aspects of the landscape.

To make this clear in the assessment, wildness could be assessed as an aspect of landscape character or experience under one criterion, and perhaps a more independent evaluation, such as SNH’s ‘Search Areas for Wild Land’, could be used when assessing whether or not wildness contributes to landscape value.

What is ‘cancelling out’?

Cancelling out can happen when an attribute of the landscape is scored ‘positively’ in one criterion, but then ‘negatively’ for another criterion. For example:

An area where ‘wildness’ is a key characteristic might score highly sensitive to a new development in landscape character terms. In visual terms though, the same qualities which make the landscape relatively ‘wild’ – for example having a low number of receptors – can result in a low sensitivity score in a visibility analysis.

It can be fine to have apparently contradictory assessments in this way, as long as the method is transparent, and the final assessment demonstrates how the overall sensitivity assessment has been determined.
Briefing paper

Landscape/coastal sensitivity assessments for aquaculture studies

Purpose of paper

This briefing paper explains how landscape/coastal sensitivity assessments for aquaculture studies are usually commissioned to inform a coastal zone management plan of some type, as well as to inform spatial planning policy and guidance for development managers.

Scope

The studies tend to largely focus on fin fish farm cages and associated shore bases, although most studies also include mussel lines, and some include other types of shell fish farming.

In addition, studies often assess the effects on the coastal landscape of the existing structures, and studies will usually assess the potential for their expansion. The leases are also periodically reviewed, and this may offer an opportunity for an existing development to be removed, moved or altered.

Defining landscape areas for the sensitivity assessment

Most landscape sensitivity assessments for aquaculture studies identify landscape/coastal areas which are tailor-made for the study, based on a combination of factors which take into account the effect of the sea and the coast on character, as well as the adjacent landscape, and the relevant LCA.

Choosing criteria for the landscape sensitivity assessment

Landscape/coastal sensitivity assessments to accommodate aquaculture development generally include:

- An assessment of the sensitivity of the coastal character and experience. This will include characteristics of the wider maritime and coastal character, including the influence of the sea and the shape and scale of the coastline, as well as perceptual characteristics such as sense of naturalness, and the influence of existing aquaculture development. The aim is to identify characteristics which are most likely to both readily accommodate or conversely, be compromised, by aquaculture development;

- An analysis of visual sensitivity. This may identify how visible aquaculture might be from recognised or representative viewpoints, both on shore and from the sea. The visual assessment might also identify those aspects of the landscape which are visually prominent, contribute to visual amenity or the quality of the setting of coastal features; and

- A landscape sensitivity assessment might also take into account landscape value. This may include assessing the sensitivity of designated areas, for example, or other recognised valued viewpoints, such as scenic routes.

The selection and presentation of the criteria will vary according to the objectives of the landscape capacity assessment and the experience of the consultant.

Examples

These examples show different approaches to identifying and analysing criteria:

Aquaculture example 1 explores perceptual and place based criteria alongside physical characteristics and visual amenity.

Aquaculture example 2 illustrates a landscape/seascape sensitivity assessment which includes criteria based on landscape character, experience, and visual sensitivities, and is based on an analysis of opportunities and constraints.
### Establishing a timescale - Tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>Time required</th>
<th>Cumulative timescale</th>
<th>Possible key dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree study objectives</td>
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<tr>
<td>Prepare brief</td>
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<tr>
<td>Identify time required for procurement process</td>
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<tr>
<td>Allow time delay to project start for consultant’s existing commitments</td>
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<td>Desk review and initial inception meeting – include time to make information available from the council to the contractor</td>
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<tr>
<td>Assess amount of time required for field work</td>
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<tr>
<td>Adjust field work allocation to reflect time of year</td>
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<tr>
<td>Piloting the method, and interim discussion with steering group</td>
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<tr>
<td>Preparing draft report(s)</td>
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<tr>
<td>Consultation and feedback from steering group</td>
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<tr>
<td>Consultation and feedback from someone unfamiliar with the project who can look at the output with a ‘fresh pair of eyes’</td>
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<tr>
<td>Preparing final report</td>
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<tr>
<td>Preparing GIS of final conclusions</td>
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</tbody>
</table>

**Additional considerations:**

- Availability of steering group – holidays, other commitments
- Time constraints in relation to funding sources/ end of financial year
- Deadlines for outputs relative to planning requirements
List of Known Landscape Capacity Studies in Scotland
(June 2010)

Settlement or housing related landscape capacity studies

<table>
<thead>
<tr>
<th>Title</th>
<th>Date</th>
<th>Commissioning body and on-line link if available</th>
<th>Consultancy</th>
<th>Summary – only provided where the study was available on line at the time of writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>St Andrews Strategic Study, Landscape Assessment Study and related documents</td>
<td>1996</td>
<td>Fife Council <a href="http://www.fifedirect.org.uk/atoz/index.cfm?fuseaction=advice.display&amp;adviceid=391E75E5-9381-C26C-EAC8A023AF0D5989">link</a></td>
<td>David Tyldesley Associates</td>
<td>Study not available</td>
</tr>
<tr>
<td>Perth Landscape Capacity and Green Belt study</td>
<td>2000</td>
<td>Perth and Kinross Council <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/f99lh24.pdf">link</a></td>
<td>David Tyldesley and Associates</td>
<td>This study assessed the capacity of the landscapes around Perth and 17 other settlements to accommodate further built development. It also assessed the need and justification for a greenbelt around Perth.</td>
</tr>
<tr>
<td>Landscape Studies of the Heart of Neolithic Orkney World Heritage Site. Scottish Natural Heritage Commissioned Report No. F00LA01A</td>
<td>2001</td>
<td>Scottish Natural Heritage /Historic Scotland <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/neolithc.pdf">link</a></td>
<td>David Tyldesley and Associates</td>
<td>This study defined the setting for a World Heritage Site and then explored the use of landscape capacity assessment for built development – including both housing and wind turbines – in this sensitive rural location. It drew upon information in the Landscape Character Assessment and the Historic Land use Assessment for Orkney.</td>
</tr>
<tr>
<td>East Ross Settlement Landscape Capacity Study</td>
<td>2001</td>
<td>Highland Council <a href="http://www.snh.org.uk/pubs/detail.asp?id=188">link</a></td>
<td>Turnbull, Jeffrey and Wood</td>
<td>Study not available</td>
</tr>
<tr>
<td>Wester Ross Settlement Capacity</td>
<td>2003</td>
<td>Scottish Natural Heritage /Highland Council <a href="http://www.snh.org.uk/pubs/detail.asp?id=188">link</a></td>
<td>Alison Grant in association with Carol Anderson</td>
<td>This study assessed the sensitivity of the landscape around small and medium sized settlements in rural Wester Ross to identify sites to meet a specified housing allocation.</td>
</tr>
<tr>
<td>Study Title</td>
<td>Date</td>
<td>Authority</td>
<td>Lead Author</td>
<td>Study Summary</td>
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<tr>
<td>Fife Development and Landscape Capacity Studies</td>
<td>2003/2004</td>
<td>Fife Council</td>
<td>Alison Grant in association with Carol Anderson</td>
<td>This study assessed the sensitivity of the landscape around settlements in Fife to identify areas where there was potential for settlement expansion. Separate reports were also commissioned to identify measures which would enhance the settlements and mitigate potential development impacts.</td>
</tr>
<tr>
<td>Moray Council Integration of new developments into the landscape</td>
<td>2005</td>
<td>Moray Council</td>
<td>Alison Grant in association with Carol Anderson</td>
<td>This study assessed the potential of the landscape around settlements in Moray to accommodate development bids proposed by developers in the Local plan review. The studies also identified measures which would enhance the settlements and mitigate potential development impacts.</td>
</tr>
<tr>
<td>Sutherland housing capacity study Commissioned Report No. 147</td>
<td>2006</td>
<td>Scottish Natural Heritage Highland Council</td>
<td>Horner and Maclennan</td>
<td>This study assessed the sensitivity of the landscape around small and medium sized settlements in rural Sutherland to identify housing sites and suggest measures for landscape enhancement.</td>
</tr>
<tr>
<td>Coll Landscape Capacity for Housing Tiree Landscape Capacity for Housing Isle of Mull NSA Landscape Capacity for Housing Jura landscape capacity for housing</td>
<td>2006/2007</td>
<td>Argyll and Bute Council</td>
<td>Alison Grant in association with Carol Anderson</td>
<td>These studies assess the sensitivity of the landscape around small settlements in rural Argyll to identify housing sites and provide guidance on how development can best be accommodated on the sites identified as having potential.</td>
</tr>
<tr>
<td>Scottish Borders Development and Landscape Capacity Studies</td>
<td>2007</td>
<td>Scottish Borders Council</td>
<td>Alison Grant in association with Carol Anderson</td>
<td>This study assessed the sensitivity of the landscape around settlements in the Scottish Borders to identify areas where there was potential for settlement expansion. The studies also identified measures which would enhance the settlements and mitigate potential development impacts.</td>
</tr>
<tr>
<td>Study Title</td>
<td>Year</td>
<td>Collaborators</td>
<td>Lead Consultant</td>
<td>Description</td>
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<tr>
<td>Scottish Borders New Settlement Capacity Study</td>
<td>2008</td>
<td>Scottish Borders Council</td>
<td>Alison Grant</td>
<td>This study identifies and analyses a number of potential sites and small settlement expansion options for locating a new settlement in the Scottish Borders.</td>
</tr>
<tr>
<td>Edinburgh Green Belt Study</td>
<td>2008</td>
<td>Mid Lothian Council, City of Edinburgh Council, East Lothian Council, West Lothian Council, Scottish Borders Council, Scottish Natural Heritage</td>
<td>Land Use Consultants</td>
<td>This study identified which areas around Edinburgh contributed most to achieving the greenbelt objectives. The study then took the areas identified as having a less critical contribution to the green belt and assessed their capacity to accommodate planned settlement growth.</td>
</tr>
<tr>
<td>Stirling Greenbelt Study</td>
<td>2009</td>
<td>Stirling Council</td>
<td>Land Use Consultants</td>
<td>This study identified which areas around Stirling contributed most to achieving the greenbelt objectives. The study then took the areas identified as having a less critical contribution to the green belt and assessed their capacity to accommodate future development.</td>
</tr>
<tr>
<td>Isle of Mull Landscape Capacity Study/Loch Arkaig and Inveraray Landscape Capacity Study/North and South Kintyre Landscape Capacity Study</td>
<td>2009/2010</td>
<td>Argyll and Bute Council</td>
<td>Gillespies Landscape Architects</td>
<td>These studies assess the landscape sensitivity to identify sites for housing in rural areas of Argyll and provide guidance on how development can best be accommodated on the sites identified as having potential.</td>
</tr>
</tbody>
</table>
## Wind farm related landscape capacity studies

| Title                                                                 | Date                | Commissioning body and on-line link if available                                                                 | Consultancy                  | Summary – only provided where the study was available on line at the time of writing                                                                 |
|----------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------
<p>| Landscape strategy and assessment guidance for wind energy development within Caithness and Sutherland | 1995 (reprinted 2005) | Scottish Natural Heritage <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/1995_NW27.pdf">http://www.snh.org.uk/pdfs/publications/commissioned_reports/1995_NW27.pdf</a> | Caroline Stanton             | This study assessed the sensitivity of the landscape of Caithness and Sutherland and provided guidance on the key issues which were likely to be affected by wind farms in each character type. The illustrated study then went on to advise on the type of development (if any) most likely to be accommodated within each character type. |
| Assessment of the sensitivity of landscapes to windfarm development in Argyll and Bute | 2002                | Scottish Natural Heritage Argyll and Bute Council                                                              | Land Use Consultants         | Study not available. One of a series of four studies commissioned by SNH to explore innovative ways of assessing the sensitivity of the landscape to wind farms. |
| North Ayrshire ‘Ordering Hypothetical Wind farm developments’        | 2003                | North Ayrshire Council                                                                                        | MLURI                        | Study not available                                                                                                                             |
| Study into landscape potential for wind turbine development in East and North Highland and Moray | 2003                | Scottish Natural Heritage Landscape Capacity Study for windfarm development in East and North Highland and Moray | MLURI and Edinburgh College of Art | One of a series of four studies commissioned by SNH to explore innovative ways of assessing the sensitivity of the landscape to wind farms. This study assessed both landscape and visual sensitivity using GIS-based decision support tools calibrated and used with a high degree of professional landscape architecture theory and practice, backed up by fieldwork. |</p>
<table>
<thead>
<tr>
<th>Study Title</th>
<th>Year</th>
<th>Commissioning Authority</th>
<th>Authors/Consultants</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayrshire and Clyde Valley windfarm landscape capacity study.</td>
<td>2004</td>
<td>Scottish Natural Heritage Ayrshire Joint Structure Plan and Transportation Committee</td>
<td>Land Use Consultants</td>
<td>This study assessed both landscape and visual sensitivity, using a method which involved exploring scenarios and zones of visual influence of hypothetical wind farms to identify the best way to accommodate large numbers of turbines within the study area. The study also carried out some preference research with local communities.</td>
</tr>
<tr>
<td>Landscape Study of Windfarm Development in the Ochil Hills and part of</td>
<td>2004</td>
<td>Perth and Kinross Council</td>
<td>David Tyldesley and Associates</td>
<td>This study assessed the sensitivity of both landscape character and visual amenity (as opposed to visibility) to identify areas of landscape sensitivity. The study was commissioned to steer wind farm development to the most appropriate locations within the study area.</td>
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<tr>
<td>the Southern Highlands, Perthshire</td>
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<tr>
<td>Landscape capacity study for onshore wind energy development in the</td>
<td>2004</td>
<td>Scottish Natural Heritage Comhairle nan Eilean Sear Western Isles Enterprise</td>
<td>Newcastle University</td>
<td>One of a series of four studies commissioned by SNH to explore innovative ways of assessing the sensitivity of the landscape to wind farms. This study assessed landscape and visual sensitivity, including comprehensive visibility modelling and landscape values. The study also undertook a postal survey to obtain the values and opinions of residents.</td>
</tr>
<tr>
<td>Scottish Isles</td>
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<tr>
<td>Commissioned Report No. 042</td>
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<tr>
<td>An assessment of the sensitivity and capacity of the Scottish seascape</td>
<td>2005</td>
<td>Scottish Natural Heritage</td>
<td>Landscape Research Group, University of</td>
<td>This study classified the seascape of Scotland into seascape units and then assessed their sensitivity to off shore wind farms. The study included a visibility analysis and an assessment of landscape values.</td>
</tr>
<tr>
<td>in relation to windfarms</td>
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<td></td>
<td>Newcastle</td>
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<tr>
<td>Landscape Capacity Study for Wind Turbine Development in East Lothian</td>
<td>2005</td>
<td>East Lothian Council</td>
<td>Carol Anderson in association with Alison</td>
<td>This study assessed the sensitivity of both landscape character and visibility as seen from key settlements and other sensitive visual receptors. The capacity assessment included consideration of cumulative effects and identifying potential search areas for development.</td>
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<tr>
<td></td>
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<td></td>
<td>Grant</td>
<td></td>
</tr>
<tr>
<td>Study Title</td>
<td>Year</td>
<td>Council/Authority</td>
<td>Study Team/Consultants</td>
<td>Study Status</td>
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<td>-------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Landscape Capacity Study for Wind Turbine Development in East Lothian</td>
<td>2007</td>
<td>Mid Lothian Council</td>
<td>Carol Anderson in association with Alison Grant</td>
<td>Study not available</td>
</tr>
<tr>
<td>Stirling landscape sensitivity and capacity study for wind energy development</td>
<td>2007/2008</td>
<td>Stirling Council Loch Lomond and the Trossachs National Park Scottish Natural Heritage</td>
<td>Horner and MacLennan</td>
<td>This study assessed both landscape character and visual sensitivities. In particular, it assessed a large area of Stirling as a single landscape area, because it is experienced as a whole. The study includes guidance for siting development in individual landscape types.</td>
</tr>
<tr>
<td>Identifying Areas of Search for Groupings of Wind Turbines in North Lanarkshire</td>
<td>2008</td>
<td>North Lanarkshire Council</td>
<td>ASH</td>
<td>Study not available</td>
</tr>
<tr>
<td>Angus Windfarms – Landscape Capacity and Cumulative Impacts Study</td>
<td>2008</td>
<td>Angus Council</td>
<td>Ironside Farrar</td>
<td>This study was commissioned to advise the Council on the potential cumulative effects of several wind farm developments which were to be considered at a conjoined PLI. It assesses landscape and visual sensitivities as well as cumulative visual issues.</td>
</tr>
<tr>
<td>Landscape Capacity Study for Wind Turbine Development in North Ayrshire</td>
<td>2009</td>
<td>North Ayrshire Council</td>
<td>Carol Anderson and Alison Grant</td>
<td>This study assessed the sensitivity of both landscape character and visibility as seen from sensitive visual receptors. The capacity assessment included consideration of cumulative effects and identifying potential search areas for development.</td>
</tr>
<tr>
<td>Landscape Sensitivity and Capacity for Wind Farm Development in the Shetland Islands</td>
<td>2009</td>
<td>Shetland Isles Council</td>
<td>Land Use Consultants</td>
<td>This study assessed the sensitivity of both landscape character and visibility, using geographic compartments of visual catchment to assess potential capacity and cumulative issues.</td>
</tr>
<tr>
<td>South Lanarkshire landscape capacity for windfarms study</td>
<td>2009</td>
<td>South Lanarkshire Council</td>
<td>Ironside Farrar</td>
<td>Study not available</td>
</tr>
</tbody>
</table>
Aquaculture related landscape capacity studies

<table>
<thead>
<tr>
<th>Title</th>
<th>Date</th>
<th>Commissioning body and on-line link if available</th>
<th>Consultancy</th>
<th>Summary – only provided where the study was available on line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape Capacity Study for Marine Aquaculture Developments in the Orkney Islands.</td>
<td>2001</td>
<td>Scottish Natural Heritage Historic Scotland Orkney Council <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/f00la01b.pdf">http://www.snh.org.uk/pdfs/publications/commissioned_reports/f00la01b.pdf</a></td>
<td>David Tyldesley and Associates</td>
<td>This study assessed the sensitivity of both landscape character and visual amenity (as opposed to visibility) to identify areas of landscape sensitivity and provided general guidance on the siting and design of development.</td>
</tr>
<tr>
<td>Coastal Capacity Study for Marine Aquaculture Developments in Shetland</td>
<td>2002</td>
<td>Scottish Natural Heritage</td>
<td>Landscape Design Associates</td>
<td>Study not available</td>
</tr>
<tr>
<td>Landscape/seascape Capacity for Aquaculture: Loch Fyne</td>
<td>2007</td>
<td>Argyll and Bute Council <a href="http://www.argyll-bute.gov.uk/content/planning/environment/marineandcoastaldevunit/ICZM2/3257614/backgroundinfo/">http://www.argyll-bute.gov.uk/content/planning/environment/marineandcoastaldevunit/ICZM2/3257614/backgroundinfo/</a></td>
<td>Alison Grant in association with Carol Anderson</td>
<td>Commissioned to inform the Loch Fyne Integrated Coastal Zone Management Plan, this study assessed the sensitivity of both landscape character and visual amenity (as opposed to visibility) and provided siting and design guidance for each of the areas identified as having the potential to accommodate new or larger developments.</td>
</tr>
<tr>
<td>Landscape/Seascape capacity for Aquaculture and Coastal Infrastructure: Sound of Mull</td>
<td>2008</td>
<td>Argyll and Bute Council <a href="http://www.argyll-bute.gov.uk/content/planning/environment/marineandcoastaldevunit/ssmeihp/informationresources/ssmeistudiesreports/ssmeistudies/landscapeseascape/">http://www.argyll-bute.gov.uk/content/planning/environment/marineandcoastaldevunit/ssmeihp/informationresources/ssmeistudiesreports/ssmeistudies/landscapeseascape/</a></td>
<td>Alison Grant in association with Carol Anderson</td>
<td>This study assessed the sensitivity of both landscape character and visual amenity (as opposed to visibility) and provided siting and design guidance for each of the areas identified as having the potential to accommodate new or larger developments. It also assessed the sensitivity of the coastal landscape to all types of shell fish farming and coastal infrastructure developments.</td>
</tr>
</tbody>
</table>
Development scenarios for wind farms

Example 1

Source:
Land Use Consultants
‘Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Isles’
(2009)

The full document can be accessed here:

2.11. Key characteristics were highlighted for each landscape character area and reviewed against the assessment criteria, using a transparent analysis combined with professional judgement to assign draft overall landscape sensitivities to each area.

Wind Farm Development Typologies

2.12. For the purpose of this study, the key characteristics of each landscape character area were assessed in terms of their potential sensitivity to generic wind farm development typologies.

2.13. Based on contemporary commercial developments and proposals coming forward within the Shetland Islands the following typologies were identified, reflecting different scales of development. Definitions can be given either by considering the number of turbines or by reference to installed capacity, as in SPPs. In this report the following terms are used, broadly with reference to both criteria:

A. **Single turbine to a small group** – a development of 1 turbine to a group of up to 6 turbines, or with an installed capacity of less than 20MW

B. **Medium group** – a development of approximately 7-12 turbines, and/or with an installed capacity of up to 20MW

C. **Medium-large group** – a development of approximately 13-25 turbines, and/or with an installed capacity of 20-30MW

D. **Large-very large group** – a large development of approximately 25 or more turbines and/or an installed capacity in excess of 30MW

2.14. Note that bandings and capacities are approximate, giving an idea of the size of commercial developments rather than being intended as exact numbers.

2.15. The study does not address smaller scale domestic installations or more distant offshore development. The identified visual compartments (see Section 5), extend into inshore waters, allowing consideration of the effects of onshore and inshore development, resulting from the intervisibility between the land and the sea. This approach allowed account to be taken of the recognised importance of the interplay between land and sea, and the way that the orientation of views and sounds influences the landscape character and views within the Shetland Islands.

2.16. Turbine heights in the 90 - 150m (to blade tip) range have been assumed which are typical of the current generation of commercial turbines. Smaller turbines are generally less efficient and usually rotate faster. However, this should not preclude the possibility of using smaller turbines, in order to ensure development is at an appropriate scale and proportion with the affected landscape.

2.17. The above typologies were considered during site surveys in order to come to a view as to which would be the most suitable scale of development within each landscape character area. Based on these findings, the study provides locational and typology guidance in relation to key aspects of landscape and visual character in Section 6.

2.18. The potential effect of all associated ancillary development which is required as part of wind farm development, including substations and access tracks, was also considered in this sensitivity assessment. Typically, larger wind farm developments require more extensive associated ancillary development including a correspondingly larger length of access track and cabling, and a greater number of anemometry masts.

B) DESCRIPTION AND EVALUATION OF LANDSCAPE CHARACTER AREAS

Desk Based Review

2.19. The desk based review draws on existing data sources to describe defining landscape characteristics. It is based on a comprehensive desktop research exercise, including the published landscape character assessment, review of GIS datasets and map studies. Examination was undertaken of the following:

- Ordnance Survey maps, to identify landmarks (including topographical, historical and others) and viewpoints (i.e. mapped viewpoints, and other evident locations where people will gather to appreciate the landscape, shown on Figure 1);
- land cover (based on the landscape assessment);
- topography (based on the 1:50,000 Ordnance Survey digital contour data);
- settlements, (including consideration of their size) and principal road and ferry transport routes;
- landscape designations and other ‘value’ or ‘perception’ information which already exists, including those relating to NSA or Gardens and Designed Landscapes (shown on Figure 4);
- Gillespie (1998) A Landscape Assessment of the Shetland Isles (see Figures 2 and 3).
- existing wind farm developments within the study area including Burra/dale Wind Farm.

Describing Landscape Character Area Characteristics

2.20. Based on the information outlined above, this part of the study involved identification of key landscape features of the landscape character areas (LCAs) and which of these would be susceptible to change resulting from wind farm development.

2.21. The second stage provided a draft evaluation of each LCA against the assessment criteria to define the extent to which the key characteristics of each are likely to be sensitive to wind farm development.
Development scenarios for wind farms
Example 2

Source:
Carol Anderson with Alison Grant Landscape architects
‘Landscape capacity for wind turbine development in East Lothian’
East Lothian Council
(June 2005)

The full document can be accessed here:
http://www.eastlothian.gov.uk/site/scripts/documents_info.php?
categoryID=198&documentID=1130
2.4 The Study Area

The study area includes all of the East Lothian local authority area and extends 10km beyond its boundary into the adjacent Midlothian and Scottish Borders Regions, as shown in Figure 1.1. The 10km extension was defined on the basis of the potential significant visual effects that may arise from windfarm developments (120m high turbines to blade tip) at this distance, whether located in East Lothian or adjacent authorities.

Landscape character areas that lie (partially or wholly) within East Lothian have been fully assessed for sensitivity to windfarm development in the main body of the study. The landscape and visual sensitivities of character areas which lie within the study area but outwith East Lothian are addressed separately in Appendix B.

2.5 Development Typology

The brief defined five different development scenarios ranging from single turbine developments to larger scale developments of 21 turbines or more with a turbine height of 100 metres to blade tip. In discussion with the Council and Scottish Natural Heritage it was agreed that the height of turbine considered in these development scenarios should be increased to 120m in accordance with current trends for commercial developments. It was also agreed to consider a smaller windfarm development with a reduced height of turbine more appropriate to the scale of some of the landscapes present in East Lothian. Although we appreciate that smaller turbines may currently be considered by the industry to be uneconomic in terms of manufacture and economy, we felt it would be useful to assess these in the study as future technology and funding arrangements may encourage such developments to occur.

The development scenarios consequently considered in the assessment were as follows:
1. Single turbine development (120m high)
2. Small scale windfarm development (2-6 turbines to 65m high turbines)
3. Medium scale windfarm development (6-20 turbines to 120m high turbines)
4. Large scale windfarm development (21+ turbines to 120m high turbines)
5. Extensions to existing windfarms

The sensitivity of some landscapes may mean ‘domestic’ scales of development would be more appropriate than commercial. While these were not considered in this study, their suitability to the landscapes of East Lothian could be assessed as a separate exercise using the methodology and general sensitivities identified in this study.

We have assumed that turbines will be a matt off-white colour. All turbine heights outlined are to blade tip.

2.6 Existing Windfarm Development within the Study Area

The existing windfarms of Crystal Rig and Dun Law are located within the study area. Although both as currently built lie largely within the Scottish Borders Region, the proposed Phase II Crystal Rig development will extend within East Lothian. For the purposes of this study both Phase I and Phase II of the Crystal Rig development were considered as being operational and formed part of the baseline landscape character for the study. While an extension to the existing Dun Law windfarm is currently being progressed by a developer, it was excluded from the baseline used for the study.

2.7 Assessment of Landscape Sensitivity

The assessment uses landscape character areas as a basis for the landscape sensitivity assessment and makes judgements of the sensitivity of each character area to wind energy development by assessing potential effects on key characteristics sensitive to such development (in its various forms). The method separates out physical landscape qualities and perceptual qualities associated with the experience of that landscape and therefore allows judgements on each criterion to be made explicit.

The assessment involved the following tasks:

Landscape Character Review
A review of background information including The Lothians Landscape Character Assessment (ASH for SNH, 1999) and The Borders Landscape Character Assessment (ASH for SNH 1999) was undertaken and key characteristics of character areas within the study area were identified from these documents. An initial field visit was undertaken to verify descriptions and boundaries and some revision of character areas was made for the purposes of this study. This is explained in more detail in section 3.1.

1 Garrad Hassan highlighted at the Scottish Renewable and Electric Energy Federation conference (May 2015) that the United Kingdom and Germany lead in the promotion of larger 100+ height turbines while smaller turbines are still being pursued elsewhere in the world.

2 The largest ‘domestic’ scale turbine currently range from 15m to 19m height to blade tip while the smallest height of commercial turbines currently manufactured are 5m height to blade tip (research undertaken October 2014). It is also possible to obtain smaller ‘second hand’ commercial scale turbines of around 40m height to blade tip.
Development scenarios for wind farms
Example 3

Source:
Horner + Maclellan
'Stirling landscape sensitivity and capacity study for wind energy development'
Stirling Council and the Loch Lomonds and Trossachs National Park
(November 2007)

The full document can be accessed here:
http://www.stirling.gov.uk/index/services/planning/wind_farms.htm

28 This study took the existing and consented windfarms, shaded within the table above, as the
baseline conditions. At the outset of the study, 3 additional windfarms were also assessed -
Snowgoat Glen, Little Law and Mellock Hill; however, these applications were subsequently
turned down on Appeal after a Public Local Inquiry and thus removed from the study (Table 4).
Of the windfarms listed above, Burnfoot and Greenknowes are not located within Stirling
Council Area but were assessed for their potential significant cumulative impacts from within
the Ochils and, sequentially, along the A8.

29 SIZE OF WIND TURBINES

Wind turbine height is not always a key factor determining windfarm capacity, as it does not
always have a major influence on landscape and visual impacts. For example, this may be
because the landscape comprises extensive open moorland and hills where few size
indicators exist from which to gauge the relative scale of the turbines. However, during the
early stages of this study, while carrying out site assessment informed by wireline diagrams
that indicated wind turbines of alternative and specific size, it was revealed that turbine height
was likely be a key issue affecting the capacity of the Stirling landscape to accommodate wind
turbines.

30 To assess the capacity for wind turbines of a particular size to be accommodated within the
landscape, it was first necessary to establish a reasonable range of wind turbine heights for
development. As Table 5 above shows, existing and consented windfarms within the area
range from 93 to 110 metres to blade tip, while current proposals vary between 115 – 125
metres to blade tip. Discussion with the Steering Group revealed, however, that there was
also a wish for the study to explore capacity for shorter wind turbines that may suit potential
local community development. To better understand the scope for using smaller turbines, a
number of organisations and developers were contacted in order to find out about the
feasibility of using smaller turbines.

31 These contacts confirmed that it is difficult to obtain small turbines under around 80 metres
high (to blade tip) within the UK, mainly because the key manufacturers are increasingly
focussed upon producing larger turbines. Nevertheless, it seems that there is a small and
growing market for small turbines, fed particularly by community proposals that cannot afford
the higher capital cost of large machines. At the moment, the three most popular turbines that
fit this category seem to be the Vestas V52 (66-112m high to tip), the Enercon E33 (60.5 –
66.5m high to tip) and the Enercon E44 (77m high to tip). Most developers suggest, however,
that these small turbines are only likely to be used in exceptional circumstances where a
development has some other ‘added value’, for example gaining grant funding as a community
project. This is mainly because of the escalated reduction of income from smaller turbines.
One developer described these smaller machines as ‘boutique’ turbines – a luxury that most cannot afford, but which can be justified in certain special conditions.

32 Based on the assessment above, four equal categories of wind turbine height to blade tip were identified as follows: 21 – 50m; 51 – 80m; 81m – 110m; and 111m – 148m. It is accepted that mainstream wind energy developers are not likely to be particularly interested in the development of smaller wind turbines as represented by the two lowest categories; however, the Steering Group felt that these should nevertheless be assessed because of potential interest in these by local/ community groups. Additionally, site assessment revealed that there was unlikely to be scope for the use of wind turbines within the tallest category due to the sensitivity of the Stirling area landscape (Table 4).

33 Assessment of the impacts of wind turbine size were based upon the following information:

a. Landscape and visual assessment on site of the scale of the landscape, including the impacts of existing features of various scale such as houses, trees, telecom masts, powerlines and wind turbines.

b. Assessment of wireline diagrams in comparison with the matching view on site. The wirelines indicated various magnitudes of impact in relation to turbines at 60 and 100 metres high to blade tip. From these, impacts of turbines of alternative size could be extrapolated.

c. Assessment of dead ground ZTV maps in relation to the pattern of visibility. Although these were based on only a turbine of 100m height to blade tip (in account of study timescale constraints), comparison of this data with the wireline diagrams while on site gave a wider impression of how extent of visibility would vary with turbine size within different parts of the study area.

2c WINDFARM TYPES

34 The type of windfarm, as determined by scale and design, affects capacity for windfarms within an area. It is important to stress that windfarm type does not usually form an absolute constraint, however (unless a windfarm must replicate/ extend the layout of an existing development), as this is an aspect that can usually be modified through design mitigation. Rather, it is commonly identified within capacity studies to indicate the most likely type of windfarm development that can be accommodated in a particular area. It was with this in mind that, at the outset of this study, a number of distinct windfarm types were identified by the Steering Group as follows:

a. Cluster or row 1 - 3 wind turbines
b. Cluster or row 4 – 6 wind turbines
c. Line of 7 – 10 wind turbines
d. Group of 7 – 10 wind turbines
e. Grid of 7 – 10 wind turbines
f. Line of 20+ wind turbines
g. Group of 20+ wind turbines
h. Grid of 20+ wind turbines

35 Capacity of the landscape to accommodate these various types was assessed on site and included the following analysis:

a. Landscape and visual assessment on site, particularly of factors that determine the most appropriate scale and layout of a development such as: landscape scale and sense of enclosure/ exposure; the size of spaces defined by the landscape pattern; the landform (which strongly affects the scope of various sizes of windfarm to create a simple image); and land cover.

b. Assessment of wireline diagrams in comparison with the matching view on site. The wirelines indicated varying magnitudes of impact in relation to the various patterns of the underlying landscape. The wirelines also showed various groupings of turbines and, from these, the impact of alternative scenarios could be extrapolated.

36 At the stage of drawing up the findings in terms of capacity of the Stirling area to accommodate windfarms, it became clear that there was not a strategic need to further divide areas of potential capacity into windfarm types. This was mainly because so few areas of potential capacity had been identified and thus it would be simpler and more useful to consider the sensitivities of windfarm type within the guidance section provided for each landscape character type.

2d LANDSCAPE AND VISUAL ASSESSMENT

37 The landscape and visual assessment carried out for this study comprised three main aspects:

a. Assessment of the landscape resource, drawing out the key landscape characteristics of the area (including experience of the landscape) and categorising these into distinctive landscape character types sensitive to wind energy development (informed partly by ZTV maps and exposure analysis);
Development scenarios for settlement expansion
Example 1

Source:
Horner and Maclennan
‘Sutherland landscape capacity study: an analysis of housing potential’
Scottish Natural Heritage Commissioned Report No. 147
(ROAME No. F05AA305)
(2006)

The full document can be accessed here:
http://www.snh.org.uk/pubs/detail.asp?id=557
Development scenarios for settlement expansion

Example 2

Source:
Alison Grant in association with Carol Anderson
‘Scottish Borders Development and Landscape Capacity Studies Brief and Methodology’
(March 2007)

The full document can be accessed here:
Development scenarios for aquaculture

Example 1

Source:

Tyldesley Associates
‘Landscape Capacity Study for Marine Aquaculture Developments in the Orkney Islands’
Scottish Natural Heritage Commissioned Report F00LA01B (2001)

The full document can be accessed here:

http://www.snh.org.uk/pdfs/publications/commissioned_reports/f00la01b.pdf
Development scenarios for aquaculture

Example 2

Source:
Alison Grant in association with Carol Anderson
‘Landscape/seascape capacity for aquaculture and coastal infrastructure: Sound of Mull’, Argyll and Bute Council (2008)

The full document can be accessed here:
http://www.argyll-bute.gov.uk/content/planning/environment/marineandcoastaldevunit/ssmeihp/informationresources/ssmeistudiesreports/ssmeistudies/landscapeseascape/

Development scenarios are therefore indicative rather than prescriptive. They represent the general size, range of components and layout of developments. They cannot however, aim to cover all variables in the design, size and layout of aquaculture structures.

14.8.1 Development scenarios for aquaculture
For aquaculture development, it was expected that good siting and design guidance would be followed, as described in Grant (2000), although it was recognised that larger structures, a more recent trend, was perhaps not adequately catered for by this guidance.

Development scenarios were used where possible to help assess the capacity of the seascape against a specific type of development. This follows recognised good practice in landscape capacity assessment advice. The scenarios used reflect recent trends towards circular fin fish cages and barrel shaped mussel lines buoys with more mechanisation. There is also a trend towards moving to more exposed sites, particularly for fin fish farming, where flushing is greater. However, it was noted that existing fin fish cages in the Sound were often tightly packed square cages occupying less water surface than more spaced out circular cages, which reduces the amount of water surface occupied by the development, although the resulting development was a more dense structure.

For offshore fin and shell fish farming, three broad scenarios were used, differentiated by size. No development scenario was used for oyster trestles, which are located on the shoreline. Instead, advice on the length and if necessary, the approximate extent of coastline appropriate for development, was indicated in the conclusions section for each local coastal character area.

Development scenarios are indicative, and are intended to be used as a guide for discussion between the developer and local planning authority.

14.8.1.1 Small scale
- Fin fish farms: Up to six circular cages with no offshore storage or other infrastructure. It was noted that there may be very little demand for this scale of development in the future.
- Mussel lines: Up to four mussel lines or rafts occupying up to one third of the length of a bay or up to one third of the length of a consistent stretch of straight coastline between two promontories, bays or similar landform features. No additional infrastructure. Generally the lines are likely to be about 100m
14.8.2 Development scenarios for coastal infrastructure

Development scenarios for coastal infrastructure were far harder to work out, as the type of structures are so varied. For piers, jetties and slipways, the focus is on size and simplicity of the structures. For pontoons, the number and extent of water surface occupied, and for moorings, the number of buoys. In all cases, the assessment has had to take into account what the appearance of the structures are like when in use, (ie with boats moored alongside) not simply as structures alone.

Three broad scenarios were used for initial assessment, and these are indicated below. However, more site specific guidance was used in the conclusions outlined for each local coastal character area.

Development scenarios are indicative, and are intended to be used as a guide for discussion between the developer and local planning authority.

14.8.2.1 Small scale
- Up to one single small pier, jetty or slipway generally for domestic use with no associated buildings, storage yards or other infrastructure, except possibly an access track
- A single pontoon structure which could accommodate up to about ten boats
- Mooring buoys for up to about ten boats

14.8.2.2 Modest scale
- Up to one single pier, jetty or slipway with one boat house or building, a small amount of storage yard and an access track
- A pontoon structure which could accommodate up to thirty or so boats for mooring
- Mooring buoys for up to about thirty boats

14.8.2.3 Large scale
- More than one pier, jetty or slipway, or a number of jetties with boat houses or a building complex including storage yards and an access track, likely to require land based/urban design and settlement capacity assessment as well as coastal assessment
- An extensive pontoon structure which could accommodate more than thirty boats on a regular basis
- Mooring buoys which could accommodate more than thirty boats on a regular basis
Method for assessing the sensitivity of the landscape to wind farms

Example 1

Source:
Ironside Farrar
‘Angus Windfarms Assessment’ Landscape Capacity Study
Angus Council
(September 2008)

The full document can be accessed here:
http://www.angus.gov.uk/DevControl/advicenotesintro.html

Table 2.3. Determination of Landscape Character Sensitivity

<table>
<thead>
<tr>
<th>Landscape Character Factors</th>
<th>Criteria / Thresholds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale (primarily in character but also in geographical size of area)</td>
<td>Consideration of horizontal and vertical scale. Larger scale landscapes are generally considered more able to absorb the impacts of commercial wind turbines, although a smaller size of turbine may reduce impacts. A larger physical area would be able to accommodate more development depending on other aspects determining capacity.</td>
</tr>
<tr>
<td>Landform</td>
<td>The relationship between wind turbines and landform is complex and also dependent on scale. Generally simple landforms: flat, undulating or gently rolling, are considered less sensitive and complex landforms more sensitive, especially if smaller scale. Landforms of sufficient scale may provide opportunities for screening or backgrounding turbines, reducing their visual sensitivity.</td>
</tr>
<tr>
<td>Pattern</td>
<td>The pattern of landcover (woodland, field boundaries, crops, roads, settlements etc). Degree of strength, regularity, fragmentation. Minimal or simple landscape patterns are considered less sensitive to windfarm development. Again the relationship to scale is important.</td>
</tr>
<tr>
<td>Development</td>
<td>The degree of built or infrastructure development will affect suitability. In general a greater level of development is more suitable, particularly large scale industrial and extractive industries, or potentially large scale agriculture. Areas with small scale residential development would potentially be more sensitive. Undeveloped areas with remote or wilderness characteristics would also be more sensitive.</td>
</tr>
<tr>
<td>Quality</td>
<td>This is a measure of the condition and integrity of the landscape fabric and character. A landscape in good condition with a high degree of integrity is more likely to be sensitive to development. A landscape of poor quality may represent an opportunity to compensate for impacts.</td>
</tr>
<tr>
<td>Elements and Features</td>
<td>The elements that make up a landscape, such as woodlands, fields, hedges, buildings and landforms create its pattern but add to its distinctive composition and character. Prominent or distinctive focal features such as steep hills, towers, lochs add further distinctiveness. The relationship of windfarms to these affects overall sensitivity.</td>
</tr>
<tr>
<td>Context</td>
<td>The characteristics of surrounding landscape areas provide a context that affects perception of a landscape and may affect how wind turbine developments are perceived. Landscapes acting as a backdrop or foreground to other areas are particularly sensitive.</td>
</tr>
</tbody>
</table>

OVERALL RATING

High / Medium / Low
2.5.3 Determining Visual Sensitivity

The visual sensitivity of a landscape area is determined by who is likely to see it, (types and numbers of receptors) and how visible in general the area is. The assessment is made in relation to the visibility of tall structures.

Table 2.4. Determination of Visual Sensitivity

<table>
<thead>
<tr>
<th>Visual Sensitivity Factors</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptors</td>
<td>A greater number of potential receptors including higher population densities, visitor attractions or the presence of busy transport routes will lead to a higher visual sensitivity. The sensitivity and expectations of the receptors is also a contributory factor.</td>
</tr>
<tr>
<td>Internal Visibility</td>
<td>Views within a landscape area may be open or restricted by landform, vegetation or buildings. The greater the degree of openness and intervisibility the greater the sensitivity.</td>
</tr>
<tr>
<td>External Visibility</td>
<td>A landscape area that is visible from surrounding areas by virtue of its prominence or being overlooked is more visually sensitive than an area that is seldom seen.</td>
</tr>
<tr>
<td>OVERALL RATING</td>
<td>High/ Medium/ Low</td>
</tr>
</tbody>
</table>

The combination of landscape character and visual sensitivities leads to an overall assessment of landscape sensitivity for an area. No consistent weighting is given to either factor as it is likely that different landscapes will present these to varying extents depending on their unique characteristics. Each case is assessed on its particular characteristics.

2.5.4 Determining Landscape Value

Landscape value reflects the value that society and individuals put on a landscape. This can be officially recognised by some form of local or national designation, or simply by its value to a ‘community of interest’ (this could be for example a local population, recreational users or conservation interest). Other characteristics affecting value of a landscape include its historic and cultural associations, particularly if expressed by surviving features and patterns in the landscape. Finally there are more intangible characteristics generally valued by society, such as tranquillity remoteness and wilderness.

Table 2.5. Determination of Landscape Value

<table>
<thead>
<tr>
<th>Landscape Value Factors</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designations</td>
<td>International, national, regional or local designations relating to landscape in particular, although ecological designations also contribute to the landscape value of an area.</td>
</tr>
<tr>
<td>Community value</td>
<td>An undesignated area may be particularly valued by a community of interest: local, or activity-based.</td>
</tr>
<tr>
<td>Cultural value</td>
<td>Valued landscapes will have historic associations, be rich in historic features and buildings and/or have literary or artistic associations.</td>
</tr>
<tr>
<td>Perceptual</td>
<td>Tranquility, remoteness or wilderness are valued characteristics, whereas landscapes that are highly modified, developed and populated would have low value in this respect. Landscapes regarded as particularly scenic would also be more sensitive.</td>
</tr>
<tr>
<td>OVERALL RATING</td>
<td>High/ Medium/ Low</td>
</tr>
</tbody>
</table>

2.5.5 Determining Landscape Capacity

The final assessment of capacity combines sensitivity and value and is expressed as High, Medium or Low:

- Landscapes of high sensitivity and value would be considered to have a low capacity for windfarm development.
- Landscapes of low sensitivity and value would be considered to have a high capacity for windfarm development.

We have not employed the use of a matrix in this study; a balance of judgement is made in each case as landscape value may be a more important factor than sensitivity in some cases; and vice versa in others.

2.6 Determining Acceptability of Impacts

The final stage involves bringing together the cumulative impact assessment and the landscape capacity assessment in a reasoned judgement of the effects of windfarm development on the Angus landscape. As explained in 2.4.6 the likely acceptability of a proposed level of development may be determined by considering the inherent capacity of the landscape together with the change in level of development and the absolute level of development. This should also be considered against policy criteria and objectives.
Method for assessing the sensitivity of the landscape to wind farms

Example 2

Source:
Land Use Consultants
‘Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Isles’
A Report to Shetland Isles Council (March 2009)

The full document can be accessed here:
### Table 2.2 Criteria for Assessing Landscape Sensitivity to Wind Farm Development

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Aspects indicating lower sensitivity to wind farm development</th>
<th>Aspects indicating higher sensitivity to wind farm development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LANDSCAPE</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Landform and scale; patterns, complexity and consistency | Large scale landform  
Simple  
Absence of strong topographical variety | Small scale landform  
Distinctive and complex  
Human scale indicators  
Presence of strong topographical variety |
| Land cover; patterns, complexity and consistency | Simple Predictable Smooth, regular and convex or flat and uniform | Complex Unpredictable Rugged and irregular |
| Settlement and man-made influence | Concentrated settlement pattern  
Presence of contemporary structures eg utility, infrastructure or industrial elements | Dispersed settlement pattern  
Absence of modern development, presence of small scale, historic or vernacular settlement |
| Movement | Prominent movement, busy | No evident movement, still |
| **VISUAL** |                                                             |                                                             |
| Skylines | Simple predictable skylines  
Presence of existing vertical features | Complex unpredictable skylines  
Uninterrupted horizons |
| Inter-visibility with adjacent landscapes | Limited views into and out of landscape  
Neighbouring landscapes of low sensitivity  
Weak connections, self contained area and views  
Simple large scale backdrops | Prospects into and out from high ground or open landscapes  
Neighbouring landscapes of high sensitivity  
Contributes to wider landscape  
Complex or distinctive backdrops |
| Key views, vistas and landmark features | Obscured landmarks, views  
viewed from landmarks, absence of vistas  
Indistinctive or industrial settings | Prominent key landmarks, views  
viewed from landmarks or key vistas  
Distinctive settings or public viewpoints |
| Receptors | Unpopulated or few receptors  
Inaccessible | More densely populated or many receptors  
Landscape focused recreation and/or visitor attraction |
| Natural and cultural heritage features (views to/from) | Limited association between landscape(s) and/or features | Strong association between landscape(s) and/or features |
| Perceptual aspects (sense of remoteness, tranquility) | Close to visible or audible signs of human activity and development | Physically or perceptually remote, peaceful or tranquil |

### 2.11 Key characteristics were highlighted for each landscape character area and reviewed against the assessment criteria, using a transparent analysis combined with professional judgement to assign draft overall landscape sensitivities to each area.

### Wind Farm Development Typologies

2.12 For the purpose of this study, the key characteristics of each landscape character area were assessed in terms of their potential sensitivity to generic wind farm development typologies.

2.13 Based on contemporary commercial developments and proposals coming forward within the Shetland Islands the following typologies were identified, reflecting different scales of development. Definitions can be given either by considering the number of turbines or by reference to installed capacity, as in SPP6. In this report the following scales are used, broadly with reference to both criteria.

- **A. Single turbine to a small group** – a development of 1 turbine to a group of up to about 6 turbines, or with an installed capacity of less than 20MW.
- **B. Medium group** – a development of approximately 7-12 turbines, and/or with an installed capacity of up to 20MW.
- **C. Medium-large group** – a development of approximately 13-25 turbines, and/or with an installed capacity of 20-50MW.
- **D. Large-very large group** – a large development of approximately 25 or more turbines and/or an installed capacity in excess of 50MW.

2.14 Note that bandings and capacities are approximate, giving an idea of the size of commercial developments rather than being intended as exact numbers.

2.15 The study does not address smaller scale domestic installations or more distant offshore development. The identified visual compartments (see Section 5), extend into inshore waters, allowing consideration of the effects of onshore and inshore development, resulting from the intervisibility between the land and the sea. This approach allowed account to be taken of the recognised importance of the interplay between land and sea, and the way that the orientation of views and sounds influences the landscape character and views within the Shetland Islands.

2.16 Turbine heights in the 90 - 150m (to blade tip) range have been assumed which are typical of the current generation of commercial turbines. Smaller turbines are generally less efficient and usually rotate faster. However, this should not preclude the possibility of using smaller turbines, in order to ensure development is at an appropriate scale and proportion with the affected landscape.

2.17 The above typologies were considered during site surveys in order to come to a view as to which would be the most suitable scale of development within each landscape character area. Based on these findings, the study provides
locactional and typology guidance in relation to key aspects of landscape and visual character in Section 6.

2.18. The potential effect of all associated ancillary development which is required as part of wind farm development, including substations and access tracks, was also considered in this sensitivity assessment. Typically, larger wind farm developments require more extensive associated ancillary development including a correspondingly larger length of access track and cabling, and a greater number of anemometry masts.

B) DESCRIPTION AND EVALUATION OF LANDSCAPE CHARACTER AREAS

Desk Based Review

2.19. The desk based review draws on existing data sources to describe defining landscape characteristics. It is based on a comprehensive desktop research exercise, including of the published landscape character assessment, review of GIS datasets and map studies. Examination was undertaken of the following:

- Ordnance Survey maps, to identify landmarks (including topographical, historical and others) and viewpoints (i.e. mapped viewpoints, and other evident locations where people will gather to appreciate the landscape, shown on Figure 1);
- land cover (based on the landscape assessment);
- topography (based on the 1:50,000 Ordnance Survey digital contour data);
- settlements, (including consideration of their size) and principal road and ferry transport routes;
- landscape designations and other 'value' or 'perception' information which already exists, including those relating to NSA or Gardens and Designed Landscapes (shown on Figure 4);
- Gillespies (1998) A Landscape Assessment of the Shetland Isles (see Figures 2 and 3).
- existing wind farm developments within the study area including Burralde Wind Farm.

Describing Landscape Character Area Characteristics

2.20. Based on the information outlined above, this part of the study involved identification of key landscape features of the landscape character areas (LCAs) and which of these would be susceptible to change resulting from wind farm development.

2.21. The second stage provided a draft evaluation of each LCA against the assessment criteria to define the extent to which the key characteristics of each are likely to be sensitive to wind farm development.

2.22. In parallel, LCAs, as described in the existing landscape assessment, were reviewed for key landscape and visual characteristics and identified sensitivities to onshore wind farm development. These findings were subsequently tested through field survey, which also enabled recording of intervisibility with key landscape features and viewpoints.

2.23. A sensitivity map (Figure 3) of the LCAs was produced based on the results of the desk review, informed by the desk and field surveys, which ensured focus on the testing and elaboration of information through this process.

Field Survey

2.24. Building on the desk based analysis, field visits were used to test the findings. Whilst adopting an approach based on conventional landscape character assessment, this process paid particular attention to those aspects of the landscape which have a bearing on its capacity to absorb wind farm development

2.25. The fieldwork allowed more qualitative explorations on how various landscape features are experienced, both from fixed points (e.g. see Figure 1) and by people travelling through the area. In addition the field survey allowed more detailed understanding of variations within the LCAs and how these variations could be defined. The fieldwork used a survey form comprising three main sections:

- consideration of key features and characteristics of the landscape (irrespective of wind farm developments) and key forces for change;
- analysis of the landscape, in terms of the characteristics and qualities with a bearing on its sensitivity to wind farms developments, including relevant forces for change;
- a brief assessment of the likely implications of different types of wind farm development within the landscape type in question. This distinguished between different aspects of the landscape (e.g. scale, settlement etc.) to define any limiting factors more clearly.

2.26. The results of the field work allowed a refinement of the preliminary classification of landscape sensitivity, identifying those areas with higher, moderate or lower sensitivity (see Table 2.3) to wind farm development. These are shown on Figure 3. The field survey also provided opportunity to explore issues of intervisibility and sensitivity in terms of different types / scales of wind farm development. Figure 3 was then further refined to produce Figure 5, by overlaying maps of designated landscapes, particularly the NSAs, shown on Figure 4. Figure 5 was then refined again during the final stages of the study, drawing on the findings from the analysis of visual compartments (described in Sections 2.30-2.34 and shown on Figure 6), to produce Figure 7.

2.27. The process of refinement of LCA sensitivity, taking on board the location of NSAs in relation to the boundaries of LCAs is explained further here. Where NSAs extended across LCAs, development within these areas would affect the NSA. In some instances it was therefore appropriate to increase
levels of sensitivity accordingly, to allow consideration of value attached to
nationally designated landscape.

2.28. Levels of overall sensitivity were assigned using the following definitions:

<table>
<thead>
<tr>
<th>Sensitivity</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher</td>
<td>Key characteristics of the landscape would be adversely affected by wind farm development. Such development would result in a significant change in character.</td>
</tr>
<tr>
<td>Moderate</td>
<td>Some of the key characteristics of the landscape are vulnerable and may be adversely affected by wind farm development. Although the landscape may have some ability to absorb some types of wind farm development, this may cause a change in character or introduce new characteristics into the landscape.</td>
</tr>
<tr>
<td>Lower</td>
<td>Key characteristics of the landscape are robust and would be less affected by wind farm development. The landscape would be able to accommodate appropriately sited and designed development as such development would not significantly alter landscape character.</td>
</tr>
</tbody>
</table>

2.29. The terms used in this report are relative. There is no absolute definition of sensitivity which is appropriate to Scotland as a whole: it is a relative term. When examining sensitivity in Shetland, high was taken to mean ‘higher’ and low as ‘lower’. This is because it is recognised that landscapes in Shetland may generally be of overall different relative sensitivity than those in other parts of the UK, where, for example widespread industrial, developed or degraded land may be present.

Section 4 of this report provides a detailed analysis of landscape sensitivity in the Shetland Islands. This is illustrated on Figure 3, with the refined sensitivities (i.e. having taken on board the NSAs), being shown on Figure 5.

C) EVALUATION AND ANALYSIS OF VISUAL COMPARTMENTS

Identification and Evaluation of Visual Compartments

2.30. Aspects affecting sensitivity of LCAs, including issues of intervisibility (i.e. the extent and composition of views, which in Shetland, will predominantly be a factor of topography) extend beyond the geographical extent of each LCA. To enable account to be taken of intervisibility between LCAs, across Shetland, they were grouped into visual compartments. These give an understanding of the way topography affects potential visibility across wider areas. Visual compartments are shown in Figure 6.

2.31. Visual compartments were identified using information provided in A Landscape Assessment of the Shetland Isles; contour information from Ordnance Survey maps; observations made during field studies; and through discussions with the SIC Working Group.

2.32. They are based upon the location of key ridges, or watersheds, and their boundaries connect the main highpoints. As such, they approximate to the limits of intervisibility between landscapes within each compartment (see SPP6 guidance provided by Enviros*).

2.33. It is acknowledged that this model can only be an approximation, the irregularities of the landscape rendering it inappropriate for such boundaries to be precisely defined for a strategic study. These visual compartments do however provide a guide as to the overall extent of likely visibility which should be further tested using zones of theoretical visibility (ZTV) modelling for individual projects as they come forward.

2.34. The identified visual compartments were analysed and refined, by overlying designated landscapes, allowing comment to be made on the overall sensitivity of each compartment, based on the underlying sensitivity of the LCAs within each. To facilitate a more refined judgement to be presented, the following additional levels of overall sensitivity were introduced: moderate/ high and moderate/ low sensitivity. Compartments with overall moderate/ high or lower levels of landscape sensitivity were examined in terms of the implication of potential wind farm development upon them.

Indicative Landscape Capacity

2.35. Likely development scenarios were described based on providing an indication of appropriate thresholds of development (see Diagram 5.1 on page 108). Clearly, thresholds of development reflect landscape sensitivity and intervisibility with adjacent landscapes, however thresholds are also influenced by the physical size of each unit. It is also important to recognise that the emphasis placed on the need to accommodate wind farm development within the landscape may be influenced by changing requirements, demands and attitudes in the future.

Document available on www.spp6service.co.uk
Method for assessing the sensitivity of the landscape to wind farms

Example 3

Source:
David Tyldesley Associates
'Ochil Hills and South Highland Perthshire Windfarm Capacity Assessment' Perth and Kinross Council (2004)

The full document can be accessed here:
http://www.pkc.gov.uk/NR/rdonlyres/6F3C0CDD-9296-433A-8D91-C8A1B09CAA5B/0/DTReportFinal_Complete.pdf
were likely to possess, that would help to identify the best locations for windfarms. The second column describes the nature of the characteristics that would represent areas of higher potential and the third column describes the nature of the characteristics that would indicate a lower potential for windfarm development.

2.10 In respect of visual criteria, it is not possible to do a detailed analysis without specific or even outline proposals such as number, layout and height of turbines. The spatial criteria that would indicate areas of greater or lower potential for locating windfarms must therefore relate to the general contribution that the area and its features make to visual amenity. The last three rows of Table 2, therefore, define the features and characteristics of an area that would tend to indicate a high sensitivity, in terms of visual amenity, because a windfarm development would be particularly conspicuous or prominent in views that would be regarded as particularly sensitive to changes. This does not mean that windfarms in other areas would not be prominent or conspicuous from other visually sensitive receptors such as houses, but these views cannot be assessed at this strategic scale in the absence of a particular proposal. Consequently, only areas of high sensitivity are recorded, a classification of ‘low’ sensitivity would be inappropriate.

2.11 Areas with the higher or lower landscape potential and areas of visual sensitivity would be likely to have permutations of the characteristics listed in Table 2.

2.12 Each part of each study area was assessed in the field against each criterion to see if its characteristics fell within one of the descriptions in columns 2 or 3 of Table 2. For the landscape criteria, ‘H’ or ‘L’ was recorded representing a higher or lower potential in terms of the individual criterion (for example see Table 4 in section 3 below). Blank cells in the landscape criteria indicate that the nature of the characteristic lay between the extremes that would define the higher or lower potential for that criterion. In the visual amenity assessment, a blank cell will indicate that the relevant criterion does not occur in that area.

2.13 It is not realistic to apply a more sophisticated grading or to allocate numerical scores to the assessment tables. The tables represent independent professional judgements based on a knowledge of the areas, background research and understanding of the landscape character assessments and considerable experience of landscape character and capacity assessment. The Brief required the most and least appropriate areas for windfarm development to be identified and this technique fulfills that requirement.

2.14 When the detailed assessment table was complete in respect of each criterion for each area, it was considered to be useful to summarise the findings in a summary table which provides an ‘at a glance’ indication of the areas of higher and lower potential (for example Table 3 below). It should be emphasised that this summary process was not a matter of counting the occurrence of ‘H’ and ‘L’ along the row in the landscape assessment, to see which letter was most numerous. The occurrence of one or possibly two ‘L’ classifications may not necessarily render an area of low potential generally, especially if the constraint could be mitigated. However, no matter how many criteria recorded a higher capacity ‘H’, more than one or two ‘L’ records would render the area of lower potential overall. This is because each of the criteria are considered to be important and, if an area is of lower potential in respect of more than one or two, it follows that it is of lower potential generally.

### Table 2 Landscape and Visual Assessment Criteria

<table>
<thead>
<tr>
<th>Landscape Criterion</th>
<th>Areas with higher potential</th>
<th>Areas with lower potential</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Landscape</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scale</td>
<td>Large scale</td>
<td>Small scale</td>
</tr>
<tr>
<td>Orientation</td>
<td>Open</td>
<td>Enclosed</td>
</tr>
<tr>
<td>Landform</td>
<td>Smooth, regular, rolling or undulating, flowing landform</td>
<td>Dramatic, rugged, steep, complex landform</td>
</tr>
<tr>
<td>Landscape with</td>
<td>Extensive areas of similar ground cover such as grass moorland or afforestation</td>
<td>A variety of landscape types in smaller units or patchworks</td>
</tr>
<tr>
<td>Complexity and pattern</td>
<td>Simple and / or with sweeping lines and irregular linear features or patterns</td>
<td>Complex and / or with strong, geometric, linear patterns</td>
</tr>
<tr>
<td>Settlement and infrastructure</td>
<td>Lined, pylons, industrial elements, buildings, infrastructure, settlements or main roads</td>
<td>No obvious evidence of modern settlement, buildings or structures</td>
</tr>
<tr>
<td>Perception of windrose</td>
<td>Windbreak</td>
<td>Shelter</td>
</tr>
<tr>
<td>Perception of change</td>
<td>Dynamic, or modern and vulnerable to change</td>
<td>Ancient or otherwise with obvious historical continuity, designed landscapes</td>
</tr>
<tr>
<td>Movement</td>
<td>Regular movement, other than natural movements such as clouds</td>
<td>Little or no movement, stillness</td>
</tr>
<tr>
<td>Landscape experience</td>
<td>Buoyancy, activity, human induced noise</td>
<td>Softness, remoteness and / or peacefulness / tranquility, emptiness</td>
</tr>
</tbody>
</table>

#### Visual Criteria

<table>
<thead>
<tr>
<th>Visual Sensitive areas</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>V1</strong> Prominence</td>
<td>Permanent distinctive peaks and ridges</td>
</tr>
<tr>
<td><strong>V2</strong> Settings, backdrops and horizons</td>
<td>Areas with topographic features that define the setting, backdrop, main outlook or horizon of areas with extensive population</td>
</tr>
<tr>
<td><strong>V3</strong> Important skylines from main transport corridors</td>
<td>Areas that form the skyline or prominent horizon from main road and rail corridors</td>
</tr>
</tbody>
</table>

2.15 This is simply a broad overview of the status of each area and does not attempt to rank the areas. If the Councils and / or SNH wished to apportion differing weight to the criteria, the more detailed assessment tables would need to be used. This is because the summary tables do not attempt to apportion weight between the criteria in setting out the overall conclusions of the assessment.

2.16 In light of the findings in respect of the Ochil Hills, described in section 3 below, it was considered useful to provide more guidance to the clients in terms of the best locations for windfarms. Two specific areas of higher potential were selected as
better two. They were selected on a more detailed examination of the defined criteria, listed in Table 2, no new criterion was introduced. In particular, fieldwork indicated that the landform and landcover of these areas would assist in the siting of a windfarm and its turbines to achieve a good landscape fit. It should be noted, however, that both these preferred areas are very sensitive visually, as discussed in section 3 below.

2.17 When using the tables it should be remembered that the landscape criteria are expressed as 'potential', in positive terms, so a ‘High’ or ‘Higher’ entry indicates an opportunity to consider the area for windfarms, from a landscape point of view. However, the visual assessment is expressed in ‘sensitivity’ and a ‘High’ entry in the tables indicates a constraint.
Method for assessing the sensitivity of the landscape to wind farms

Example 4

Source:
Carol Anderson in association with Alison Grant
‘Landscape Capacity Study for Wind Turbine Development in East Lothian’
East Lothian Council
(May 2005)

The full document can be accessed here:
http://www.eastlothian.gov.uk/site/scripts/documents_info.php?
categoryID=198&documentID=1130

The sensitivity of some landscapes may mean ‘domestic’ scales of development would be more appropriate than commercial7. While these were not considered in this study, their suitability to the landscapes of East Lothian could be assessed as a separate exercise using the methodology and general sensitivities identified in this study.

We have assumed that turbines will be a matt off-white colour. All turbine heights outlined are to blade tip.

2.6 Existing Windfarm Development within the Study Area

The existing windfarms of Crystal Rig and Dun Law are located within the study area. Although both as currently built lie largely within the Scottish Borders Region, the proposed Phase II Crystal Rig development will extend within East Lothian. For the purposes of this study both Phase I and Phase II of the Crystal Rig development were considered as being operational and formed part of the baseline landscape character for the study. While an extension to the existing Dun Law windfarm is currently being progressed by a developer, it was excluded from the baseline used for the study.

2.7 Assessment of Landscape Sensitivity

The assessment uses landscape character areas as a basis for the landscape sensitivity assessment and makes judgements of the sensitivity of each character area to wind energy development by assessing potential effects on key characteristics sensitive to such development (in its various forms). The method separates out physical landscape qualities and perceptual qualities associated with the experience of that landscape and therefore allows judgements on each criterion to be made explicit.

The assessment involved the following tasks:

Landscape Character Review

A review of background information including The Lothians Landscape Character Assessment (ASH for SNH, 1998) and The Borders Landscape Character Assessment (ASH for SNH 1999) was undertaken and key characteristics of character areas within the study area were identified from these documents. An initial field visit was undertaken to verify descriptions and boundaries and some revision of character areas was made for the purposes of this study. This is explained in more detail in section 3.1.

7 The largest ‘domestic’ scale turbine currently range from 15m to 18m height to blade tip while the smallest height of commercial turbines currently manufactured are 51m height to blade tip (research undertaken October 2004). It is also possible to obtain smaller ‘second hand’ commercial scale turbines of around 40m height to blade tip.
Assessment of Sensitivity to Wind Energy Development
The field survey was undertaken by two professional landscape architects, experienced in the assessment of both windfarm development and landscape capacity, using a checklist from key viewpoints to record sensitivity to the development typologies against the following criteria:

Physical Criteria of Landscape
- Scale
- Landform and shape
- Settlement
- Industry and infrastructure elements
- Landscape pattern and foci
- Landscape context (effect on sensitivity from other Landscape Character Areas in view)
- Landscape composition
- Experiential/Perceptual
- Sense of remoteness/naturalness

Further background on sensitivity criteria can be found in Appendix C.

In terms of assessing the potential effects of turbines on key characteristics, we generally made judgements on height first. There are a number of large vertical elements in the East Lothian landscape which aided the assessment by providing a scale reference, notably the high buildings of Cockenzie (chimneys 149m high) and Torness (70m high) Power Stations and the 400kV power lines (47-50m high towers) linking these and crossing the Lammermuir plateau and foothills and the Mayfield/Tranent Ridge.

Previous to, and during the course of the study, we visited a number of smaller windfarm developments sited within relatively well-populated lowland areas. These included developments at the Fidhorne Foundation in Morayshire (single turbine of 32 metres high), Blyth Harbour, Northumberland (9 nr, 42.5m high turbines), the Tow Law development in county Durham (42.5 m high turbines) and the two taller turbines (98m high) at Swaffham, West Norfolk. We have also viewed the recently constructed Gigha windfarm (3 x 43m high turbines) from the Argyll mainland.

Simple computer generated wireline visualisations of the smaller development scenarios were produced from sample viewpoint locations where few vertical references were present, for example within the low lying farmland of the Agricultural Plain, to aid our judgements.

We assessed the potential effect of numbers of turbines by gauging the geographical area that would be covered and considering how the 'extent' of development would relate to scale, landform, settlement and landscape pattern.

The assessment of landscape sensitivity considers the degree and nature of change on key characteristics, gauged through a combination of analytical survey, professional assessment and judgements. A five point rating scale was used to judge sensitivity on each assessment criterion and (using a scoring system of 1-5) conclude sensitivity for each character area overall as follows:

<table>
<thead>
<tr>
<th>Table 1: Definitions of Landscape Sensitivity Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low sensitivity</strong></td>
</tr>
<tr>
<td><strong>Low – medium sensitivity</strong></td>
</tr>
<tr>
<td><strong>Medium sensitivity</strong></td>
</tr>
<tr>
<td><strong>Medium – high sensitivity</strong></td>
</tr>
<tr>
<td><strong>High sensitivity</strong></td>
</tr>
</tbody>
</table>
2.8 Views and Visibility Analysis

Views and visibility have been assessed through a combination of field survey and computer-aided theoretical visibility analysis. The assessment involved the following tasks:

- Identification of key views from major roads/designated tourist routes, promoted footpaths and popular outdoor recreation sites and description of the nature of these views
- Identification of settlements within East Lothian and adjoining authorities with potentially open views. Main centres of population were principally selected although some smaller settlements were also included by virtue of their status as Conservation Villages (eg Oldhamstocks), potential for more extensive open views (Inveresk and Humble) or being representative in terms of geographic spread and nature of more restricted views (eg Spott).
- Computer aided generation of potential visibility from identified settlements, key viewpoints on transport routes and within areas used for recreation within East Lothian and within 10km of the county boundary in Midlothian and Borders to accord with the study area
- Computer generation of theoretical visibility of 120 metre and 65 metre height turbines to blade tip using the defined key ‘viewpoints’ and based on a 1:50,000 OS Digital Terrain Model. Screening by woodlands was taken into account using National Woodlands Inventory data. An observer height of 1.8m from viewpoints was used for the study.

Theoretical visibility maps for two heights of turbine over East Lothian and the adjoining buffer zone of Midlothian/Borders/City of Edinburgh have been produced at 1:250,000 scale in the report with separate maps produced for settlements, transport routes and recreation viewpoints in order to allow clear evaluation of different sensitivities (Figures D1-3, Appendix D).

We started out with the hypothesis that the landscapes of East Lothian were likely to be highly inter-visible. The computer aided visibility analysis was used to test this and confirmed our initial thinking that the topography, the settled character of much of the area and the height of turbines would result in development being highly visible throughout much of the county. On the basis of this, we therefore concluded that the landscape context, character and setting to views would be critical factors influencing sensitivity to windfarm development rather than whether or not the development was visible or not and because of this, we made the decision to consider views and visibility as one of a number of criteria considered within an overall assessment of landscape sensitivity.

The assessment of potential effects on views and visibility was based on computer-aided visibility analysis and assessment work undertaken in the field. This assessment considers views and visibility both within landscape character areas and from the wider study area to the character area. It involved an appraisal of the following:

- How the landscape is experienced
- Key views from within each character area, including a description of their nature and composition and the wider context (ie) views of focal features outwith the character area
- Potential skyline effects and the context of views in terms of considering views of the character area from the wider study area.

Appendix D provides details of the computer aided visibility analysis.

2.9 Landscape Designations

There are no National Scenic Areas within the study area. A number of Areas of Great Landscape Value (AGLVs) are defined in the East Lothian Local Plan (adopted April 20001); these principally covering the Lammermuir Hills, extensive stretches of the coast, the Garleton Hills, Berwick and Traprain Laws and some areas of particularly well wooded landscape.

There are a number of properties listed in the Inventory of Gardens and Designed Landscapes within the study area. Although not strictly a landscape designation, the Edinburgh Green Belt applies to the western part of the study area.

The study brief requested that AGLVs should not be considered as ‘no go’ areas and in agreement with the Council, we have therefore not considered landscape designations as a sensitivity criterion in the assessment. An overview of the relevance of AGLVs as a policy designation to windfarm development is summarised in the concluding section of the report and detailed in Appendix E. Where designed landscapes are a key component of a character area, they are defined and landscape and visual sensitivities judged on the basis of this. Issues relating to the pattern and form of settlements are considered in the assessment of landscape sensitivity and have relevance to the aims of the Green Belt designation.

2.10 Cumulative Landscape and Visual Effects

Due to the strong inter-visibility of character areas within East Lothian, a decision was made to address cumulative effects over a broader area, with specific issues being considered separately for lowland and upland landscape character areas. The upland character areas comprise the Lammermuir Plateau and cumulative issues principally
relate to effects on openness and on the skyline, both visible from within the plateau
and the ridge seen from the lowland areas of East Lothian, together with perceptual
effects on remoteness and naturalness. Within the lowland areas, cumulative issues
principally relate to the coast and the relationship with settled and developed areas.

The method for assessment is based on the draft SNH Guidance Note on the
Cumulative Effects of Windfarms (May 2004), supplemented by findings from our own
experience and research on this subject.

The presence of existing windfarm development was useful in allowing us to consider
potential cumulative effects within the landscape and visual sensitivity assessment and
the effect of existing development is therefore taken into account in the assessment as
part of the baseline landscape and visual character.

The assessment takes into account the following potential cumulative landscape and
visual effects:
- Multiple windfarm development on existing landscape character including
  consideration of spatial arrangement and scale and the potential effects on the
  physical and perceptual qualities of each landscape character area.
- The sense of scale, distance and existing focal points in the landscape.
- The skyline, where the prominence and proportion of development can affect the
  nature of views and landscape character.
- Multiple windfarm developments seen from a single fixed viewpoint and
  sequentially when travelling through a landscape.

Field survey was undertaken to consider cumulative landscape and visual issues
within landscape character areas and the wider study area and to identify potential
effects from key viewpoints and transport routes. Cumulative effects were also
considered as part of the landscape sensitivity and views and visibility assessment
within some character areas, as the potential effects of additional windfarm
development were assessed within a context where existing windfarm or large scale
industrial development was already present.

Consideration was given to the possible definition of potential development scenarios
as a means of assessing cumulative effects. Site selection and the scale of
development is currently largely developer led and influenced by a range of factors
including economic, technical and environmental. As it would be difficult to define
accurate predictions of future development scenarios, we made the decision to
discount this in favour of consideration of landscape and visual issues associated with
more general development scenarios, and in particular, consideration of potential
cumulative development within landscape character areas identified as having some

scope for windfarm development without wholesale significant change being incurred.
‘High’ landscape sensitivity areas were therefore excluded from this assessment, in
accordance with the definitions set out in Table 1. Potential areas of search were
defined in order to gauge the possible spatial arrangement of development that could
occur in the lowland character areas and to thus inform the cumulative landscape and
visual assessment.

2.11 Conclusions on Capacity

An assessment of capacity for each landscape character area and guidance on siting
and design concludes each of the character area assessments. Potential cumulative
impacts were then considered with an overall summary of sensitivity and capacity for
windfarm development within East Lothian set out in the final section of the report.
Method for assessing the sensitivity of the landscape to settlement expansion

Example 1

Source:
Tyldesley Associates
Perth Landscape Capacity Study

The full document can be accessed here:
Familiarisation of the study areas was completed within three days of the inception meeting and the initial landscape classification and settlement descriptions were reported in the Inception Report which was submitted on 26 February 2000.

**Desk Study**

This stage studied published material including that relating to geology, hydrology and wider planning issues. It helped to identify the more detailed landscape character units and began to identify and describe their characteristics and combinations. It also helped to build up a more detailed picture of pressures on the landscape.

**Defining the Changes to be Assessed**

The study objectives require the assessment to identify areas where an expansion of built development would be appropriate, in landscape terms; and areas which should be protected from built development in terms of the sensitivity of their landscape character and visual amenity.

In this context the form of built development assumed for the purposes of this study are as follows:

- **Perth:** a wide range of development types including conventional, domestic scale residential, community and business development together with conventional larger scale buildings associated with retail, warehousing, industrial and commercial uses but excluding unusually high structures, or wide span buildings, specialist buildings or uses requiring extensive areas for outside storage.

- **In the 17 other settlements:** conventional single or two storey development of domestic scale which may include houses, bungalows, small industrial premises or retail and business premises of domestic other than industrial scale.

- In all cases it has been assumed that the buildings would be well designed and would use traditional or other appropriate building techniques and materials. It is also assumed that the development would include a strong framework of structural landscaping including ground modelling, where appropriate, and tree planting of appropriate scale, areas, design and species composition to ensure that the development achieves a good fit in the landscape.

**Define the criteria for the assessment:**

This critically important stage defined the criteria of the assessment so that these may be applied in a systematic and impartial judgement and the conclusions of the assessment summarised into meaningful advice.

The capacity assessment involves the study and analysis of the landscape setting of each settlement, of the origins, context, form, character and development of the settlement and its links and relationships with the landscape.

Preliminary analysis and the experience of the consultancy team, indicated that there were likely to be four key aspects to the capacity assessment:

- **Physical constraints:** eg a motorway or river;

- **Landscape constraints:** important features or characteristics of the landscape that would be adversely affected, to a significant degree, by built development, including for example, designated landscapes, rare and typical landform features, characteristic features such as woodlands, field patterns, linear or point features or characteristics such as saltings, openness or simplicity which indicate that the landscape unit is less appropriate for built development.

- **Settlement Form and Pattern:** where new or further built development would affect an important historical or natural influence which had resulted in a settlement exhibiting a good landscape fit, for example, a strong linear form or other shape related to topography or hydrology or historical land use or patterns of buildings or activities.

- **Visual constraints:** where new or further built development may have significant adverse effects on important views in or out of or across/over a settlement.

The Study, therefore, developed these four aspects into criteria which could be systematically applied to each settlement as explained.

**Physical Constraints**

**Criterion A:**

Are there significant constraints to development caused by the presence of substantial natural or artificial physical characteristics to development that, in practicable terms, could not be overcome?

Two examples are the River Tay to the east of Dunkeld and the A90 dual carriageway north of Inchtuthil.

If such constraints exist, no further analysis of capacity is undertaken for development in respect of that area.

**Landscape Constraints**

**Criterion B:**

Would new or further built development have a potentially beneficial, adverse or neutral effect on the character of the landscape unit, assuming it was of appropriate scale, well designed, built in appropriate materials and external finishes and colours and, where necessary, suitably landscaped?

For this criterion, the main aspects or attributes of landscape character which would be likely to influence the assessment were:

- **Physical Characteristics and Features:** landform, land cover/land use, linear features, point features, settlement pattern and distribution, eg of shielings and dwellings.

- **Aspects of Landscape Experience:** these are characteristics that contribute to the experience of the landscape, things which can see, hear, or perceive, through other senses but which are not physical properties of the landscape, for example colour, texture, pattern, movement and sound.

Clearly there are overlaps and links with the settlement pattern which itself may be reflecting some of these attributes. In this study the aspects of landscape experience most relevant to the capacity...
assessments: the shapes and patterns in the landscape, diversity and complexity: colours, textures and seasonal variations; openness and spaces in the landscape, and the ambience of the area including coastal or maritime influences, wildlife, sounds, smells etc.

c) Artistic, Historical and Cultural Aspects: Designed landscapes; important landmarks and their settings (e.g. castles and monuments); important above-ground archaeological features; and cultural or historical associations with the arts or battlefields etc.; and their settings whose relevance. Areas which exhibit particularly fine examples of historically distinctive landscapes that are mature and intact and have retained their historical integrity also fall to be considered here.

The assessment recognises that built development can be the catalyst or vehicle for landscape restoration or enhancement. Self-evidently, most forms of significant built development will change the character of most landscape types in the immediate vicinity of the development. However, this assessment judges the effects of development on the landscape character unit (see Section 5) as a whole, in more general terms.

Built development has formed an integral part of lowland landscapes in Scotland for many hundreds of years. Historically, buildings and settlements have added to the distinctiveness and character of landscapes and modern development can add to or detract from (or have a neutral or insignificant effect on) that character and distinctiveness.

As explained, this assessment requires judgements to be made for the assessment should not pertain to be more sophisticated or complex than it is. Numerical scoring or grades are unfruitful and unhelpful. For the requirements of the brief it is adequate and more appropriate simply to indicate whether the changes potentially would be beneficial, neutral or adverse.

Settlement Form and Pattern

Criterion C

Would new or further built development sustain or blend with, or detract from, or have a neutral effect on the existing form, and pattern of the settlement where this reflects natural influence or historic land use or activity which in turn means the settlement has a good landscape fit and relates well to its landscape setting?

Oft particular importance in relation to the assessment of built development is the historic settlement pattern and the extent to which this has been sustained or modified. It is worth clarifying our definitions of “settlement pattern” and “settlement” in this project:

“settlement pattern” refers to the distribution and location of “settlement”, in its original and wildest sense, that is, domestic and/or agricultural built development in the landscape, whether it is associated with single steadings or large villages. For example, cottages, steadings, villages etc. may occur in a line, perhaps along a hillfoot or spring line and this create distinctive patterns in the landscape which is closely related to natural features.

“settlement” as a single word is used in its narrow, planning sense, meaning a village or other substantial built-up area which is capable of being defined by a settlement boundary, such as the 17 villages which form the subject of the occupancy assessment.

Compatibility of changes to the overall shape of settlements and their fit in the wider settlement pattern of the landscape is essential if new development is to sustain the appreciation of these distinctive settlement patterns and characteristics. In this study, settlement pattern, settlement morphology and the design, external finish and landscape fit of buildings are of critical importance because many of the settlements in the assessment have retained distinctive settlement shapes and patterns and strong links with their landscape setting.

Visual Constraints

Criterion D

Would new or further built development intrude into or obstruct important views of or from or over or across the settlement, or views of or from important landmarks or features and could development make the settlement more or less conspicuous in the landscape?

This assessment includes the visual effects of development, such as the obstruction of views (eg by new buildings) or intrusion into views, how conspicuous the development may be or whether it would affect important skylines or views, for example, those seen from dwellings, roads, paths and viewpoints. Some visual effects may be reduced by mitigation measures, however, these may themselves have adverse effects on the landscape or may obstruct important views in the attempt to prevent views of the new development.

The elements which were considered in respect of Visual Constraints are as follows:

Views and Approaches:
The impact on views of and approaches to the settlements from the principal approach roads, especially where there are distinctive focal points such as towers or spires.

Important Outward Views:
The impact of development on views out of the settlement where these are strategically significant and distinctive and an important aspect of settlement character.

Skylines, Ridges and Hill Tops:
The potential effect on distinctive skylines, ridges and hill tops where settlements have strategically significant and distinctive, recognisable skylines, or where the settlement avoids such elevated areas.

Conspicuity: In all cases, whether development would be located in a visually conspicuous location, such as open, flat ground or on open, high or rising ground, where this is not already a key positive landscape characteristic.

It will be seen that mere visibility or even conspicuousness of development is not necessarily an adverse effect. Some settlements are conspicuous and that is a part of their distinctiveness and a positive contribution to the landscape character. Again, a relatively simple approach to the presentation of the assessment is taken with a three point scale, indicating beneficial, neutral or adverse visual effects is adopted in the assessment.
Scottish Natural Heritage

A Guide to Commissioning a Landscape Capacity Study

Scottish Natural Heritage Commissioned Report No. FPRH01/24

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Objectivity and Consistency

Unlike the assessment of physical constraints in Criterion A, the assessments in Criteria B-D inevitably involve relative or comparative judgements. Such judgements are partly about objective changes (eg. measurable changes to land cover or the addition or removal of physical features) and partly subjective (eg. changes to patterns, diversity or openness). The judgements do not, however, involve an analysis of person; individual responses to the changes. Thus, the assessment records whether the changes would be comparable with landscape character or appear as conspicuous features in views, but does not attempt to consider whether people would find the landscapes or views more or less "beautiful", "attractive", "picturesque", "unattractive", "ugly" etc. as these are all related to individual responses.

The systematic and rigorous nature of the assessment, stopping short of the wholly subjective individual response, means that the analysis can be supported by rational explanation. For example, it is likely to be clear as to whether built development would intrude into or obstruct a view from a particular viewpoint and this is recorded in the assessment. The process does not, however, go on to attempt to determine whether people would find the intrusion unattractive; this would depend on the individual observer.

Another advantage of this approach is that it leads to a high degree of consensus and consistency in the conclusions. During the course of the assessment the consultants were accompanied by six officers of the Council and SNH. These six officers had no previous experience of landscape capacity assessment and five had no professional landscape training. Over the course of two separate days they were very efficiently trained in the method of assessment but encouraged to reach their own conclusions. They were able to identify the detailed landscape character sub-units of the Tirth Lowlands and assess the landscape capacity of three settlements. Their conclusions were consistent between all six officers and with the consultants' assessment in this report.

Mitigation

It will be apparent that mitigation is a very important element of the assessment because it can substantially reduce or even avoid any adverse effects that development may otherwise have on the landscape resource, landscape experience, other landscape features and visual amenity. Consequently, the assessment under each of these criteria includes the incorporation of mitigation measures that would normally and consistently be required or offered in respect of development. Thus, the assessment is based on the assumption that all reasonable mitigation measures will be provided. Mitigation is not, therefore, included as a separate criterion but integrated into the four criteria throughout the assessment. Where mitigation measures over and above those that would normally be expected are required to accommodate the development the relevant plans and descriptions indicate what other measures are required.

Field Survey

The fieldwork for the assessment in this report was undertaken by qualified Landscape Architects with extensive experience of landscape Character Assessment at 1/50,000, 1/25,000 and 1/10,000 levels. The fieldwork for the capacity assessment was undertaken in three stages in March and April 2000.

Following initial field surveys and trials, a field sheet was developed which reflected the landscape and settlement characteristics most relevant to this study. The field sheet acted as an aid to memory, to ensure that landscape and settlement characteristics were observed, recorded and analysed in a systematic and consistent way for each settlement.

The Landscape Capacity Assessment

The stage involves applying the criteria in a systematic and impartial judgement as explained in previous paragraphs. The criteria for all of the subject headings were applied systematically to each of the settlements in respect of the different landscape character units and/or the potential directions for further built development.

Presentation of Results

This report presents the findings of the capacity assessment. As explained, a three point scale provides a simple expression of the results of applying the criteria and helps to indicate the effects of development on the different aspects assessed. The three point scale is represented by symbols in summary tables which explain the application of the criteria. This makes the analysis and presentation more understandable and substantially reduces the volume of text. The tables are supplemented by maps and illustrations of each settlement which indicate the various features referred to in the text of the report.

Table 1 Summary of Landscape Capacity Assessment Criteria

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>✅</th>
<th>☰</th>
<th>❌</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Constraints</td>
<td>No significant visual impact /no development may be noticeable</td>
<td>Physical constraints to development. No further assessment undertaken</td>
<td></td>
</tr>
<tr>
<td>Landscape Constraints</td>
<td>Development could have a positive effect on landscape character eg. via enhancement or restoration of characteristic features</td>
<td>Overall a neutral effect on landscape character</td>
<td>Overall a negative effect on the character of the landscape</td>
</tr>
<tr>
<td>Settlement Form/Pattern</td>
<td>Development could sustain or blend with settlement morphology and patterns</td>
<td>Overall development would have a neutral effect on settlement form and pattern</td>
<td>Development would detract from important aspects of settlement form and pattern</td>
</tr>
<tr>
<td>Visual Constraints</td>
<td>Development could enhance views or visual amenity</td>
<td>No significant visual impact /no development may be noticeable</td>
<td>Substantial visual impacts – development would be uncharacteristic of the locality</td>
</tr>
</tbody>
</table>

Return to Briefing Paper
Method for assessing the sensitivity of the landscape to settlement expansion

Example 2

Source:
Alison Grant in association with Carol Anderson
‘Scottish Borders Development and Landscape Capacity Studies – Brief and Methodology’
(May 2007)
The full document can be accessed here:

3.2.4 Table One: Site Checklist of Landscape and Visual Issues

<table>
<thead>
<tr>
<th>Topic</th>
<th>Issues explored on site visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Settlement</td>
<td>• Scale and form of existing settlement</td>
</tr>
<tr>
<td></td>
<td>• Relationship to wider landscape including landform</td>
</tr>
<tr>
<td></td>
<td>• Key characteristics of townscape</td>
</tr>
<tr>
<td></td>
<td>• Internal settlement pattern, open spaces, mad alignment etc</td>
</tr>
<tr>
<td></td>
<td>• Key buildings within settlement</td>
</tr>
<tr>
<td>Settlement Edge</td>
<td>• General relationship with land form and landscape features</td>
</tr>
<tr>
<td></td>
<td>• Detailed relationship with landscape features</td>
</tr>
<tr>
<td></td>
<td>• Cohesiveness of settlement edge</td>
</tr>
<tr>
<td></td>
<td>• Physical links (footpaths, duns, treelines)</td>
</tr>
<tr>
<td></td>
<td>• Visual links</td>
</tr>
<tr>
<td></td>
<td>• Alternative opportunities for settlement edge</td>
</tr>
<tr>
<td>Landscape Setting</td>
<td>• Extent of visual envelope</td>
</tr>
<tr>
<td></td>
<td>• Important containing ridges</td>
</tr>
<tr>
<td></td>
<td>• Areas of historic, scenic, ecological or recreational significance</td>
</tr>
<tr>
<td></td>
<td>• Integrity of landscape character/scenic quality</td>
</tr>
<tr>
<td></td>
<td>• Sense of arrival (current and potential)</td>
</tr>
<tr>
<td>Landscape Character</td>
<td>• Description of character</td>
</tr>
<tr>
<td></td>
<td>• Boundaries between coherent character areas</td>
</tr>
<tr>
<td></td>
<td>• Containing ridges, south facing slopes, views, links with settlement, physical</td>
</tr>
</tbody>
</table>
### Barriers
- Orientation, aspect, relationship with settlement core
- Key landscape features
- Landscape experience and degree of connectedness/attachment
- Scenic quality

### Visual Assessment
- Significant views from within the settlement
- Significant views to the settlement, or across the settlement
- Visual features, skylines, landmark features, areas of landscape which contribute to wider views within the Scottish Borders

### 3.3 Landscape Sensitivity Analysis
The analysis considers the potential effects of development on those ‘attributes’ of the landscape and visual character which are likely to be most affected by settlement expansion. The conclusions of the analysis are then presented as an assessment of the sensitivity of various ‘attributes’ of the landscape to potential housing development. Some of these attributes relate to physical character, and some to the experience of the landscape or townscape. These ‘attributes’ were identified as:

- **Landscape Character**, which includes the key characteristics of the surrounding landscape, and elements within the landscape which particularly contribute to the location and identity of the town.
- **Settlement Form**, which may be linear or compact, fragmented or a series of merged villages which now make up one settlement: the form can influence the character of the settlement and offer a pattern for future expansion.
- **Landscape Setting**, which encompasses both physical setting and visual backdrop, and in this study includes assessment of the recreational and other resources which may be pertinent to how residents of the town use the settlement surroundings.
- **Sense of Arrival**, which is the point on the approach roads where there sense of having arrived at a destination becomes most apparent, and often influences people’s first impressions of a settlement.
- **Settlement Edge**, which relates to settlement form, setting and sense of arrival, but particularly focuses on the specific interface between the built up area and the surrounding landscape.
- **Views and Visual Features**, which includes considering the views from the town, as well as those from the surrounding landscape.

The assessment is presented in a matrix for each local character area, where a sensitivity rating for each of the attributes is recorded on a five point scale:

- Very high sensitivity
- High sensitivity
• Some sensitivity
• Low sensitivity
• Not sensitive

An explanation of the factors which have led to the sensitivity rating is recorded in each matrix.

While it is generally current practice to combine the sensitivities of each individual topic into one overall summary assessment, we have avoided amalgamating all the assessments of sensitivity into one over all sensitivity rating before making our conclusions. There are two reasons for this:

• Firstly, we feel that the sensitivity matrix is already a summary of findings and we do not wish to summarise it any further: there is a danger that further summation of explanations does not allow the true complexity of these judgements to be revealed.

• Secondly, in relation to the diverse range of potential housing development an absolute summary of sensitivity is not useful: for example, the landscape may easily be able to accommodate single houses in generous wooded settings, while not being appropriate for dense development.

We have therefore undertaken the sensitivity assessment as part of the analysis stage, which then has contributed to the identification of opportunities and constraints for development. This allows a full explanation of the consultants’ assessment of the potential capacity of the landscape to accommodate housing development, drawing on the sensitivities recorded in the matrix.

3.4 Sustainability Assessment

In addition to the detailed analysis of landscape issues, the reports contain an analysis of the opportunities which each local landscape character area offers to encourage sustainable development. This is also presented as a matrix, and has analysed each local landscape character area in terms of:

• Aspect and microclimate
• Use of non renewable resources
• Brownfield sites
• Potential for sustainable access
• Impact on biodiversity and water management

The analysis for each varies from town to town, but under each subject heading the following issues are tackled.

3.4.1 Aspect and Microclimate

These factors are considered as they will impact on the ongoing energy use once a development has been built. Opportunities for sheltered sites, slopes which benefit from solar gain, and consideration of areas where fog and damp might be more likely to build up are all considered under this heading. In addition, some commentary is made on potential hill shadow and the amount of sun light which an area might possibly receive in winter.

3.4.2 Use of non renewable resources

This heading focuses on reducing the potential embodied energy used in building development. Examples include limiting earthmoving and under-building as part of the construction process and minimising the length and quantity of roads and other hard surfaces.

In addition, agricultural land used for arable crops, which is likely to be of good quality, was also identified as a resource which is non renewable, as once built on, it could not be used for food production. This was also therefore considered to be a sustainability constraint.

3.4.3 Brownfield sites

Using sites which have been previously developed is considered to be a more sustainable option than developing on green field sites. Inevitably in rural areas, brown field sites tend to be more scarce than in urban areas, but where possible these were identified.

3.4.4 Potential for Sustainable Access

Access links for pedestrians and cyclists to get to key parts of the settlement quickly and easily were also considered. Key infrastructure was identified as being the town centre, industrial sites, the main bus stop, schools and recreational facilities. Existing links and potential opportunities for future links were identified.

3.4.5 Impact on Biodiversity and Water Management

Maintaining biodiversity is a core element of environmental sustainability, and potential habitats or features which may contribute to maintaining biodiversity were identified where possible. It should be noted that this was simply a quick survey to flag up likely habitats, and no ecologist was involved in this assessment.

Under this heading, we also identified sites which were likely to be at risk of flooding, and also areas of wetland or smaller drainage systems which
might be important to managing storm water run off. Again, this was a quick site survey which did not involve an engineer, but where this was identified as a possible limiting factor, this was recorded in the text.

3.5 Identifying Opportunities and Constraints within Detailed Study Areas

For the purposes of this study, the opportunities and constraints for settlement expansion within each study area are identified and refined as a result of the landscape sensitivity analysis and the sustainability assessment.

In all cases, the emphasis was initially to identify sites which complemented the existing character of the settlement and its landscape setting while providing an attractive and sustainable framework for future residential development.

However, the assessment also recognised that some areas were not appropriate for development which would fit within the existing settlement form and character, but may be appropriate for the creation of a new neighbourhood with suitable advance master planning. These areas were normally those which, while perceptually or physically detached from the existing settlement, nevertheless had potential in terms of their local landscape character, to accommodate settlement expansion. Such sites are likely to require advance master planning to create a landscape framework which gives an independent focus and coherence to the new neighbourhood. These sites are identified in the report as ‘Long Term Options’, recognising the need for advance planning which such sites are likely to require.

3.5.1 Identifying Opportunities for Development

For the purposes of this assessment the following landscape characteristics were generally identified as positive opportunities for siting new development adjacent to the settlements:

- areas where development would enhance or build on the existing relationship between the location of a settlement and a particular landform or landscape feature
- areas where it is possible to reinforce or create a strong sense of arrival by the expansion of a settlement: ‘sense of arrival’ can be created by a change in gradient (usually dropping down hill into a settlement), the appearance of an expansive view of the town on approach, or the way landform and vegetation combine to create a sense of a ‘gateway’
- areas where there was potential to consolidate the edge of an existing settlement, by extending it to relate to a nearby landscape feature or land form which reinforces a sense of containment or definition of ‘edge’ characteristic of the settlement
- areas where development would be consistent with maintaining the form of many of the existing settlements, and its relationship with the landform and landscape character within which it is located
- minor road junctions, established footpaths or river crossings which create both visual and social focal points in the landscape and can provide a focus for a new neighbourhood within the settlement
- areas of concave land form, particularly on south facing slopes, which create natural containment and often quite subtle shelter
- areas where new development would not be perceptually detached from the existing settlement, but instead would be visually and physically accessible to the existing settlement and could share a common relationship with the setting and a consistency in settlement form

3.5.2 Identifying Constraints on Development

In addition to opportunities, some characteristics of both the landscape and the settlements are likely to be constraints in relation to siting new development. These include:

- areas which are physically separated from the existing settlements by natural or manmade barriers, such as rivers and roads
- areas where development would significantly alter the scale and form of an existing settlement, or its distinctive relationship with a particular landform or setting
- areas which are perceptually detached from the settlement. Perceptual detachment is encountered where land is orientated away from the settlement and usually visually and physically linked more strongly to an area of landscape character which is quite separate to those with which the settlement is associated. Such areas are never likely to ‘feel’ an integral part of the original settlement,
although some may be appropriate for suburban, ‘edge of
settlement’ living.

- areas where there are no landscape features which would
  provide the immediate setting and localised sense of
  place for a new neighbourhood. If appropriate, in some
  areas, landscape enhancement measures are identified
  to establish a structure which will provide a setting for
  future development.

- slopes which are both physically and visually highly
  exposed, except where they reflect a strong characteristic
  of the existing settlement form

- areas of very steep slopes where extensive earthworks
  would be required to create visually intrusive building
  platforms and access roads

- areas where views from roads, footpaths, public open
  space, historic features or views which contribute to the
  local setting of the settlement would be obscured by
development or would affect people’s appreciation of
scenic quality

- areas where the existing land use, land form or vegetation
  pattern contributes significantly to a high quality existing
  landscape setting for the town and would be removed or
  significantly compromised by development

- landscapes which contribute to the broader scenic quality
  of the Scottish Borders, and which would be removed or
  significantly compromised by development

In the report the Opportunities and Constraints are analysed for each 1: 10 000 study area and are presented in map form with supporting annotations
and text. The text and maps also indicate a hierarchy of preference for the
sites identified (and where appropriate, a preferred sequence of
development). The hierarchy used for this study is as follows:

- A preferred area for development, which is a site which
  has no landscape constraints and offers flexibility in terms
  of building design opportunities and very few if any
  sustainability constraints

- A potential area for development in landscape terms,
  which may have some landscape or sustainability
  constraints, but which could be alleviated by using

particular housing styles or landscape mitigation
measures

- A marginal area for development in landscape terms,
  which may have considerable landscape constraints
  which are difficult to overcome, but have strengths in
  terms of environmental sustainability

3.6 Design Concept

Sites which were identified as being appropriate for development from a
landscape perspective, were then considered at a more detailed level, and
advice offered on factors which should be considered when preparing a
design brief for the site.

The design concept does not attempt to ‘masterplan’ the site: there are still
too many unknowns for this to be possible at this preliminary stage. It
simply records in text the landscape and sustainability issues which will
help produce a well designed development. Any proposals are also
incorporated into the ‘Landscape Enhancement Proposals’ maps which
accompany the final section of each analysis.

Issues addressed include:

- Recommendations on density and type of housing – e.g
terraced, clustered, detached
- Commentary on size and scale issues
- Factors likely to affect orientation and layout
- Suggestions on how design unity might be achieved
- Potential new access links which may be required
- Where new planting might be required, and why
- Links to the surrounding landscape
- Measures which may enhance the sustainability of any
development, either in terms of design or use
- Other design issues which are specific to the site

3.7 Mitigation Measures and Enhancement Proposals

The main purpose of these proposals is to provide a setting for sites
identified as having development potential, but the report also takes the
Method for assessing the sensitivity of the landscape to individual and small house sites

Source:
Horner + Maclellan
ʻSutherland Housing Capacity Studyʻ
Scottish Natural Heritage and Highland Council (2006)

The full document can be accessed here:
http://www.snh.org.uk/pubs/detail.asp?id=557
## Category of landscape characteristic and/or feature

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Distinct linear pattern of crofts and/or housing. These areas are characterised by a regular and repetitive pattern of houses and/or distinctive fields. As a consequence, the landscape characteristics tend to be experienced in a rhythmic manner, eg field boundary, space, house, space, field boundary, space, house etc. This rhythm of elements typically relies on no single element being much more prominent in the landscape than the others and all being of similar focal dominance. It also relies on a single feature linking the elements together and to the landscape, usually provided by a road, the line of a strath or the coast.</td>
</tr>
<tr>
<td>b</td>
<td>Prominent watercourse. Watercourses are clearly visible throughout the Sutherland landscape. However some are particularly prominent at the local settlement scale. This category highlights some of these features where views from public roads or paths tend to focus upon the watercourse.</td>
</tr>
<tr>
<td>c</td>
<td>Distinctive croft. This category highlights some of the distinctive hill forms within the settlement areas. These hills do not tend to be particularly high or massive, but nevertheless form key focal points within the landscape and often provide the backdrop to views of housing in the area. Their prominence often relates to their scale and shape in relation to the surrounding landscape pattern.</td>
</tr>
<tr>
<td>d</td>
<td>Cluster of houses/buildings. These areas are notable for their concentration of houses or buildings within a settlement. These are often of variable scale, shape and form, but nevertheless create a distinctive settlement on account of their close relationship to each other in contrast to open surroundings. Collectively these clusters tend to create focal points in the landscape and traditionally they were often linked to local areas of favourable conditions, such as an area of drier ground, favourable soil or concentrated around an access point.</td>
</tr>
<tr>
<td>e</td>
<td>Forest Edge. This category is used within the Dornoch settlement area. It does not literally identify all the edges of all the forests in that area. Rather, it highlights those that tend to appear most prominent from public vantage points as forming the backdrop to key views and/or forming the edges of distinct spaces.</td>
</tr>
<tr>
<td>f</td>
<td>Open grassland/scrub over which key views pass. Although there are many places within all the settlement areas in which views peak over open ground, this category highlights where the character of the visual resource is highly dependent on distant views passing over open grassland and/or scrub within the local area.</td>
</tr>
<tr>
<td>g</td>
<td>Dispersed housing in irregular pattern with mixed agriculture/woodland. This category represents areas where there is a mixed and informal arrangement of houses, agricultural fields and woodland, yet the relative balance and recurrence of these elements creates a distinct local landscape character.</td>
</tr>
<tr>
<td>h</td>
<td>Dispersed crofting/houses mixed with open fields. This is a category unique to areas where crofting is, or once was, practiced. There is an informal and intimate mix of agricultural land with houses. Traditionally, a strong link existed between the open fields, outbuildings and croft house; however this relationship tends to now be more tentative, as agriculture has become less intensive and widely practised and land use has become increasingly residential.</td>
</tr>
<tr>
<td>i</td>
<td>steep enclosing slope. Although steep slopes are a common characteristic throughout many parts of the Sutherland landscape, this category highlights particular locations where the local steepness of the slope affects the sense of enclosure within an area in relation to how the settlement is experienced and/or how houses appear to fit into the landscape.</td>
</tr>
<tr>
<td>j</td>
<td>Focal buildings/house. This category recognises some of the key buildings or houses that appear as prominent focal points within the local landscape. They are often distinctive on account of their scale, architectural style and/or isolation.</td>
</tr>
<tr>
<td>k</td>
<td>Important landscape feature. Similar to the focal buildings/house category described above, this category highlights some of the focal points within the local landscape that are not buildings, but nevertheless act as key landmarks, such as bridges, piers or monuments.</td>
</tr>
<tr>
<td>l</td>
<td>Key view. Most parts of Sutherland are characterised by spectacular views and these cannot all be recognised and mapped. However, this category highlights some of the important views experienced in the local landscape, shown by an arrow shape. This symbol represents the approximate direction of the key view and is not an exact indication of the view angle or distance. Some attempt has, however, been made, in the variation of arrow width, to indicate which views tend to be more prominent, of higher amenity value and/or to 'catch your eye' more than others – the ones shown wider tending to possess these qualities to a greater degree.</td>
</tr>
<tr>
<td>m</td>
<td>National Scenic Area (NSA) boundary. The boundary of the NSA highlights where there may be heightened sensitivity of the visual resource with regards to landscape planning issues. The boundary line itself does not reflect a hard division between areas of varying value of visual resource and it has not directly influenced the categorisation of landscape characteristics and features.</td>
</tr>
</tbody>
</table>
A few additional categories are shown upon the more urban of the settlement maps. However, these indicate specific land uses that are clearly described by their title. Specific characteristics and features are also annotated upon some of the settlement area maps.

For each of the settlement areas, photos were taken of some of the landscape characteristics and features described. These photos are numbered and included within the photograph record within appendix B, cross-referenced to the landscape characteristics and features maps on which their locations are shown.

**Potential for new housing**

2.6 Within each settlement area, opportunities and constraints for new housing were identified in relation to the sensitivity of landscape and visual characteristics and features. These then allowed the identification and mapping of areas where it was likely or unlikely that there would be potential for new housing. This potential was categorised in relation to the following aspects:

- **2.6.1 Suitability**
  - Areas where housing would or would not be inappropriate

- **2.6.2 Scale**
  - Size and extent of area

- **2.6.3 Layout and position**
  - Location and pattern of housing, including density and orientation

- **2.6.4 Sensitivity of design**
  - Broad type of house (size, scale, and form) dependant on sensitivity of position and architecture of neighbouring properties

- **2.6.5 Phasing/priority**
  - Distinction between primary and secondary opportunity
Method for assessing the sensitivity of the landscape to development in the greenbelt

Source:
Land Use Consultants
‘Edinburgh Green Belt Study Stage 2’ Final Report
(December 2008)

The full document can be accessed here:
http://www.sesplan.gov.uk/supportingdocs.html

2. METHOD

2.1. This section of the report sets out the method and approach for the evaluation and assessment of the landscape character areas against the Green Belt objectives. The following flow diagram provides an overview of the key stages in completing Stage I of the project.

Edinburgh Green Belt Landscape Character Assessment

2.2. The Draft Edinburgh Landscape Character Assessment (2007) formed the basis for the evaluation process. The document was amended to cover the extent of the Green Belt and was informed by the landscape character zones identified Edinburgh Green Belt Boundary Study (1999) prepared by East Lothian Council, the City of Edinburgh Council, Midlothian Council and West Lothian Council, and additional desk study and field work. The consolidated landscape classification descriptions and map provide the basis for the subsequent evaluation and can be found in the separate report Edinburgh Green Belt Landscape Character Assessment (2008).

Evaluation framework

2.3. A framework was developed to evaluate landscape character areas’ contribution to Green Belt objectives. The framework maintains a distinction between the SPP2...
objective covering protection and enhancement of the character, landscape setting and identity of towns and cities and the objective addressing the protection and enhancement of open space within and around towns and cities.

2.4. Appendix 2 contains the evaluation framework and the ‘decision rules’ developed to guide evaluation against each of these criteria. The evaluation framework was agreed with the client group and piloted prior to its application. The criteria are summarised below.

2.5. Green Belt objective 2: Protection and enhancement of the character, landscape setting and identity of towns and cities:

- Integrity of landscape character;
- Distinctiveness of landscape character;
- Landscape condition;
- Potential for enhancement of landscape condition;
- Contribution to the landscape setting of settlements;
- The role of the landscape in question in contributing to the identity of Edinburgh and surrounding settlements;
- Robustness and sustainability of existing boundaries in landscape terms.

2.6. The score for the robustness and sustainability of existing boundaries in landscape terms was not included in the ranking. This was scored on the current boundaries of the landscape character area, but does not take into account the location and extent of any future development and associated landscaping which may affect the boundary.

2.7. The application of weighting to some of the criteria was discussed with the project steering group and a weighting of 2 was applied to the scores for setting and identity to reflect the importance attributed to these criteria.

2.8. Green Belt objective 3: Protection and enhancement of open space within and around towns and cities:

- The existing role of the area in providing accessible open space;
- The existing role of the area within wider networks of open spaces within and around settlements;
- Connections with core paths and other access networks;
- Role as part of the Forest Habitat Network (FHN);
- The potential role of the area in providing accessible open space;
- Potential as part of the Forest Habitat Network.

2.9. The assessment drew on the information in the Edinburgh Green Belt Landscape Character Assessment (2008) and wider information sources including aerial photographs for Edinburgh, Midlothian and East Lothian, information on proposed core paths and existing access networks, the results of GIS based intervisibility analysis undertaken for key viewpoints within the study area, the Forest Habitat Network dataset for Edinburgh and Lothians, and data on protected areas.

2.10. Each of the LCA’s in the Edinburgh Green Belt Landscape Character Assessment has been evaluated against the agreed Green Belt criteria except for Redford Basin, of which only a very small part of this LCA lies within the Green Belt. For the purposes of this assessment this LCA has been assigned the scores of the adjacent LCA 34.

Presentation of results

2.11. The results of the assessment are presented in a tabular format and are also illustrated on two maps. The two maps show the overall rating of each LCA separately against each Green Belt objective.

STAGE 2

2.12. The second stage of the work will focus on those areas identified in Stage 1 as being of lesser significance when considered against SPP21 landscape and open space objectives for the Green Belt. This will consider the general capacity of the identified landscape character areas to accommodate built development, taking into account the key findings from Stage 1. There is not an automatic link between lower scores resulting from the assessment against Green Belt criteria and areas being considered suitable for built development.

2.13. A further round of field survey will test out those conclusions and identify areas where capacity might be enhanced by landscape mitigation. The landscapes will be evaluated through an assessment framework which will consider:

- the impact on the local and wider landscape character and setting;
- the impact on existing settlement form and boundaries;
- the relative visibility and prominence of the area in question, both locally and in the wider landscape;
- the relationship between the area in question and the broader pattern of settlement, open space, access networks and land use;
- the potential role of existing or additional landscape features (such as structural landscaping) in integrating (not necessarily concealing) development within the local and wider landscape.

2.14. The results of the landscape character evaluation will be drawn together to provide a description and justification of those areas which, in landscape terms, had been identified as having potential capacity to accommodate development. The Stage 2 Evaluation Framework is provided in Appendix 4.
Method for assessing the sensitivity of the landscape to aquaculture development

Example 1

Source:
Tyldesley Associates
‘Landscape Capacity Study for Marine Aquaculture Developments in the Orkney Islands’
Scottish Natural Heritage (2001)

The full document can be accessed here:
http://www.snh.org.uk/pdfs/publications/commissioned_reports/f00la01b.pdf
## Presentation and Utilisation of the Assessment

A compatibility matrix was developed to help to structure the approach and to aid presentation of a large amount of detailed and relatively complex information. The matrix enabled a comprehensive, systematic and consistent approach. It is intended to show not only the assessment of the relative sensitivity of the 14 study areas, but also to help in subsequent casework by providing a rational and consistent basis for making representations about specific proposals and for assessing the need for and effectiveness of mitigation measures.

The matrix was used during the assessment as well as in the preparation of the report. The detailed criteria are more fully described in Appendix A at paragraphs A.14–A.21.

Although each criterion is assessed and presented individually, they are all interrelated and some are interdependent.

Moreover, the assessment of acceptability of a fish or shellfish farm is not always a black and white/acceptable or unacceptable alternative choice. The introduction of the first fish or shellfish farm, or extensions or additional farms will tend to increase the effects on landscape and visual amenity along a scale or continuum of degrees of acceptable change. Mitigation measures can move a proposal further along the continuum making it more acceptable, whilst poor siting and design can move the proposal in the other direction, making it less acceptable.

Consequently, the matrix includes a “compatibility” (or sensitivity) rating in the centre, where five circles represent five steps along the continuum of compatibility. The far left circle represents the least compatible level, the furthest right the most compatible that a fish farm may be in respect of that criterion. The rating awarded in the assessment is represented by the filled/solid circle. This simple form of presentation is appropriate, and a five point scale is adopted, because it provides an intermediate stage between the highest, lowest and middle points on the continuum. It provides a clear indication of the judgement made without being, or appearing to be, more sophisticated than the judgements are in practice.

### Table 2 Summary of the Criteria used in the Capacity Assessment

<table>
<thead>
<tr>
<th>Subject</th>
<th>Potential Effects of Development</th>
<th>General Criteria in Matrix</th>
<th>Specific Criteria in Matrix</th>
<th>Compatibility Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape</td>
<td>On physical features and activity on the sea</td>
<td>Sea Features and Activity</td>
<td>Features</td>
<td>Absence</td>
</tr>
<tr>
<td></td>
<td>On land cover and land use</td>
<td>Land Use</td>
<td>Land Cover</td>
<td>Land Cover</td>
</tr>
<tr>
<td></td>
<td>On ambience (atmosphere, feelings, impressions, perceptions)</td>
<td>Ambience</td>
<td>Wildlife</td>
<td>Undisturbed natural</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tranquility</td>
<td>Undisturbed quiet calm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Solitude</td>
<td>Solitary isolated inaccessible</td>
</tr>
<tr>
<td>Visual Aesthetics</td>
<td>On visual and spatial composition contributing to landscape character</td>
<td>Visual and Spatial Composition</td>
<td>Diversity</td>
<td>Uniform homogeneous</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Regularity</td>
<td>Irregular</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Intensity</td>
<td>Plan simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pattern</td>
<td>Indistinct random</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shape</td>
<td>Amorphous</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Line</td>
<td>Sinuous curved</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Continuity</td>
<td>Uninterrupted</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Integrity</td>
<td>Complete integral</td>
</tr>
<tr>
<td>Visual Amenity</td>
<td>On visual compatibility of potential changes with the landscape</td>
<td>Visualisation</td>
<td>Integration</td>
<td>Segregation identity fragmentation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Proportion</td>
<td>Disproportionate domination</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Contrast</td>
<td>Contrasting colour and texture</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shape</td>
<td>Anthropomorphic symmetrical</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Distribution</td>
<td>Infrequent rare unobtrusive features</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Conspicuity</td>
<td>Untypically conspicuous</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>On sensitive places and views</th>
<th>Sensitive Places and Views</th>
<th>Places</th>
<th>Specific places</th>
</tr>
</thead>
<tbody>
<tr>
<td>Views</td>
<td>Specific viewpoints</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Generally, shellfish farms are more compatible with the landscapes around the Orkney islands than finfish farms. If good practice and mitigation measures are followed, they will rarely have significant adverse effects on visual amenity. The assessment of shellfish farm capacity therefore concentrates on sea features and activity, land cover and land use of the associated landward areas, the ambiance of the place and sensitive places and views. The visual compatibility scale does not apply to shellfish farms for the reasons more fully described in Appendix A at paragraphs A.27 – A.28.

Light and weather conditions can make a substantial difference to the effects that fish farms (and to a much lesser degree shellfish farms) have on landscape character and visual amenity. For the descriptors and assessment bars, a “moderate” condition is used which is described in Appendix A at paragraph A.29. This needs to be taken into account, together with prevailing weather and light, conditions when using the matrices in cost work.
Method for assessing the sensitivity of the landscape to aquaculture development

Example 2

Source:
Alison Grant in association with Carol Anderson
‘Landscape/Seascape capacity for Aquaculture and Coastal infrastructure: Sound of Mull’
Argyll and Bute Council
(2008)

http://www.argyll-bute.gov.uk/content/planning/environment/marineandcoastaldevunit/ssmeihp/informationresources/ssmeistudiesreports/ssmeistudies/landscapeseascape/

14.2 Opportunities and Constraints

Following on from the site survey and analysis, opportunities for and constraints to aquaculture development are highlighted as a series of bullet points which relate to the local coastal character areas. Key features which influence these considerations are included on an accompanying map.

The purpose of including an opportunities and constraints analysis is to focus on the potential effect of aquaculture development in the individual local coastal character areas. The bullet points aim to draw out the analysis of potential effects prior to considering the sensitivity of the seascape to aquaculture development: the two stages are closely linked.

Opportunities and constraints are listed in an order which relates to the topics list in Tables 1A and 1B, that is:

- Maritime influences
- Coastal edge
- Character of hinterland
- Wildness
- Aesthetic quality
- Visual assessment
14.3 The sensitivity assessment

The issues explored on the site visit, and the analysis of opportunities and constraints are used in this methodology to inform the sensitivity of the seascape to the presence of aquaculture development.

Sensitivity assessment can be undertaken and presented in a number of ways. In David Tydesley and Associates (2001), the sensitivity was assessed using a number of detailed criteria and measured on a five point scale. The rigour and consistency of this approach is very appealing. As a result the consultants have tried to adopt a similarly systematic approach to assessing and presenting assessment stages in this proposed methodology.

Sensitivity assessment involves professional judgement. Nevertheless, it can be approached systematically, and the trail of reasoning can be transparently presented.

In the approach adopted in this methodology, sensitivity to aquaculture development is assessed in each local coastal character area. The key topics against which sensitivity is assessed were identified from the list in Tables 1A and 1B and the experience of on site survey and analysis. The topics bring together landscape and visual issues which are most likely to be affected by aquaculture development under the following headings:

Maritime influences, which considers the sensitivity to change of the physical characteristics and experiential attributes which reinforce the presence of and particular dynamic qualities of the sea.

Character and experience of the coastal edge, which assesses the potential effect of aquaculture development on the physical characteristics and experiential attributes which particularly contribute to the distinctive character of the seascape.

Setting of landmarks and features, which considers the potential sensitivity of the character of the setting and appreciation of particular features – historic, cultural, geological or ecological – which have been recognised as significantly contributing to the seascape in previous analysis.

Experience of wildness, which assess the potential effect of aquaculture on the qualities of remoteness, isolation or wilderness experienced in the local coastal character area, taking into account the particular characteristics which may contribute to the appreciation of this quality.

Aesthetic qualities, which assesses the potential effect of aquaculture development on the attributes and experiences of the seascape which contribute to the positive aesthetic appreciation of the landscape.

Key viewpoints, which considers the potential sensitivity of key viewpoints to potential aquaculture development.

The assessment is presented in a matrix for each local coastal character area, where a sensitivity rating for each of the key qualities is recorded on a five point scale:

- Very high sensitivity
- High sensitivity
- Some sensitivity
- Low sensitivity
- Not sensitive

An explanation of the factors which have led to the sensitivity rating is recorded in each matrix.

While it is generally current practice to combine the sensitivities of each individual topic into one overall summary assessment, we have avoided amalgamating all the assessments of sensitivity into one over all sensitivity rating before making our conclusions. There are two reasons for this:

Firstly, we feel that the sensitivity matrix is already a summary of findings and we do not wish to summarise it any further: there is a danger that further summation of explanations does not allow the true complexity of these judgements to be revealed.

Secondly, in relation to the diverse range of potential aquaculture development an absolute summary of sensitivity is not useful: for example, the seascape may easily be able to accommodate oyster trestle development, while not being appropriate for fish farm development.

We therefore have placed the overall assessment in our conclusions, not as an overview of sensitivity, but rather as the consultants’ assessment of the potential capacity of the seascape to accommodate aquaculture development, drawing on the sensitivities recorded in the matrix.
2. METHOD

2.1 This section of the report sets out the method and approach for the evaluation and assessment of the landscape character areas against the Green Belt objectives. The following flow diagram provides an overview of the key stages in completing Stage 1 of the project.

[Diagram showing flow of stages: Development of evaluation framework, Pilot and agree evaluation framework, Desk-based review of landscape character information and additional characterisation, Field survey, Consolidation of landscape character classification, Evaluation of landscape character areas contribution to Green Belt Objectives, Stage 1 Report]

Edinburgh Green Belt Landscape Character Assessment

2.2 The Draft Edinburgh Landscape Character Assessment (2007) formed the basis for the evaluation process. The document was amended to cover the extent of the Green Belt and was informed by the landscape character zones identified Edinburgh Green Belt Boundary Study (1999) prepared by East Lothian Council, the City of Edinburgh Council, Midlothian Council and West Lothian Council, and additional desk study and field work. The consolidated landscape classification descriptions and map provide the basis for the subsequent evaluation and can be found in the separate report Edinburgh Green Belt Landscape Character Assessment (2009).

Evaluation framework

2.3 A framework was developed to evaluate landscape character areas’ contribution to Green Belt objectives. The framework maintains a distinction between the SPP21
objective covering protection and enhancement of the character, landscape setting and identity of towns and cities and the objective addressing the protection and enhancement of open space within and around towns and cities.

2.4. Appendix 2 contains the evaluation framework and the ‘decision rules’ developed to guide evaluation against each of these criteria. The evaluation framework was agreed with the client group and piloted prior to its application. The criteria are summarised below.

2.5. Green Belt objective 2: Protection and enhancement of the character, landscape setting and identity of towns and cities;
   - Integrity of landscape character;
   - Distinctiveness of landscape character;
   - Landscape condition;
   - Potential for enhancement of landscape condition;
   - Contribution to the landscape setting of settlements;
   - The role of the landscape in question in contributing to the identity of Edinburgh and surrounding settlements;
   - Robustness and sustainability of existing boundaries in landscape terms.

2.6. The score for the robustness and sustainability of existing boundaries in landscape terms was not included in the ranking. This was scored on the current boundaries of the landscape character area, but does not take into account the location and extent of any future development and associated landscaping which may affect the boundary.

2.7. The application of weighting to some of the criteria was discussed with the project steering group and a weighting of 2 was applied to the scores for setting and identity to reflect the importance attributed to these criteria.

2.8. Green Belt objective 3: Protection and enhancement of open space within and around towns and cities:
   - The existing role of the area in providing accessible open space;
   - The existing role of the area within wider networks of open spaces within and around settlements;
   - Connections with core paths and other access networks;
   - Role as part of the Forest Habitat Network (FHN);
   - The potential role of the area in providing accessible open space;
   - Potential as part of the Forest Habitat Network.

Assessment Process

2.9. The assessment drew on the information in the Edinburgh Green Belt Landscape Character Assessment (2008) and wider information sources including aerial photographs for Edinburgh, Midlothian and East Lothian, information on proposed core paths and existing access networks, the results of GIS based intervisibility analysis undertaken for key viewpoints within the study area, the Forest Habitat Network dataset for Edinburgh and Lothians, and data on protected areas.

2.10. Each of the LCA in the Edinburgh Green Belt Landscape Character Assessment has been evaluated against the agreed Green Belt criteria except for Redford Basin, of which only a very small part of this LCA lies within the Green Belt. For the purposes of this assessment this LCA has been assigned the scores of the adjacent LCA 34.

Presentation of Results

2.11. The results of the assessment are presented in a tabular format and are also illustrated on two maps. The two maps show the overall rating of each LCA separately against each Green Belt objective.

STAGE 2

2.12. The second stage of the work will focus on those areas identified in Stage 1 as being of lesser significance when considered against SPP21 landscape and open space objectives for the Green Belt. This will consider the general capacity of the identified landscape character areas to accommodate built development, taking into account the key findings from Stage 1. There is not an automatic link between lower scores resulting from the assessment against Green Belt criteria and areas being considered suitable for built development.

2.13. A further round of field survey will test out these conclusions and identify areas where capacity might be enhanced by landscape mitigation. The landscapes will be evaluated through an assessment framework which will consider:
   - the impact on the local and wider landscape character and setting;
   - the impact on existing settlement form and boundaries;
   - the relative visibility and prominence of the area in question, both locally and in the wider landscape;
   - the relationship between the area in question and the broader pattern of settlement, open space, access networks and land use;
   - the potential role of existing or additional landscape features (such as structural landscaping) in integrating (not necessarily concealing) development within the local and wider landscape.

2.14. The results of the landscape character evaluation will be drawn together to provide a description and justification of those areas which, in landscape terms, had been identified as having potential capacity to accommodate development. The Stage 2 Evaluation Framework is provided in Appendix 4.
Siting windfarms

Advice on siting windfarms can be found in SNH publications available from SNH website - http://www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/

Relevant publications include:

'Siting and designing windfarms in the landscape'
'SNH Guidance: Cumulative effects of windfarms'
'Siting and designing windfarms in the landscape'

A Guide to Commissioning a Landscape Capacity Study

Interactive version

This material is in portrait format which may be preferred for printing purposes, but lacks any of the live links in the main landscape batch.

Wind farm development material

Resources

118
Objectives for wind farm studies

This briefing paper should be used to prompt discussion about the purpose of a landscape capacity study for wind farm developments with colleagues.

Scottish Planning Policy seeks to support these initiatives. Planning authorities are expected to:

The Scottish Planning Policy seeks to support the development of a diverse range of renewable energy technologies, guide development to appropriate locations and provide clarity on the issues that will be taken into account when specific proposals are assessed.

Renewable sources. The current target is to meet 50% of Scotland’s electricity requirement from renewable sources. The Scottish Government is committed to increasing the amount of electricity generated from renewable sources.

Scottish Context

Planning frameworks and supplementary planning guidance for wind farms

Planning Advice Note 45 Anexes

Paragraphs 182 – 192 Scottish Planning Policy

context of:

landscape capacity studies for wind farms need to be considered in the

Purpose of paper

Scottish Planning Policy, February 2010, paragraph 184)
Objectives: development policy

Planning authorities are not expected to adopt an ‘allocation’ for wind farms. Nevertheless, there is a clear expectation in the current SPP (Para 189) that planning authorities should ‘set out in the development plan a spatial framework for onshore wind farms of over 20 megawatts generating capacity.’ It is likely that the study will be used to inform development plan policies. Specifically, the study will need to inform development plan policies. Specifically, the study will need to inform development plan policies.

If you want the study to be used for development management, then you will need to consider:

- Do you want the study to address landscape sensitivities, constraints and opportunities, which including extensions to existing wind farms, will be assessed?

- If the study is to provide an open ended assessment of the changes brought about by wind turbines, but may need to have some landscape sensitivities, this will assess all landscapes against the changes brought about by wind turbines, but may need to have some landscape sensitivities.

- Alternatively, the study method could undertake an open ended study of landscapes and visual sensitivities. This may enable the study to identify the landscapes which are most sensitive to wind farms, and how these may be affected by different types of wind farms. One output from a landscape capacity study is therefore likely to be maps indicating where different types of wind farms can best be accommodated in the landscape.

- Or would you prefer the study to identify the landscape sensitivities, constraints and opportunities which can be used when assessing wind farm applications?

- Should the study identify areas where cumulative effects of wind farms on the landscape are expected to become a significant constraint?

- Will the study need to address different development scenarios – such as small wind turbines and wind farms of less than 20MW?

Objectives: development management

The SPP expects development plans to set out the criteria against which applications for all wind farms, including extensions to existing wind farms, will be assessed.

If you want the study to be used for development management, then you will need to consider:

- Do you want the study to identify the landscape sensitivities, constraints and opportunities which can be used when assessing wind farm applications?

- Do you want the study to address extensions to existing wind farms?

- If the study is to provide text that can be used when responding to planning applications, it needs to provide easy to understand justifications for all the recommendations, including those for wind farms with different turbines.

- If you want the study to identify preferred areas for wind farms, these may be the areas least sensitive to wind farms in landscape terms in your study area – but they may still have some landscape sensitivities.

- Alternatively, the study method could undertake an open ended study of landscapes and visual sensitivities. This may enable the study to identify the landscapes which are most sensitive to wind farms, and how these may be affected by different types of wind farms. One output from a landscape capacity study is therefore likely to be maps indicating where different types of wind farms can best be accommodated in the landscape.

- Or would you prefer the study to identify the landscapes which are most sensitive to wind farm development and least sensitive to wind farm development, with an accompanying description of the areas?

- Should the study identify areas where cumulative effects of wind farms on the landscape are expected to become a significant constraint?

- Will the study need to address different development scenarios – such as small wind turbines and wind farms of less than 20MW?
Examples of objectives

Here are some examples of potential objectives:

- Identify preferred ‘areas of search’ for specified sizes of wind farm developments – ie identify the best locations relative to all the locations available within the study area, even if the selected areas might be ‘sub-optimal’ and have some landscape or visual sensitivities;
- Undertake an assessment of the potential cumulative impacts of specified wind farm applications; and
- Undertake an assessment of the potential cumulative impacts of specified wind farm applications. If these studies have very specific briefs, which lack a development scenario, it may be necessary to focus on the impacts of specific wind farm developments rather than identify areas that are likely to contain wind farm developments.

Objectives may include:

- Identify areas where there are specified landscape and visual sensitivities or constraints which are likely to limit proposed wind farm developments;
- Identify opportunities to expand existing wind farm developments;
- Undertake an assessment of the potential cumulative impacts of specific wind farm applications; and
- Develop design guidance, eg in relation to size, siting and visual impacts, and cumulative landscape and/or visual impacts;
- Identify preferred areas of search for specified sizes of wind farm developments – ie identify the best locations available within the study area, even if the selected areas may not be the most optimal.

Specific objectives

Some landscape capacity assessments are commissioned for very specific tasks. Often this is in response to an upsurge in wind farm applications. These studies have very specific briefs which lack a development scenario.

Objectives may include:

- Undertake an assessment of the potential cumulative impacts of specific wind farm applications; and
- Test scenarios, based on hypothetical locations, numbers, and heights of wind farms, to assess the impact of wind farm developments on the landscape. These studies have very specific briefs which lack a development scenario.

Definition

A development scenario is a description of the type, or types, of development on which the landscape capacity assessment is focused. A development scenario is an area within which the landscape capacity assessment is focused on developing, expanding, or conserving the natural environment.

- A development scenario is focused on developing on the landscape.
- A development scenario is focused on conserving the landscape.

These are all very different purposes and outputs, and it is important to maintain a focused brief.
Checklist

Purpose of checklist

This checklist is a list of key issues to look at when undertaking a desk review of existing landscape capacity studies.

Checklist of topics for discussion

Discussion topics with those who have commissioned landscape capacity studies

Purpose

This checklist lists topics which you can use to discuss the effectiveness of existing studies with those who have commissioned them, or who now use them.

Context

Undertaking a desk review of other capacity studies

Purpose of checklist

This checklist is a list of key issues to look at when undertaking a desk review of other capacity studies.

Checklist of topics for discussion

Discussion topics with those who have commissioned landscape capacity studies

Context

It can be difficult to work out what is effective when you are leafing through a document with which you are not familiar. Generally, it is generally more effective to use them.

Checklist

Purpose of checklist

This checklist is a list of key issues to look at when undertaking a desk review of other capacity studies.
Checklist of topics for discussion

**General**

- In the preparation of landscape frameworks or masterplans?
- P1
- Development management case work
- Supplementary Planning Guidance
- Development Plan preparation

**Commissioning Authority:**

Has the study been used in any of the following, and what has been the experience of the commissioning authority?

**Use of Product**

- Has the product been presented to anyone else, such as the Planning Committee?
- How useful and accessible has the product been?
- Is the output presented in a way that meets the objectives and purpose of the study?

**Product/ Presentation**

- How involved was the steering group in managing the project – was the interaction adequate?
- Who was on the steering group?

**Involvement of Steering Group**

- Is the method easy to understand and can it be explained to you?
- How successful?
- Are there any particular strengths or weaknesses in the sensitivity assessment, especially now in the context of other partnerships or organisations?
- Is the commissioning authority happy with the method overall?
- Where did the method come from?

**Method**

- Budget
- Timetable – any pressures?
- Involvement of other partnerships or organisations
- Establish objectives
- Clearly the purpose of the study, the background and need for it

**Background**
This briefing paper introduces various approaches and scenarios encountered when assessing development scenarios for wind farms.

**Purpose of paper**

When you prepare the brief, the range, if not the detailed sizes, of the development scenarios should be explicit.

- Off shore wind farms
- Extensions to existing wind farms
- Wall or roof mounted wind turbines
- Single or small groups of wind turbines
- Different sizes of groups of turbines
- Wind farms of more than 20MW (which will inform the spatial framework as expected in the Scottish Planning Policy)

When farm development scenario 3 is also possible to combine these and

- Wind farm development scenario 1
- Wind farm development scenario 2
- Wind farm development scenario 3

Other scenarios or hypotheses:

- Wall or roof mounted wind turbines
- Single or small groups of wind turbines
- Different sizes of groups of turbines
- Wind farms of more than 20MW (which will inform the spatial framework as expected in the Scottish Planning Policy)
- Extensions to existing wind farms
- Off shore wind farms

**Approaches**

Scenarios are different ways to approach wind farm development scenarios or typologies:

- It is possible to describe different typologies by the size of the group of turbines and amount of power likely to be generated.
- It is also possible to describe different typologies by the height and number of turbines.
- It is also possible to combine the variables of height and number of turbines.

**Scope**

Some approaches to assess the sensitivity of the landscape to off shore wind farms are likely to require separate landscape sensitivity analyses. Some approaches can range from small wind turbines, associated with farms and perhaps even a few smaller turbines, to very large developments, such as groups of turbines over 125m high. Some large off shore wind farms and some very large onshore turbines, such as at Whitelee wind farm, are likely to require separate landscape sensitivity analyses.
Managing wind farm studies

Purpose of paper

This briefing paper summarises the key elements to consider when commissioning landscape capacity assessments for wind farm studies.
Ensure that the consultants provide a justification or rationale for areas where landscapes might be particularly suited and how intervenable they are, although this may be difficult to unravel and explain to others, as there is a real danger of accumulated assumptions being built into the process and not being easily identified in retrospect.

- By development managers when responding to planning applications.

- Expect the consultant to back up the sensitivity assessment with a short written analysis of the issues identified in the assessment for each landscape area assessed, which can then be used in conjunction with the sensitivity assessment to make decisions on siting and design of wind farms or other renewable energy developments.

- Methods which used GIS to process information are opposed to simply being used to map the issues identified in the assessment for each landscape area assessed, which can then be used in conjunction with the sensitivity assessment to make decisions on siting and design of wind farms or other renewable energy developments.

- Search the literature for successful sensitive areas how to address landscape designations.

- In discussion with the successful tenderer, agree how to address landscape designations.

- A Guide to Commissioning a Landscape Capacity Study

- There can be a particular value in securing guidance on the siting and design of wind farms or other renewable energy developments.

- Methods which used GIS to process information are opposed to simply being used to map the issues identified in the assessment for each landscape area assessed, which can then be used in conjunction with the sensitivity assessment to make decisions on siting and design of wind farms or other renewable energy developments.

- Expect the consultant to back up the sensitivity assessment with a short written analysis of the issues identified in the assessment for each landscape area assessed, which can then be used in conjunction with the sensitivity assessment to make decisions on siting and design of wind farms or other renewable energy developments.
Getting the most from a landscape sensitivity assessment

Purpose of paper

A Guide to Commissioning a Landscape Capacity Study

Scottish National Heritage

Briefing paper: Wind farm studies

Briefing paper: Settlement expansion and housing studies

Briefing paper: Agriculture studies

Briefing paper: Aquaculture studies

For more detail about landscape sensitivity assessments.

Getting the most from a landscape sensitivity assessment

This briefing paper is intended to maximise the effectiveness of a landscape sensitivity assessment. The process should be transparent and the assessment of potential sensitivity clearly explained.

To achieve transparency and clarity, sensitivity assessments should aim to:

1. Make the information presented on the landscape sensitive to the specified development and the landscape being assessed.
2. Provide a clearly presented assessment of the sensitivity of each individual criterion.
3. Identify criteria which are relevant to the specified development and the landscape being assessed.
4. Make sure all relevant information is presented in an accessible form. There should be no ‘leaps of faith’, you should be able to understand exactly how the consultants have come up with the sensitivity rating.
5. Avoid ‘weighting’ of criteria without a clear rationale – i.e., making some of the criteria more important than others unless the reason for doing this is easy to understand.
6. Avoid ‘double counting’ or ‘cancelling out’ when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive in relation to one criterion, but then is allocated a lower rating in another criterion.
7. Make sure there is a clear rationale linking analysis, assessment and recommendations.
8. Keep it as simple as possible – it needs to be used by people who are not on the steering group. It is important to scrutinise the methods used to make sure they are clear and easy to understand.

To understand how the overall, final assessment of sensitivity has come about.

In relation to one criterion, but that implies a lower score. One attribute of the landscape is scored highly sensitive when another criterion is scored only slightly sensitive. All assessments incorporate necessary professional judgements, and it is difficult to avoid some form of weighting when summing up to describe the overall sensitivity. However, some methods use weighting which, when applied, makes it difficult to understand how the overall, final assessment of sensitivity has come about.

What is ‘weighting’?

‘Weighting’ occurs when one or some of the criteria are considered to be more important than others. All assessments incorporate necessary professional judgements, and it is difficult to avoid some form of weighting when summing up to describe the overall sensitivity. However, some methods use weighting which, when applied, makes it difficult to understand how the overall, final assessment of sensitivity has come about.

Weighting, when summing up to describe the overall sensitivity, is sometimes further complicated by amalgamating scores at different stages in the process. Sensitivity assessments often involve several stages of stages to provide different, if not unrelated, scores. Weighting occurs when two or more of the criteria are considered to be more important than others. All assessments incorporate necessary professional judgements, and it is difficult to avoid some form of weighting when summing up to describe the overall sensitivity. However, some methods use weighting which, when applied, makes it difficult to understand how the overall, final assessment of sensitivity has come about.

Make sure there is a clear rationale linking analysis, assessment and recommendations.

Avoid ‘double counting’ or ‘cancelling out’ when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive in relation to one criterion, but then is allocated a lower rating in another criterion.

Make sure that there is a clear rationale linking analysis, assessment and recommendations.

Avoid ‘double counting’ or ‘cancelling out’ when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive in relation to one criterion, but then is allocated a lower rating in another criterion.

Avoid complex, weighted scoring systems which are sometimes further complicated by amalgamating scores at different stages in the process. Sensitivity assessments often involve several stages of stages to provide different, if not unrelated, scores. Weighting occurs when two or more of the criteria are considered to be more important than others. All assessments incorporate necessary professional judgements, and it is difficult to avoid some form of weighting when summing up to describe the overall sensitivity. However, some methods use weighting which, when applied, makes it difficult to understand how the overall, final assessment of sensitivity has come about.

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Make sure that there is a clear rationale linking analysis, assessment and recommendations.

Avoid ‘double counting’ or ‘cancelling out’ when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive in relation to one criterion, but then is allocated a lower rating in another criterion.
What is ‘cancelling out’?

Cancelling out can happen when an attribute of the landscape is scored ‘positively’ in one criterion, but then ‘negatively’ for another criterion. For example:

- An area where ‘wildness’ is a key characteristic might score highly sensitive to a new development in landscape character terms. In visual terms though, the same qualities which make this area relatively ‘wild’ – for example having a low number of receptors – can result in a low sensitivity score in a visibility analysis. An area where ‘wildness’ is a key characteristic might score high sensitivity to a new development in landscape character terms. In visual terms though, the same qualities which make this area relatively ‘wild’ – for example having a low number of receptors – can result in a low sensitivity score in a visibility analysis.

It can be fine to have apparently contradictory assessments in this way, as long as the method is transparent, and the final overall assessment demonstrates how the contradictory assessments have been reconciled.

What is double counting?

Double counting can happen when the same characteristic of a landscape is assessed under two different criteria. For example:

- ‘Wildness’ can be assessed as a characteristic of the landscape which limits development, and is also assessed as an independent evaluation of ‘wild’ landscapes. The same characteristics might also contribute to landscape character or experience.

To make this clear in the assessment, wildness could be assessed as an aspect of landscape character or experience under one criterion, and perhaps as an independent evaluation when assessing whether wildness contributes to landscape value.

It can be fine to ‘double count’ in this way, as long as the process is clear and everyone understands that wildness is contributing to different aspects of the landscape.
Purpose of paper

Landscape sensitivity assessments for wind farm studies are designed to predict the impacts of proposals on the visual quality of the landscape, and the sense of wildness, at an early stage. They are often referred to as ‘visual impact assessments’, ‘impact and mitigation studies’, or ‘gap assessments’.

The selection and presentation of the criteria will vary according to the objectives of the landscape sensitivity assessment and the experience of the consultant. Such as scenic routes, assessing the sensitivity of designated areas, for example, or other recognised viewpoints.

Landscape sensitivity assessments might also take into account landscape character, such as scale and openness, and the visual impact on individual viewpoints. They might include an assessment of the sensitivity of the landscape character, the visual impact of proposed developments on individual viewpoints, and the visual impact on individual viewpoints.

Choosing criteria for the landscape sensitivity assessment

Landscape sensitivity assessments for wind farm studies tend to focus on large scale wind farms and offshore turbines, which are most likely to both directly accommodate or compromise the visual quality of the landscape, such as scale and openness, and the visual impact on individual viewpoints.

Landscape sensitivity assessments for wind farm studies are generally included:

- An assessment of the sensitivity of the landscape character.
- An assessment of visual impact.
- An assessment of the sensitivity of the landscape character.
- An assessment of visual impact.

Defining landscape areas for the sensitivity assessment

Landscape sensitivity assessment areas are generally defined in one of two ways:

1. They are defined through a process of amalgamation or subdivision of landscape character assessments for each planning authority area, which have been commissioned and published by SNH.

2. Study areas which are identified by SNH

More recently, studies have also assessed the sensitivity of the landscape for small scale wind farm proposals, including groups of small and medium sized wind turbines, usually located in more localized areas, or adjacent to scenic routes for disproportionate impacts.

In addition, the studies are frequently expected to consider the potential use of visual impact assessments for planning decisions.

Scope

This briefing paper explains how sensitivity assessments for wind farm developments are usually commissioned to inform spatial planning policy and guidance for development managers.
Examples

Different approaches to identifying and analysing criteria can be found in these examples:

Wind farms example 4
These were not automatically excluded from the assessment.

Wind farms example 3
This example takes into account landscape character, visual amenity and visibility criteria. Designated areas were not automatically excluded from the assessment.

Wind farms example 2
This example focuses only on landscape character and criteria related to visual amenity.

Wind farms example 1
This example focuses on landscape character and visual criteria but also takes into account National Scenic Area designations, which raise the sensitivity ratings automatically.

This example explores landscape character, visibility and value, and combines the individual sensitivity assessments into an aggregate assessment.

This example explores landscape character, visibility and value, and combines the individual sensitivity assessments into an aggregate assessment.
Visual sensitivity assessment for wind farm studies

### Purpose of paper

This briefing paper outlines the two broad approaches to carrying out visual sensitivity assessment for wind farm studies.

### Visual sensitivity assessment for wind farm studies

An assessment of visual amenity

- An example of a study which uses this approach can be found here.
- Another example of a study which uses this approach can be found here.
- An example of a study which uses this approach can be found here.
- An example of a study which uses this approach can be found here.

An assessment of visibility

- Some studies use a “dead ground” analysis of potential inter-visibility. This approach maps those areas of land not visible from agreed viewpoints and represents areas of visibility which are compromised.
- An example of a study which uses this approach can be found here.
- Some studies have used a more complex analysis of visibility which has been calculated in some studies, by undertaking whole area studies of landscape inter-visibility. This approach maps those areas of land not visible from agreed viewpoints and represents areas of potential inter-visibility. The mapped output is usually an aggregate of all the land not visible from these viewpoints.
- An example of a study which uses this approach can be found here.
- An example of a study which uses this approach can be found here.

### Scope

When discussing the study method it is important to clarify exactly what output is likely to be generated:

- An **assessment of visual amenity** will identify those aspects of the landscape which are visually prominent or contribute to visual amenity.
- An **assessment of visibility** will identify how visible wind farms might be from recognised viewpoints.
- An **analysis of visual sensitivity** may be:
  - An **assessment of visual amenity** which will identify those aspects of the landscape which are visually prominent or contribute to visual amenity.
  - An **assessment of visibility** which will identify how visible wind farms might be from recognised viewpoints.

### Purpose

Some studies focus on how the attributes of the landscape contribute to visual amenity or visual composition.

### An assessment of visual amenity

- An example of a study which uses this approach can be found here.
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### Considerations

When discussing the study method it is important to clarify exactly what output is likely to be generated:

- An **assessment of visual amenity** will identify those aspects of the landscape which are visually prominent or contribute to visual amenity.
- An **assessment of visibility** will identify how visible wind farms might be from recognised viewpoints.
- An **analysis of visual sensitivity** may be:
  - An **assessment of visual amenity** which will identify those aspects of the landscape which are visually prominent or contribute to visual amenity.
  - An **assessment of visibility** which will identify how visible wind farms might be from recognised viewpoints.
  - An **analysis of visual sensitivity** which will identify how visible wind farms might be from recognised viewpoints.
Other visual assessment tools

Some studies use wireframes of different heights of turbine or similar tools, creating simple visualisations of different heights of turbines from specified viewpoints. These are simple tools, often used in field work to help assess what the impact of the height of a turbine is on the scale of the visible landscape or cumulative effects.

Would a list of key viewpoints (with grid references) be a useful output, possibly as a basis for approaches and being built the context for visualisation changes rapidly?

Special studies of viewing so may have a very limited shelf life. In addition, as new developments are achievable, Zones of Theoretical Visibility (ZTVs) or analysis of dead ground are other linked to a

Choosing a preferred approach

If a visibility assessment is required, how many viewpoints will you need and what are the criteria for identifying preferred locations? The viewpoints selected will become an in-built assumption to the study, so must be selected with care.

Why will the results of the assessment of visual sensitivity be incorporated into the overall study?

Was the number of viewpoints considered appropriate to the survey area?

If the assumption of landscape change, or cumulative effects?

Would it be helpful to focus on visual amenity, or even more useful assessment of visual sensitivity, or would it be more helpful to focus on visual amenity, or even

Discuss the options with the consultant to clarify:

- Would a list of key viewpoints (with grid references) be a useful output, possibly as a basis for approaches and being built the context for visualisation changes rapidly?

- If a visibility assessment is required, how many viewpoints will you need and what are the criteria for identifying preferred locations?

- Choosing a preferred approach

- Would it be helpful to focus on visual amenity, or even more useful assessment of visual sensitivity, or would it be more helpful to focus on visual amenity, or even

- Choose an approach to be able to be most appropriate for the landscape of the study area?

- How will the results of the assessment of visual sensitivity be incorporated into the overall study?

- Was the number of viewpoints considered appropriate to the survey area?

- Would it be helpful to focus on visual amenity, or even more useful assessment of visual sensitivity, or would it be more helpful to focus on visual amenity, or even

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- Choosing a preferred approach

- Would it be helpful to focus on visual amenity, or even more useful assessment of visual sensitivity, or would it be more helpful to focus on visual amenity, or even
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Establishing a timescale
Resources

Settlement and housing

This material is in 'portrait' format which may be preferred for printing purposes, but lacks any of the live links in the main 'landscape' batch.

It is also provided in the same 'landscape' format as the main toolkit, which contains links within the toolkit and to external sources.

Interactive version
Purpose of paper

Objectives for settlement expansion or housing studies

Context for study

Landscape capacity studies for settlement expansion and housing development need to be considered.

This briefing paper should be used to promote discussion about the purpose of a landscape capacity study for settlement expansion or housing studies.
Objectives: development policy

Planning authorities are expected to inform development plan policies on the location of housing based on housing need and demand as well as to ensure that development is delivered in the most sensitive landscape areas. One output from a landscape capacity study is likely to be maps indicating where it might be best to locate housing, or indeed other forms of built development, in the landscape. Therefore, a landscape capacity study will need to inform the spatial allocation of housing land.

Objectives: development management

The landscape capacity study might also provide information which provides the basis for responses to planning applications.

If you want the output to be adopted by your Council then think about the format of any supplementary guidance required for this to be effective.
Examples of objectives

Here are some examples of potential objectives:

- Identify the best sites for a specified housing allocation in landscape terms (this may require more areas to be identified than the allocation requires, as some of the sites may not be acceptable for other planning related reasons);

Some landscape capacity assessments are commissioned for very specific tasks. Often this is in response to a particular planning need identified in the scoping for the revision of the development plan:

Specific objectives

- Undertake a review of the green belt and its ability to accommodate settlement expansion.

These are very different purposes and objectives, and it is important to maintain a focused brief:

- Assess the landscape sensitivity of sites identified by developers as part of a development bid and may result in no allocations for settlement expansion being identified, and

- Provide an assessment of the landscape sensitivities which can be used to undertake an SEA of the settlement expansions proposed in the development plan:

Some landscape capacity assessments may include:

These studies have very specific briefs, which tackle the one off situation:

Specific objectives

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Some landscape capacity assessments are commissioned for very specific tasks. Often this is in response to a particular planning need identified in the scoping for the revision of the development plan:

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- Undertake a review of the green belt and its ability to accommodate settlement expansion.

These are very different purposes and objectives, and it is important to maintain a focused brief:

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- Undertake a review of the green belt and its ability to accommodate settlement expansion.
undertaking a desk review of other capacity studies

Checklist

Purpose of checklist

This checklist is a list of key issues to look at when undertaking a desk review of existing

undertaking a desk review of other capacity studies

Checklist
Checklist of topics for discussion

**Background**
- Has there been any advice from the commissioning authority on the purpose of the study?
- Has the method been explained to the client?
- Has the commissioning authority agreed with the method?
- Has the method been discussed with the client?
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A Guide to Commissioning a Landscape Capacity Study

Purpose of Paper

Development scenarios for settlement expansion and housing studies

Scenarios

- Identifying locations for new settlements
- Settlement expansion
- Identifying locations for broad brush
- Industrial or commercial use
- Identifying sites for business and/or other uses
- Identifying sites for existing and new developments
- Assessing sites already proposed by developers
- Assessing sites already proposed by housing agencies
- Setting out the limits of the study
- Assessing the landscape sensitivities
- Setting the limits of the study

Approaches

- Proposing land allocation for residential development with or without a limit on the amount of land
- Proposing land allocation for residential development especially in rural areas
- Developing for housing allocation
- Including sites for individual houses
- Identifying sites for residential houses
- Identifying sites for business and/or other uses
- Assessing landscape sensitivities
- Assessing the landscape sensitivities
- Identifying a housing allocation
- Developing for housing allocation

There are different ways to approach settlement expansion: some settlement expansion studies focus on residential development. In rural areas, this may range from single houses to small groups of houses and modest settlement expansion. For larger towns and cities, more extensive areas of land for residential development may be required. Some settlement expansion studies also expect consultants to assess the sensitivities of the landscape. The selection of scenarios will be influenced by the project priorities and the amounts of time and funding available for the landscape capacity assessment.

When you prepare the brief, the range, if not the detailed size, of development scenarios should be explicit. It may also be that the purpose of the study is to assess the landscape sensitivities associated with development bids proposed by developers. The typologies then relate to those sites which are proposed by the developer.

The selection of scenarios will be influenced by the project priorities and the amounts of time and funding available for the landscape capacity assessment.
Managing settlement and housing studies

Purpose of paper

This briefing paper summarises the key elements to consider when commissioning landscape capacity assessments for settlement and housing studies.

Key issues

- Expect detailed mapping, preferably at 1:10,000 scale.
- Expect development managers when responding to planning applications, and issues identified in the assessment for each landscape area assessed, which can then be used.
- Landscape sensitivity or potential, be confident that this gives added value.
- If the consultant is going to use a more complicated method than a three or five scale assessment of.
- Develop a sensitivity or potential, which can then be used.
- If a review of the green belt is required, consider this in light of a wider strategy for housing.

Key issues

- Clarify purpose, especially in relation to planning applications.
- Develop a sensitivity or potential, which can then be used.
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- Different types of development – housing, industrial estates, for example, have quite different
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Getting the most from a landscape sensitivity assessment

Purpose of paper

This briefing paper is intended to maximise the effectiveness of a landscape sensitivity assessment. The process should be transparent, and the assessment of potential sensitivity clearly explained.

Getting the most from a landscape sensitivity assessment

Briefing paper: Wind farm studies

Briefing paper: Settlement expansion and housing studies

Briefing paper: Agriculture studies

Based on: Commissioning a Landscape Capacity Study

Getting the most from a landscape sensitivity assessment

Briefing paper

To achieve transparency and clarity, sensitivity assessments should aim to:

- Provide a clear presentation of the sensitivity of each individual criterion in each landscape area
- Identify criteria which are clearly relevant to the specified development and the landscape which is being assessed
- Provide a clearly presented assessment of the sensitivity of each individual criterion in each landscape area
- Make sure that all relevant information is presented in an accessible form – there should be no ‘leaps of faith’, you should be able to understand exactly how the consultants have come up with the sensitivity rating
- Avoid ‘weighting’ criteria without a clear rationale – ie making some of the criteria more important than the others
- Minimise ‘double counting’ or ‘cancelling out’ – ie when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive in relation to one criterion, but then is allocated a lower rating in another
- Avoid complexity, such as adding together scores at different stages of the assessment process
- Keep it as simple as possible – it needs to be used by people who are not on the steering group
- Scrutinise the method to make sure that it is transparent and that it is easy to understand how the overall, final assessment of sensitivity has come about

What is ‘weighting’?

‘Weighting’ occurs when one or some of the criteria are considered to be more important than others. All assessments incorporate necessary professional judgements, and it is difficult to avoid some form of weighting when summing up to describe the overall landscape sensitivity. However, some methods use weighting which is fundamentally flawed. In relation to one criterion, but there is a clear rationale linking analysis, assessment and recommendations or conclusions.

Avoid ‘weighting’ criteria without a clear rationale:

- Minimise ‘double counting’ or ‘cancelling out’
- Avoid complexity, such as adding together scores at different stages of the process
- Keep it as simple as possible – it needs to be used by people who are not on the steering group
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For more detail about landscape sensitivity assessments:

transparency and clarity is easy to understand how the overall, final assessment of sensitivity has come about.

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- Avoid ‘weighting’ criteria without a clear rationale
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What is ‘cancelling out’?

Cancelling out can happen when an attribute of the landscape is scored ‘positively’ in one criterion, but then ‘negatively’ for another criterion. For example:

An area where wildness is a key characteristic might score highly sensitive to a new development in landscape character terms. In visual terms though, the same qualities which make the area relatively ‘wild’ – for example having a low number of receptors – can result in a low sensitivity score in a visibility analysis.

It can be fine to have apparently contradictory assessments in this way, as long as the method is transparent, and the final assessment demonstrates how the overall sensitivity assessment has been determined.

What is double counting?

Double counting can happen when the same characteristic of a landscape is (often inadvertently) assessed under two different criteria. For example:

‘Wildness’ can be identified as a constraint on landscape value, and then later assessed as contributing to landscape value under one criterion. In the same way, the same qualities which make the landscape sensitive to a new development in landscape character terms might make the area relatively ‘wild’ – for example having a low number of receptors – and limit development. It can then happen that wildness can be counted as a characteristic of the landscape under different criteria.

It can be fine to double count in this way if the process is clear, and everyone understands that wildness is contributing to different aspects of the landscape.

To make this clear in the assessment, wildness could be assessed as an aspect of landscape character or experience under one criterion, and perhaps a more independent evaluation such as SNH’s ‘Search Areas for Wild Land’. To do this, it is important that wildness is scored positively in one criterion, but then cancelled out.
Landscape sensitivity assessments for settlement expansion and housing can also be expressed in the form of constraints and opportunities for development. The selection and presentation of the criteria will vary according to the objectives of the landscape sensitivity assessment and the experience of the consultant.

Such as scenic routes:

- an assessment of the sensitivity of designated areas, for example, or other recognised valued viewpoints, and
- an assessment of the sensitivity of the landscape which are visually prominent, contribute to visual amenity or the quality of the setting of the existing settlement or landmark features. The visual assessment might also identify on those aspects of visual sensitivity. This may identify how visible housing or settlement expansion might

Choosing criteria for the sensitivity assessment

- An assessment of the sensitivity of the landscape character. This will usually include characteristics of the physical landscape, including the existing settlement pattern and the experience of the landscape area which are likely to both readily accommodate or be compromised by specified built development.
- A landscape sensitivity assessment to accommodate settlement expansion and housing studies

Defining landscape areas for the sensitivity assessment

Most landscape sensitivity assessments for settlement expansion and housing studies

Purpose of paper

Landscape sensitivity assessments for settlement expansion and housing studies are usually commissioned to inform spatial planning policy and guidance for development managers. This briefing paper explains how sensitivity assessments for settlement expansion and housing
Examples

Different approaches to identifying and analysing criteria can be found in these examples:

This example explores character of the landscape and settlement form, visual amenity and landscape value as the basis for assessing landscape sensitivity.

This example illustrates how character of the landscape and settlement form, visual amenity and landscape sensitivity can be incorporated into a review of the green belt, particularly if there is a need to identify locations for future settlement expansion.

This example illustrates how landscape sensitivity assessments can also be incorporated into a review of the green belt, particularly if there is a need to identify locations for future settlement expansion.

Settlement expansion example 1

This example illustrates a method developed assessing the landscape sensitivity in relation to small and individual house sites in rural areas.

Settlement expansion example 2

This example illustrates how landscape sensitivity assessments have been conducted, and in addition how an assessment of potential effects on sustainability has been conducted.
<table>
<thead>
<tr>
<th>TASKS</th>
<th>Possible key dates</th>
<th>Cumulative time required</th>
<th>Additional considerations</th>
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<tbody>
<tr>
<td>Establishing a timescale</td>
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**Possible key dates**

- Preparing final report
- Dissemination with steering group
- Consultation and feedback from steering group
- Preparing draft report(s)
- Piloting the method and interim time of year
- Adjust field work allocation to reflect work hours, amount of time required for field work
- Identify time required for procurement
- Prepare brief
- Agree study objectives
- Allow time delay to project start for desk review and initial inception
- Desk review and initial inception
- Research and consultation
- Prepare brief

**Cumulative time required**

- Predisposing requirements
- Planning requirements (including any site visits and initial meetings)
- Procurement, including any site visits and initial meetings
- Payment

**Additional considerations**

- Availability of steering group
- Time constraints in relation to funding
- Deadlines for outputs relative to planning requirements
- Potential other constraints
- Ability of steering group – holidays, maternity leave, etc.
Advice on siting aquaculture in the landscape can be found in SNH publications available from the SNH website - http://www.snh.gov.uk/planning-and-development/marine-aquaculture/

Relevant publications include:

- ‘Marine aquaculture and the landscape: The siting and design of aquaculture developments in the landscape’ (2001, currently being updated)

Resources

Aquaculture development material

This material is in ‘portrait’ format which may be preferred for printing purposes, but lacks any of the live links in the main landscape batch.

A Guide to Commissioning a Landscape Capacity Study

A Guide to Commissioning a Landscape Capacity Study

A Guide to Commissioning a Landscape Capacity Study

A Guide to Commissioning a Landscape Capacity Study
Objectives for aquaculture development

Purpose of paper

Briefing paper

Guidance for Seascape/Landscape Capacity for Aquaculture

SNH Paragraphs 104 - 109

Scottish Planning Policy- In Fish Farming section:

Coastal Seascape capacity study for aquaculture development

Scottish Policy Context

The Scottish Planning Policy expects planning authorities to support the development of new and modelled fish farms in appropriate locations.

It is within this context that coastal seascape capacity studies for aquaculture development should be undertaken.

Coastal landscapes capacity study (sometimes referred to as a “landscape/seascape study” for aquaculture development with colleagues.

This briefing paper should be used to prompt discussion about the purpose of a coastal seascape capacity study.

Purpose of paper

Objectives for aquaculture development

Context for study

Scottish Planning Policy - Fin Fish Farming section:

Paragraphs 104 - 109

The Scottish Planning Policy expects planning authorities to support the development of new and modelled fish farms in appropriate locations.

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Paragraph 105 of the SPP states that development plans should identify areas which are potentially suitable for new or modified fish farm development and sensitive areas which are unlikely to be suitable for fish farm development unless adverse impacts can be adequately mitigated. When designing potential development areas and sensitive areas, planning authorities should take into account carrying capacity, landscape, natural heritage and historic environment interests, potential conflicts with other users and other regulatory controlled areas.

Coastal seascape capacity studies for aquaculture development need to be considered in the context of:

Scottish Planning Policy - Fin Fish Farming section:

Guidance for Seascape/Landscape Capacity for Aquaculture

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Objectives: development policy

Planning authorities are not expected to identify an 'allocation' for aquaculture development, but the SPP does suggest that planning authorities should set out key farming framework plans, published as supplementary guidance, which would set out the planning authorities' approach to aquaculture development at the planning applications stage. All aquaculture developments will need to be assessed against the changes brought about by aquaculture, and any cumulative effects identified in the assessment of the development.

If you want the study to be used for development management, then you will need to clarify:

- Should the study identify preferred areas for aquaculture? These may be areas least sensitive to aquaculture in landscape terms in your study area – but they still may have some landscape and visual sensitivities.
- Alternatively, the study could identify areas which are most sensitive and least sensitive to aquaculture development, with an accompanying rationale.
- Should the study identify opportunities to expand aquaculture, with an accompanying rationale?
- If the study is to provide text that can be used when responding to planning applications, it needs to be able to present planning applications for aquaculture, and
- Do you want the study to identify the landscapes which are most sensitive and least sensitive to aquaculture development?

Objectives: development management

Likely to become a significant constraint?

- Should the study identify areas where cumulative effects of aquaculture on the landscape are
- Should the study identify areas where the landscape would benefit from the removal or modification?
- Should the study identify opportunities to expand aquaculture?
- Would you prefer the study to identify areas which are most sensitive and least sensitive to aquaculture?

The coastal landscape capacity study might also provide information which provides the basis for

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Examples of Objectives

Here are some examples of potential objectives:

- **Identify the best sites for a specified housing allocation in landscape terms** (this may result in no allocations for settlement expansion being identified, and may need to be identified for the revision of the development plan).
- **Identify which areas can best accommodate housing in landscape terms, regardless of settlement expansion**.
- **Provide the landscape sensitivity of sites identified by developers as part of a development bid**.
- **Assess the landscape sensitivity of sites identified by developers and their ability to accommodate settlement expansion**.
- **Undertake a review of the green belt and the ability to accommodate settlement expansion**.
- **Provide recommendations on the mitigation of adverse landscape and visual effects of settlement expansion which can be used to undertake an SEA**.
- **Provide an assessment of the landscape sensitivities which are likely to limit housing development or settlement expansion**.
- **Provide design guidance, e.g. for layout, densities and housing styles which may then inform the settlement expansion proposals in the development plan**.
- **Provide recommendations on the mitigation of adverse landscape and visual effects of the proposals which may be used to undertake an SEA**.
- **Provide a review of the green belt and its ability to accommodate settlement expansion**.
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- **Provide recommendations on the mitigation of adverse landscape and visual effects of settlement expansion**.
- **Provide recommendations on the mitigation of adverse landscape and visual effects of settlement expansion**.

Specific Objectives

Some landscape capacity assessments are commissioned for very specific tasks. Often this is in response to a particular planning need identified in the scoping for the revision of the development plan. These studies have very specific briefs, which may lack the one-off situation.

**Development briefs**:

- **Provide an assessment of the landscape sensitivities which are likely to limit housing development or settlement expansion**.
- **Provide design guidance, e.g. for layout, densities and housing styles which may then inform the settlement expansion proposals in the development plan**.
- **Provide recommendations on the mitigation of adverse landscape and visual effects of the proposals which may be used to undertake an SEA**.

These are very different purposes and objectives, and it is important to maintain a focused brief.
Checklist of topics for discussion

This checklist is a list of key issues to look at when undertaking a desk review of existing landscape capacity studies. It can be difficult to work out what is effective when you are leafing through a document with which you are not familiar. Generally, it can be most helpful to:

- First identify the planning purpose and the specific objectives of the study and what outputs were required: remember, there may be more than one output – mapped recommendations for areas of search, for example, and perhaps also design guidance;
- Go through the recommendations or conclusions, and see how the recommendations have been justified in the analysis – can you see how the method has led to the conclusions?
- It is easier to identify a small number of landscape areas or one bit of the landscape, and follow it through the whole study, from analysis to conclusions, or vice versa, than to read all the document. Try to pick two or three landscape areas with different characters or conclusions, and see how these work;
- Look at the sensitivity assessment more closely – are there gaps in the train of thought, difficult terms or concepts that you might find difficult to justify at a Public Local Inquiry?
- Finally, is the document clearly structured, and are the maps an appropriate scale, and are illustrations useful, adding value to the text?

Context

Once you have done this, you should consider speaking to someone in the planning authority who was involved in commissioning or using the study.

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Checklist of topics for discussion

**Background**
- Has the purpose of the study, the background and weaknesses of the landscape capacity study, and how

**Method**
- Clear summary of the purpose of the study, the background and need for it
- Clear definition of the method
- Establish objectives
- Time scale, any pressures
- Involvement of other partnership organisations
- Budget

**Product/Presenation**
- Is the output presented in a way that meets the objectives and purpose of the study?
- How accessible is the product?
- Has the product been presented to anyone else, such as the Planning Committee?

**Involvement of Steering Group**
- Who was on the steering group?
- How involved was the steering group in managing the project – was the interaction adequate?
- How was the interaction of the Steering Group?

**Commissioning Authority**
- Has the study been used in any of the following, and what has been the experience of the commissioning authority?

**Use of Product**
- Has the product been presented to anyone else, such as the Planning Committee?
- How accessible and user-friendly has the product been?

**General**
- In the preparation of landscape frameworks or masterplanns?
- Development management case work
- Supplementary Planning Guidance
- Development Plan Preparation

**Checklist of topics for discussion**

A Guide to Commissioning a Landscape Capacity Study

Scottish Natural Heritage
This briefing paper introduces various approaches and scenarios encountered when assessing development scenarios for aquaculture. When you prepare the brief, the range of development scenarios should be explicit and as detailed as possible, in terms of their sizes. The selection of scenarios will be influenced by the amount of time and funding available, the purpose of the project, and the types of aquaculture developments encountered. For example, the scale of the project may be important, and the types of aquaculture developments covered by the assessment, the size of the water volume, the industry scale of development assessment, and the landscape sensitivity. The selection of the same landscape sensitivity and development size is important. However, it should be borne in mind that the type of development scenarios will be influenced by the amount of time and funding available, the purpose of the project, and the types of aquaculture developments encountered.

Scenarios

Approaches

Most aquaculture studies have focused on the siting of offshore fish farms and their associated onshore infrastructure. Several case studies have been undertaken, using different approaches to assess the potential impacts of different scenarios. These scenarios include:

- Offshore fin fish farms and their associated onshore infrastructure, which vary in size, depending on the number and size of cages and/or storage sheds, with several size options for storage sheds, including yards, roads and offices.
- Shellfish lines, which may use different lengths or types of lines, depending on the type of shellfish farming.
- Oyster racks and trestles, which appear when the tide is out.
- Other line or buoy based shellfish industries, which may have a shore base of some type.
- Development and size: it is also possible to describe different development scenarios or hypotheses by varying the type of aquaculture industry.

There are different ways to approach these scenarios, including:

- Development scenario 1: Aquaculture development scenarios can be found here.
- Development scenario 2: Aquaculture development scenarios can be found here.
- Development scenario 3: Aquaculture development scenarios can be found here.
- Development scenario 4: Aquaculture development scenarios can be found here.
- Development scenario 5: Aquaculture development scenarios can be found here.

Purpose of paper

This briefing paper introduces various approaches and scenarios encountered when assessing development scenarios for aquaculture.
A Guide to Commissioning a Landscape Capacity Study

Managing aquaculture studies

The purpose of paper

SNH has published Guidance on Landscape/Seascape Capacity for Aquaculture, available from the SNH publications website.

...be used by development managers when responding to planning applications, which can then issues identified in the assessment for each landscape/coastal area assessed, which can then
- Expect the consultant to back up the sensitivity assessment with a short written analysis of the
- Landscape sensitivity or potential, be confident that this gives added value:
- If the contractor is going to use a more complicated method than a three or five scale assessment of
- Issues most likely to be affected by settlement or housing expansion:
- Interrogate the criteria, making sure that an understanding of the likely effect of aquaculture on the
- Consulted to be too sensitive for development, not just the areas where potential was identified:
- Ensure that the consultants provide a justification of rationale for areas where landscapes were
- Interrogate the criteria, making sure that an understanding of the likely effect of aquaculture on the
- Coastal land use and does not focus exclusively on the areas with potential:
- Make sure that the scope and method leads to an assessment which extends around the whole
- Guile different landscape effects, and so will require different assessments:
- Different types of development – shellfish lines, oyster beds and fish farms, for example, have a
- Developments: review existing sites or consider the expansion of existing developments:
- Decide whether or not the consultants should identify potential new sites for aquaculture:
- Clearly specify, especially in relation to planning or other coastal management needs:
- Key issues for capacity assessments for aquaculture studies

This briefing paper summarises the key elements to consider when commissioning landscape

...
Purpose of paper

Getting the most from a landscape sensitivity assessment

This briefing paper is intended to maximise the efficiency of a landscape sensitivity assessment. The process should be transparent, and the assessment of potential sensitivity clearly explained.

To achieve transparency and clarity, sensitivity assessments should aim to:

- Provide a clearly presented assessment of the sensitivity of each individual criterion in each landscape area.
- Identify criteria which are clearly relevant to the specified development and the landscape being assessed.
- Make sure that all relevant information is presented in an accessible form – there should be no 'leaps of faith', you should be able to understand exactly how the consultants have come up with the sensitivity rating.
- Avoid complexities, such as adding together scores at different stages to provide difficult to unravel aggregate scores.
- Avoid 'weighting' criteria without a clear rationale – i.e. making some of the criteria more important than the others unless the reason for doing this is easy to understand and robust.
- Minimise 'double counting' or 'cancelling out' when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive in relation to one criterion, but then is allocated a lower rating in another.
- Keep it as simple as possible – it needs to be used by people who are not on the steering group. It is important to scrutinise the method to make sure that it is transparent and that it is easy to understand how the overall, final assessment of sensitivity has come about.

For more detail about landscape sensitivity assessments, including examples for you to look at, follow the topic based links:

- Briefing paper: Wind farm studies
- Briefing paper: Settlement expansion and housing studies
- Briefing paper: Wind farm studies

What is 'weighting'?

'Weighting' occurs when one or some of the criteria are considered to be more important than others. All assessments incorporate necessary professional judgements, and it is difficult to avoid some form of 'weighting' when summing up to describe the overall sensitivity of landscapes, without attributing to another of which one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive when one another criterion is scored more important than the others.

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Making sure there is a clear rationale

In relation to one criterion, it may be allocated a lower sensitivity rating to the landscape is scored highly sensitive when one another criterion is scored more important than the others.

Avoid 'double counting' or 'cancelling out' when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive when one another criterion is scored more important than the others.

Avoid 'weighting' criteria without a clear rationale

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Avoid 'double counting' or 'cancelling out' when one criterion is very similar to another, or when one attribute of the landscape is scored highly sensitive when one another criterion is scored more important than the others.
What is ‘cancelling out’?

Cancelling out can happen when an attribute of the landscape is scored ‘positively’ in one criterion, but then ‘negatively’ for another criterion. For example:

An area where ‘wildness’ is a key characteristic might score highly sensitive to a new development in landscape character terms. In visual terms though, the same qualities which make the same area where ‘wildness’ is a key characteristic might score relatively ‘wild’ – for example having a low number of receptors – can result in a low sensitivity score in a visibility analysis.

It can be fine to have apparently contradictory assessments in this way, as long as the method is transparent, and the final assessment demonstrates how the overall sensitivity assessment has been determined.

What is double counting?

Double counting can happen when the same characteristic of a landscape is (often inadvertently) assessed under two different criteria. For example:

‘Wildness’ can be identified as a characteristic of the landscape which limits development. It can then also be assessed as an independent evaluation, under one criterion, and perhaps a more independent ‘Search Areas for Wild Landscapes’ study, under another criterion. If the wildness is contributing to different aspects of the landscape, the same wildness could be assessed as having a constraint on development, and then the same wildness could be assessed as a characteristic of the landscape value.

It can be fine to double count in this way if the process is clear, and everyone understands that wildness is contributing to different aspects of the landscape.

To ensure that everyone understands that wildness is contributing to different aspects of the landscape, the assessment could be structured in such a way that wildness is contributing to different aspects of the landscape value. For example, wildness could be assessed as an independent search area study, and also as an attribute which is assessed separately as a landscape characteristic. All can then also be assessed under two different criteria. For example, a landscape is scored positively in landscape character terms. In visual terms though, the same qualities which make the area where ‘wildness’ is a key characteristic might score relatively ‘wild’ – for example having a low number of receptors. It can then also be assessed as an independent evaluation, under one criterion, and perhaps a more independent ‘Search Areas for Wild Landscapes’ study, under another criterion. If the wildness is contributing to different aspects of the landscape, the same wildness could be assessed as having a constraint on development.
This briefing paper explains how landscape/coastal sensitivity assessments for aquaculture studies are usually commissioned to inform a coastal zone management plan or some type, as well as to inform spatial planning policy and guidance for development managers. The selection and presentation of the criteria will vary according to the objectives of the landscape study, such as scenic routes, and the quality of the setting of coastal features. This may include:

- an analysis of visual sensitivity; this may identify how visible aquaculture might be from recognised viewpoints,
- An assessment of the sensitivity of the coastal character and experience of the sea and the coastal environment, including the influence of the sea and the coastal environment on the use of sites for aquaculture development.

Landscape/coastal sensitivity assessments to accommodate aquaculture development generally

Choosing criteria for the landscape sensitivity assessment

The sensitivity of the coastal character, as well as the adjacent landscape, and the relevant ecological and cultural assets, will be considered by the consultant. The selection and presentation of the criteria will vary according to the objectives of the landscape study, identity landscape/coastal areas which are likely to both readily accommodate, or conversely, be compromised by aquaculture development.

Defining landscape areas for the sensitivity assessment

In addition to the study, based on a combination of criteria which take the existing character of the coastal zone and the marine environment into account, the study will also consider the extent of the area which is likely to be affected by aquaculture development, and the nature of the impact. The studies will usually assess the potential for the expansion of existing structures, and the likely effects on the coastal landscape and the marine environment. The studies will also include mussel lines, and some include other types of shell farming. The studies are likely to focus on fish farm cages and associated shore bases, although most studies are usually commissioned to inform a coastal zone management plan or some type, as well as to inform spatial planning policy and guidance for development managers.

Purpose of paper

Landscape/coastal sensitivity assessments for aquaculture studies
Examples

These examples show different approaches to identifying and analysing criteria:

Aquaculture example 1 explores perceptual and place based criteria alongside physical characteristics and visual amenity.

Aquaculture example 2 illustrates a landscape/seascape sensitivity assessment which includes criteria based on landscape character, experience, and visual sensitivities, and is based on an analysis of opportunities and constraints.

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<th>Tasks</th>
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<td>Agree study objectives</td>
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<td>Desk review and initial inception meeting + include time to make information available from the council</td>
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**Establishing a timescale**
Glossary

This definition of terms draws heavily from the current Landscape Character Assessment Guidance for England and Scotland and associated Topic Papers.

Landscape

‘An area as perceived by people, whose character is the result of the action and interaction or natural and/or human factors.’  

Landscape capacity

Landscape capacity refers to the degree to which a particular landscape character type or area is able to accommodate change without significant effects on its character, or overall change of landscape character type. Capacity is likely to vary according to the type and nature of change being proposed. 

Landscape sensitivity

In the context of this report, landscape sensitivity relates to change brought about by a specified development. Landscape sensitivity is a professional assessment of the relative effects of changes to landscape character likely to be brought about by introducing a specified new development into the landscape.

Visual sensitivity

In the context of this report, visual sensitivity relates to change brought about by a specified development. Visual sensitivity is a professional assessment of the relative effects of changes to visual amenity or visibility likely to be brought about by introducing a specified new development into the landscape.

Visual amenity

Characteristics or qualities of the landscape which contribute to visual appreciation of the landscape. Examples will be specific to the specified development, but may include prominent skylines, landmark features, or the settings of settlements.

Visibility assessment

An assessment of the potential visibility of a development or area of land from an identified viewpoint or viewpoints. It is often accompanied by an analysis of the number of people of different types who are likely to see it and the scope to modify visual impacts of the specified development by appropriate mitigation measures.

Landscape character type

Areas of landscape which are relatively homogeneous in character. They are generic in nature, sharing broadly similar combinations of natural and cultural characteristics. A character type is usually named after the broad geographic features which are common to the landscape character type, such as ‘open moorland plateaux’.

Landscape character area

A single, unique and discrete geographical area of a particular landscape character type, identified as an area with its own individual identity. Landscape character areas are usually named according to place names, rather than names describing generic characteristics, to reflect their distinct identity.

1 As defined in the The European Landscape Convention – full text available from http://conventions.coe.int/Treaty/Communa/QueVoulezVous.asp?NT=176&CM=8&DF=09/10/2009&CL=ENG