Natural England Joint Publication JP040

Small Sites Metric

Calculation Tool: User Guide

Beta Test

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Small Sites Metric Draft Guide

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Introduction

Biodiversity is the variety of all life on earth. It includes animals and plants and everything else that is alive on our planet. Habitats are the places in which species live. These species and their habitats provide substantial benefits to people and the economy. For example, woodlands can help prevent flooding whilst parks and greenspaces make our towns and cities healthier and more attractive places in which to live and work. However, biodiversity is under threat, globally and at home. Habitats are being damaged, and species are declining. This is not just bad news for nature but also for our own health and well-being and that of future generations. Simply put, biodiversity is vital for a well-functioning planet.

Biodiversity net gain is an approach to development that aims to leave the natural environment in a measurably better state than before. This means delivering gains for area habitats, such as grasslands, and also for linear habitats such as hedgerows/lines of trees and water courses.

In this user guide we introduce and explain how and when to use the Small Sites Biodiversity Metric (SSM). This metric provides a way to measure biodiversity and the impact that small development projects may have upon it in a consistent way. Whereas larger developments or conservation projects will use the main Biodiversity Metric 3.1, SSM can help those delivering smaller developments or projects to take biodiversity into account.

It is important to note that existing levels of protection afforded to trees, protected species and protected habitats are not changed by use of this or any other metric. Statutory obligations and other policy protections will still need to be satisfied in addition to the calculated biodiversity impacts using the SSM.

When can I use the Small Site Biodiversity Metric?

The SSM can only be used when both of these criteria are met:

1. The development is either;
    a. A residential development: where the number of dwellings to be provided is between one and nine inclusive on a site having an area of less than one hectare
    b. Where the number of dwellings to be provided is not known, there is a site area of less than 0.5 hectares
    c. For all other development types where the site area is less than 0.5 hectares or 5000 square metres.
2. There is no priority habitat[1], within the development area. (excluding hedgerows and arable margins)

The SSM must not be used for **assessing** biodiversity outside the development area. Any habitat creation or enhancement outside the site area must be assessed using Biodiversity Metric 3.1[2].

If the above criteria are met the SSM can be used. If this is not the case (i.e. the site is above the size threshold, there is priority habitat present ,excluding hedgerows and arable margins, or the

[1] Also called Habitats of Principal Importance. A list and definition for these habitats can be found at UK BAP Priority Habitats | JNCC - Adviser to Government on Nature Conservation

[2] Biodiversity Metric 3.1 - Auditing and accounting for biodiversity

development includes the assessment of off-site habitat enhancement or creation) then the site should be scored using the Biodiversity Metric 3.1 and will require the services of a suitably qualified ecologist.

Who is this guidance for?

Anyone applying a biodiversity net gain assessment to a development meeting the criteria listed above.

Why use this metric?

The National Planning Policy Framework (2019) states that development should deliver measurable net gains in biodiversity. In addition, many local planning authorities have set requirements for biodiversity net gain within their local plans.

This metric and Biodiversity Metric 3.1 are the standard methods in England for measuring biodiversity change from development in order to demonstrate that this policy has been met. Furthermore, the metric is designed to quantify biodiversity to inform and improve planning, design and decision-making. It can support planning applications to calculate the losses and gains in biodiversity from development.

For development to meet the biodiversity requirements, it is important to check the policies within the relevant local plan which can be found on your local planning authority website. These plans may set the level of gain required, often as a percentage such as a 10% or 15% increase.

Introducing the Small Site Biodiversity Metric

The SSM measures “biodiversity units” before and then after a development. These “biodiversity units” are based on various aspects of habitats, including the type, size, condition and location. Because biodiversity units represent habitats, achieving requirements for biodiversity net gain is all about creating more habitats or making existing ones better.

The SSM is very similar to the main Biodiversity Metric 3.1 for larger development, but it simplifies the process and can be undertaken by a competent person for the habitats involved (which may be the project managers and architects on many sites).

Competent person

The SSM and the associated biodiversity assessment needs to be undertaken by a competent person.

A competent person is someone who has acquired through training, qualifications or experience, or a combination of these, the knowledge and skills enabling that person to perform a specified task, in this case complete the SSM.

The competent person is defined as someone who is confident in identifying habitats present on the site before the development **AND** identifying the management requirements for habitats which will be created or enhanced within the landscape design.

For example: If the site consists of a mixture of hard standing and low quality, poor condition grass (like a football field) before and after the development, identifying the habitats can be straight forward and a large range of people would qualify as the/a competent person.

An example of hard standing

An example of modified grassland

A competent person must carry out the habitat survey and assessment. A competent person should be able to confidently identify the habitats likely to occur in a given geographic location at the time of year the survey is undertaken. If you are not confident in this your ability to do so, you should find an alternative competent person to complete the SSM.

The Mitigation Hierarchy

Planning policy[3][4] supports the application of the mitigation hierarchy (see Figure 1). When using the SSM, applying this mitigation hierarchy in practice starts with retaining habitats in situ and avoiding habitat damage. Biodiversity gains are easier to achieve when habitat losses are avoided in the first place. It might not be possible to avoid all impacts, but because the SSM measures every loss in area/length, even the smallest habitat patch that is retained can make a difference.

[3] Planning policy explained: https://www.gov.uk/guidance/national-planning-policy-framework
[4] NPPF implementation explained https://www.gov.uk/guidance/natural-environment

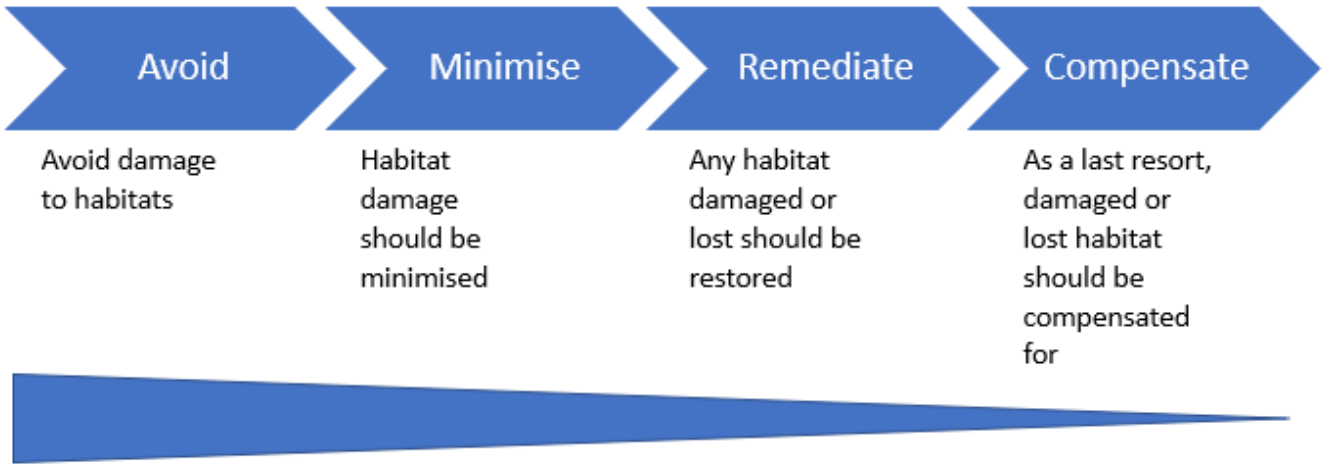


FIGURE 1: The Mitigation Hierarchy[5]

The information you need to run SSM

GENERAL:

The SSM has colour coded cells to help visually navigate the tool with ease. It is only the white cells which require data/text entry. Some white cells are limited to a dropdown list whilst other white cells are open for free text.

BASELINE: before the development

To complete the SSM for the baseline you will need to know the following information about all habitats present on site:

- The habitat type;
- The area or length of the habitat;
- The strategic significance of the habitats; and
- Whether any/all of the habitat is retained, enhanced, or lost due to the development.

A description of each of these elements and how they are used to calculate biodiversity units is set out in Appendix 3.

Habitat type

First identify the type of habitat(s) within the development boundary. You should do this by:

- Checking Defra's MAGIC website[6]; AND
- Requesting a habitat data search from the local record centre; AND
- Walking over the site to identify the habitat type.

The habitat types within SSM fall into the following broad categories:

[5] Source: adapted from DEFRA, 2018, Net Gain Consultation Proposals. Defra, December 2018. https://consult.defra.gov.uk/land-use/net-gain/supporting_documents/netgainconsultationdocument.pdf (Accessed 20-06-2019)

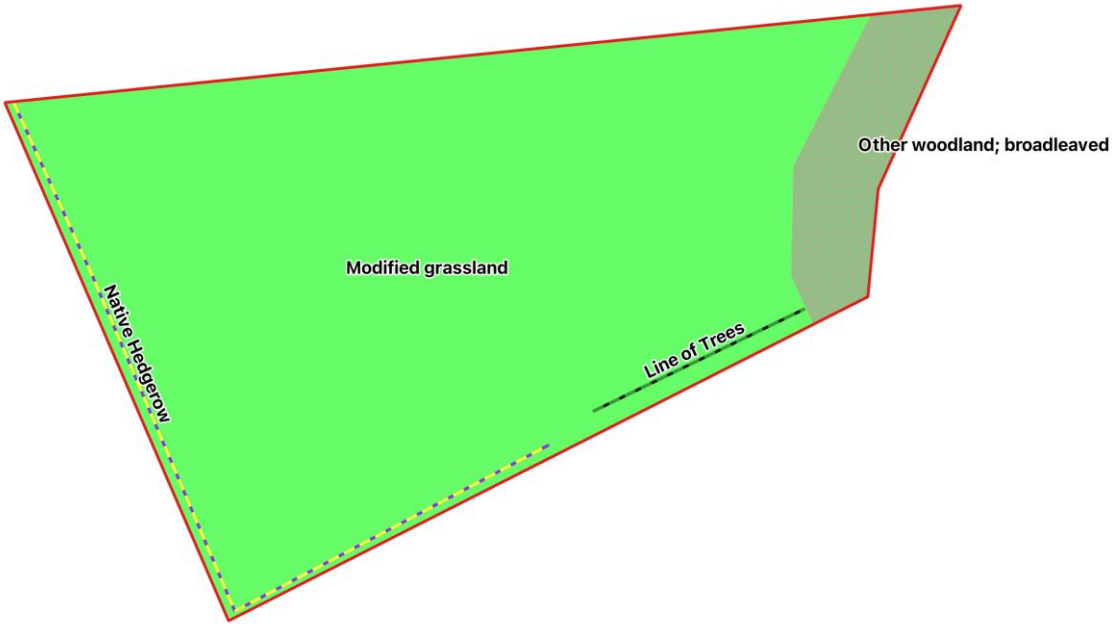
[6] The MAGIC website provides authoritative geographic information about the natural environment from across government. https://magic.defra.gov.uk/#:~:text=Natural%20England%20manages%20the%20service%20under%20the%20direction,Help%20section%20.%20MAGIC%20was%20launched%20in%202002

- Cropland
- Grassland
- Heathland and shrub
- Lakes
- Sparsely vegetated land
- Urban
- Woodland and forest
- Intertidal sediment
- Intertidal Hard Structures
- Coastal saltmarsh
- Hedgerow
- Line of trees
- Watercourses

You will need to identify and map each habitat parcel, so you can then measure the area or length.

A habitat parcel is a contiguous area or length of habitat which is the same type.

For example: This small site below consists of two area habitat parcels and two linear hedgerow and line of trees parcels.



Priority habitats are habitats with high biodiversity value. In many cases they can be identified using Defra's MAGIC website[7] or by contacting the Local Environmental Record Centre[8]. **If a priority habitat is identified on the development site (excluding hedgerows and arable margins), the main**

[7] MAGIC (defra.gov.uk)

[8] The Association for Local Environmental Record Centres provides links to many of the Local Environmental Record Centres Home (alerc.org.uk)

Biodiversity Metric 3.1 should be used and the services of a suitably qualified ecologist will be required.

For all off-site work the Biodiversity Metric 3.1 should be completed by a suitably qualified ecologist. Off-site Biodiversity Units can be purchased by a development using the SSM however the off-site units should not be calculated by the SSM.

The size or length of each habitat parcel

For each parcel of habitat:

- Measure hedges and lines of trees in metres (to the nearest metre).
- Measure rivers and water courses in metres (to the nearest metre).
- Measure all other habitats, such as areas of arable land, grassland or woodland, in metres square (to the nearest metre square).

The measurement of the length or area of each habitat parcel can be done on site or using Geographic Information System (GIS) or online mapping tools. The method for measuring the length or area should be recorded.

A tool for measuring the area of street trees has been included in the metric. All that is needed is the number of trees and whether they are classed (or will be classed for the design of the site) as small, medium or large trees, with the size classification based on the diameter of the tree at breast height. The tool then provides you with an area which should be associated with these trees and they then need to be given a woodland habitat classification.

Strategic significance

Strategic significance is whether the location of each habitat parcel is identified in a local plan or other strategic document as an important area for biodiversity. Strategic documents for biodiversity often include planning documents such as supplementary planning documents, green infrastructure plans, nature recovery strategies, biodiversity opportunity areas, biodiversity action plans and local wildlife sites. If these have been produced locally, they should be available from the relevant local authority website.

Often a local plan will identify that an area is strategically significant generally as an ecological corridor for species to commute and move through the urban and rural landscape. If the location of a habitat parcel is identified within these plans as being important for biodiversity generally (such as an ecological corridor), score the parcel as being 'Within area formally identified in local strategy'. If no plan has been published score the parcel as 'Area not in local strategy'.

Sometimes an area will be identified as strategically significant for a specific habitat such as arable margins for turtle doves. In this example, arable margins would be identified as strategically significant but a green wall would not.

If you are not sure what Strategic Significance category to apply, select 'Within area formally identified in local strategy' for all habitats.

Condition

Habitat condition is a measure of quality[9]. Habitat condition assessments are not required if you are using the SSM as the SSM automatically scores the condition of each habitat parcel to simplify the

[9] Detailed information on how condition is assigned to each habitat is provided within the Biodiversity Metric 3.1 technical supplement

process. Some habitats have a fixed condition in Metric 3.1 and they remain fixed in the SSM in the pre and post development. Habitats which have a range of condition options between Poor and Good within Metric 3.1 are assumed to be in moderate condition at the baseline for the purposes of the SSM, with the option to enhance/create in good condition.

HABITAT DESIGN: after the development

The Habitat Design refers to the planned landscaping of the site when the development is complete. The design for the habitats could be held in a landscape management plan or long-term management plan. This plan sets out the management required for the habitats in order to deliver what is proposed in the habitat design (and completed metric). The habitat design is assessed based on the proposed habitats.

In the course of development, habitats can either be kept (retained) or removed (lost). Those habitats which are retained can also be improved for biodiversity (enhanced). The habitat design can also include areas of new habitat creation.

The SSM needs information on what will happen to each habitat parcel and what they will become (once lost, retained, enhanced or created) in order to calculate the change in biodiversity units arising from the development.

To complete the SSM for the habitat design, you will need to know the following information about all habitats to be retained, enhanced or created on site:

- The habitat type proposed within a landscape plan or long-term management plan;
- The habitats within this plan that are
    - retained (kept unchanged from before the development);
    - enhanced (retained and made better for biodiversity);
    - created (newly added to the site);
- The area or length of the habitats;
- The strategic significance of the habitats;
- The condition that is planned for the habitats that are enhanced or created.

Creating habitats

Habitat creation consists of seeding or planting a new habitat from a starting point of bare ground. Within the SSM, only certain habitats can be created. These are listed in Appendix 1.

Enhancing habitats

Within the SSM, only certain habitats can be enhanced. These habitats can be enhanced in two ways:

1. Enhancing distinctiveness – when enhancements improve the type of the habitat itself, for example a mown amenity grassland is enhanced to become rough grassland by changing its management and mowing regime.
2. Enhancing habitat condition – when enhancements increase the quality of the habitat but do not change the habitat type.

Appendix 1 sets out habitats which can be enhanced, and the habitats they can be enhanced to within the SSM.

The SSM does not include the potential to create or enhance to a priority habitat (excluding hedgerows and arable margins). If this is part of the habitat design for the site Biodiversity Metric 3.1 should be used.

Habitat Management

The landscape management plan for the habitats will set out the management required to retain, enhance or create the habitats identified in the design. The management tasks or prescriptions set out must be suitable for ensuring the habitat reaches its design target type and condition.

For example: The management required to create and maintain an area of modified grassland (like a football field) would consist of seeding with suitable grass species and a regular mowing regime.

A species rich grassland would require seeding with different species and a different mowing or grazing regime to allow the plants to flower and set seed.

Applying the Small Sites Biodiversity Metric

The key steps you need to follow to make practical use of the metric before and up to the point of submitting the planning application are outlined in Figure 2.

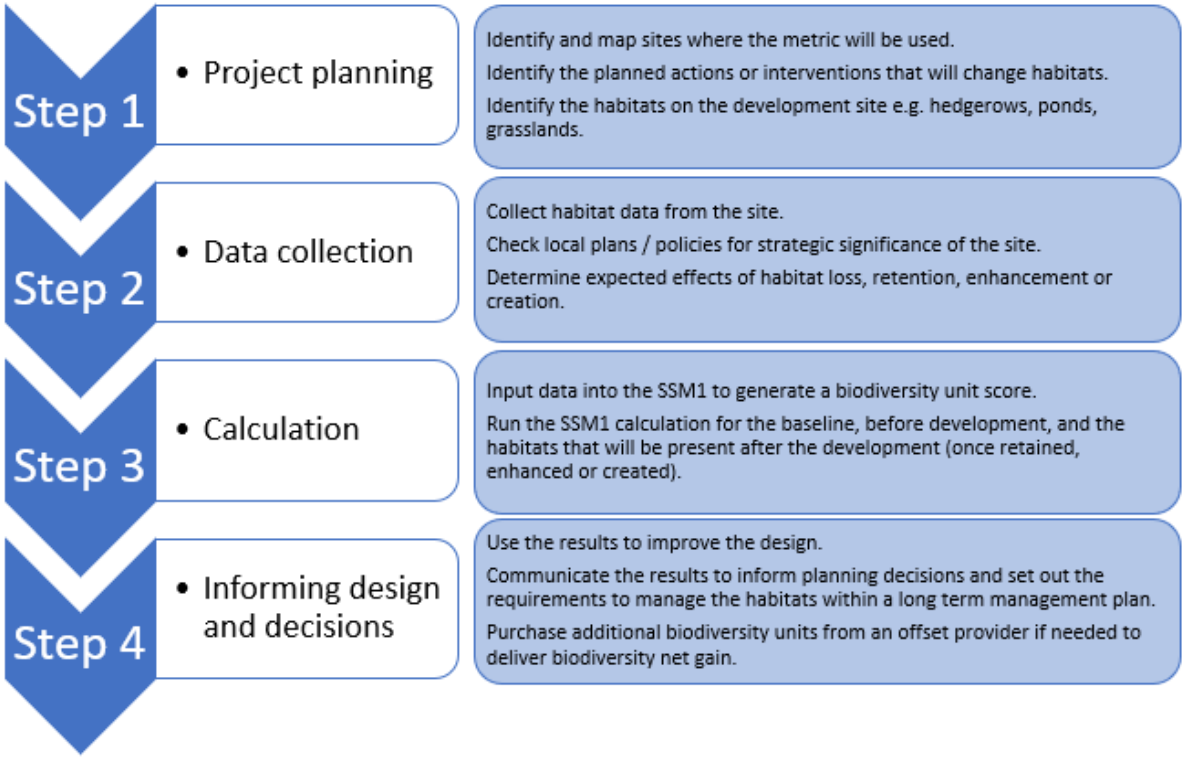


FIGURE 2: Key steps to delivering biodiversity net gain prior to submitting a planning application

Principles and rules for using the metric

Users wanting to apply the metric properly should conduct their assessments with regard to a set of key principles and rules for its use. These are set out below:

Principle 1: Application of the metric does not change the protection afforded to biodiversity. Existing levels of protection afforded to protected species and to habitats are not changed by use of this or any other metric. Statutory obligations will still need to be satisfied.

Principle 2: Biodiversity metric calculations can inform decision-making and help demonstrate where application of the mitigation hierarchy and good practice principles[10] conclude that compensation for habitat losses is justified.

Principle 3: The metric's biodiversity units are only a proxy for biodiversity. While it is underpinned by ecological evidence the metric is only a proxy for biodiversity and it has been deliberately kept simple to be of practical use. The numerical values generated by the metric represent relative, not absolute, values.

Principle 4: The metric focuses on widespread species and typical habitats. Area based habitats are considered a suitable proxy for widespread species found in typical examples of different habitat types. Please note that:

- Protected and locally important species needs are not considered through the metric; and
- Impacts on protected (e.g. SSSIs) and irreplaceable habitats are not measured by this metric, and will likely require separate consideration.

Principle 5: The metric design aims to encourage enhancement, not transformation, of the natural environment. Where possible, habitat created to compensate for loss of a natural or semi-natural habitat should be of the same broad type (e.g. new woodland to replace lost woodland) unless there is a good ecological reason to do otherwise (e.g. to restore a heathland habitat that was converted to woodland for timber in the past).

Principle 6: The metric is designed to inform decisions. Decisions and management interventions need to take account of expert advice from a competent person and not just the biodiversity unit outputs of the metric.

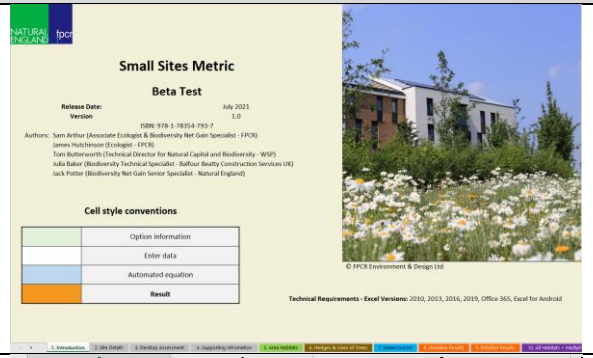
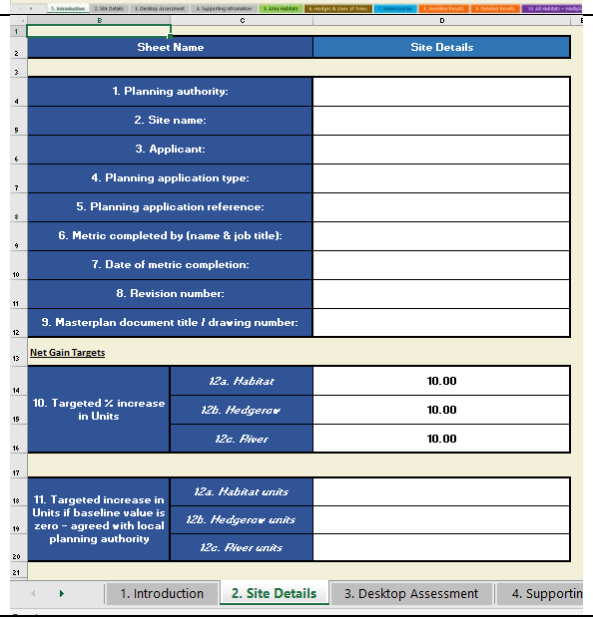
Principle 7: Compensation habitats should aim to replicate the characteristics of the habitats that have been lost. Where possible compensation habitats should contribute to England's ecological network by creating more, bigger, better and joined areas for biodiversity.

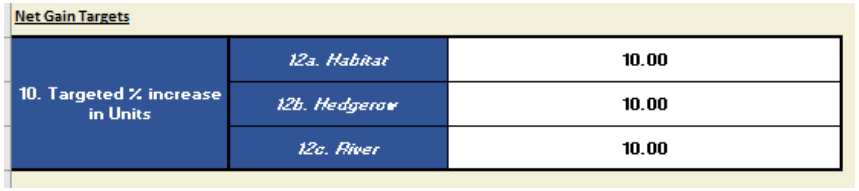
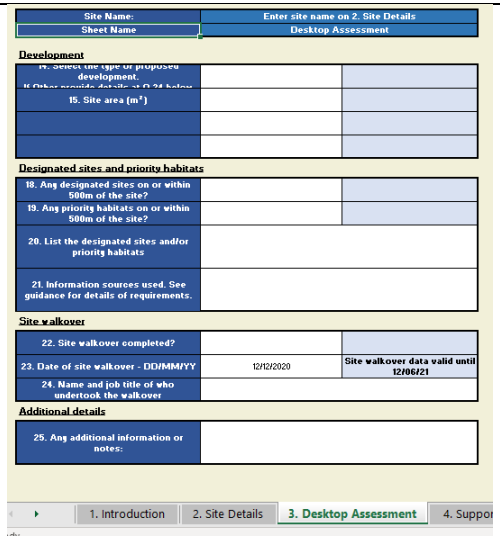
Principle 8: The metric does not enforce a mandatory minimum 1:1 habitat size ratio for losses and compensation. A difference can occur because of a difference in quality between the site impacted and the compensation provided. For example, if a habitat of low distinctiveness is impacted and is compensated for by the creation of habitat of high distinctiveness, the area needed to compensate for losses can potentially be smaller than the area impacted. Consideration should be given to whether reducing the size of compensation is an appropriate outcome.

[10] CIEEM, CIRIA, IEMA. 2016 Biodiversity Net Gain – Good Practice Principles for Development. https://www.cieem.net/data/files/Publications/Biodiversity_Net_Gain_Principles.pdf

Rule 1	Where the metric is used to measure change, biodiversity unit values need to be calculated before the development and after the development for all parcels of land and linear features.
Rule 2	Compensation for habitat loss can be provided by creating new habitat or enhancing existing habitats.
Rule 3	Replacing a habitat with medium distinctiveness with one of low distinctiveness (or 'trading down') must be avoided. Habitats that are lost must be replaced by habitats within the same broad habitat type or by something of a higher distinctiveness.
Rule 4	Biodiversity unit values produced by SSM1 can be compared with units produced by the Biodiversity Metric 2.0. Biodiversity units produced for hedgerows and lines of trees, area based habitats and river habitats cannot be traded with one another. For example, biodiversity units from a hedgerow cannot be traded with units from an area habitat like a grassland.
Rule 5	It is not the area of the habitat created or enhanced that determines whether delivery of biodiversity net gain has been achieved but the change in biodiversity units. Risks (embedded within SSM1) associated with creating or enhancing habitats may mean that it is necessary to create or enhance a larger area of habitat than is lost in order to deliver biodiversity net gain.
Rule 6	Deviations from the published method of SSM1 need to be ecologically justified. Any local or project-specific adaptations of the metric must be transparent and fully justified.

How to use the small site biodiversity metric

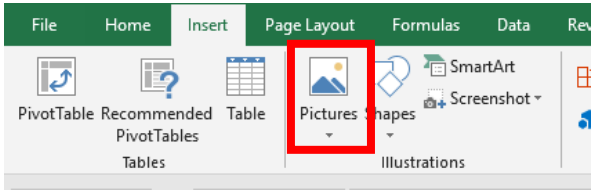
<table>
<tr><th colspan="2">START</th></tr>
<tr><td>Open SSM on any device with spreadsheet software installed.</td><td> 
</td></tr>
<tr><td>2.SITE DETAILS TAB: This is the Site Details tab. Input details of your project into the corresponding white cells (Cells 1-9).</td><td> 
</td></tr>
</table>

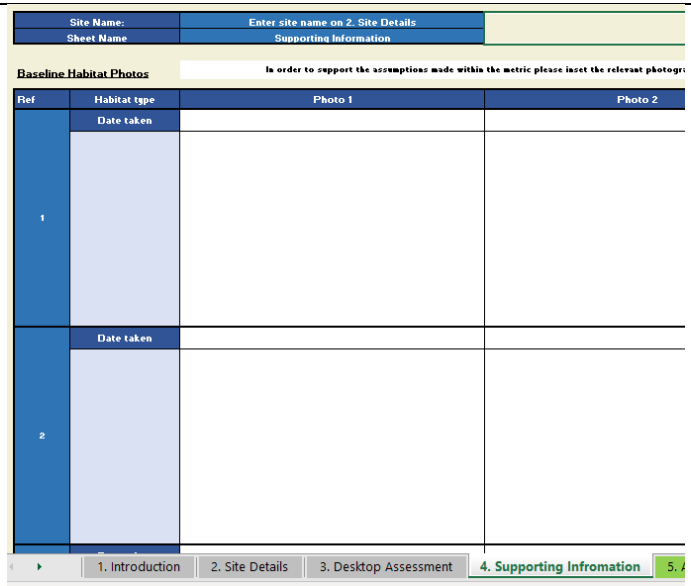
2.SITE DETAILS TAB: On the same tab there is a box for the development's net gain targets (cells 10 and 11). These will be determined by the higher of the national requirement, your planning authority's requirement, or voluntary targets for the development. If you change these targets from 10%, for example to match targets set by the local planning authority or the organisation you are running the assessment for, a note pops up highlighting that this change has been made.	
2.SITE DETAILS TAB: If the site has no habitat present at the start of the development (for example, if the site is entirely hard standing, giving a zero unit score) it will not be possible to get a percentage gain in units. In this situation a unit increase target should be set. This could be set by or agreed with the local planning authority and should be added into box 11.	
3.DESKTOP ASSESSMENT TAB: The desktop assessment includes the high level detail of the site and the relevant surrounding area. The data to populate this tab should be sourced by the user of the SSM by; understanding the type of development in planning terms, carrying out a data search of the site and immediate area for valuable ecological habitats and confirming the details through a site walkover. Enter data into the Desktop Assessment tab. This clarifies whether the SSM can be used. If SSM is not appropriate for your site, a message will come up, directing you to use the Biodiversity Metric 3.1 and to seek advice from a suitably qualified ecologist.	

4.SUPPORTING INFORMATION TAB: This tab should be used to provide information to support your assessment. This should include a short description / names of the habitats present in the baseline and dated photos identifying the habitats.

Images can be added by using the Pictures button located within the Insert section of the tool ribbon at the top of Excel.

If the file size becomes unmanageable once you have completed the SSM, you may wish to reduce the resolution of these evidence pictures.





DATA ENTRY FOR THE SITE FOR BASELINE AREA BASED HABITATS (grassland, woodland etc)

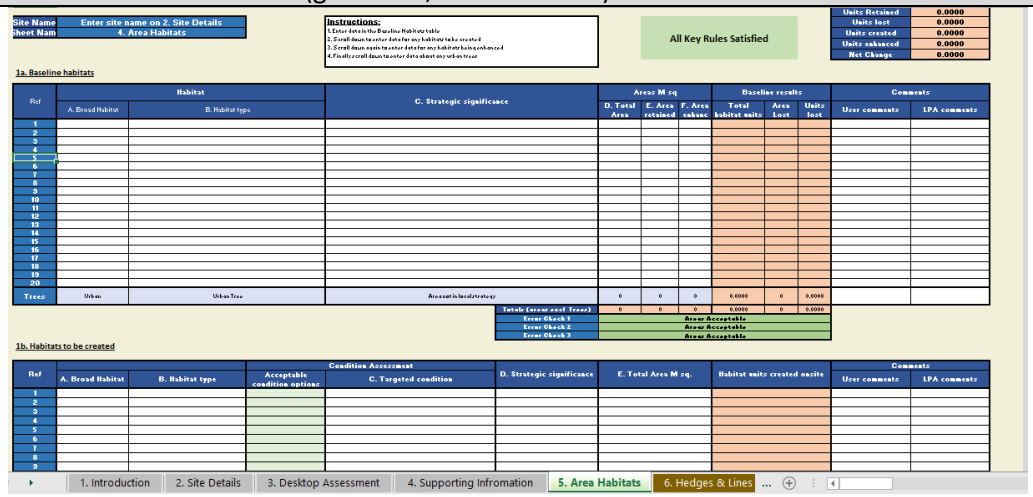
5.AREA HABITATS TAB: Select the tab called 5. Area Habitats.

Overview of this tab

In this tab you first add information on habitats before the development (the baseline). These are habitats such as grassland, woodlands and ponds where area is measured in square metres.

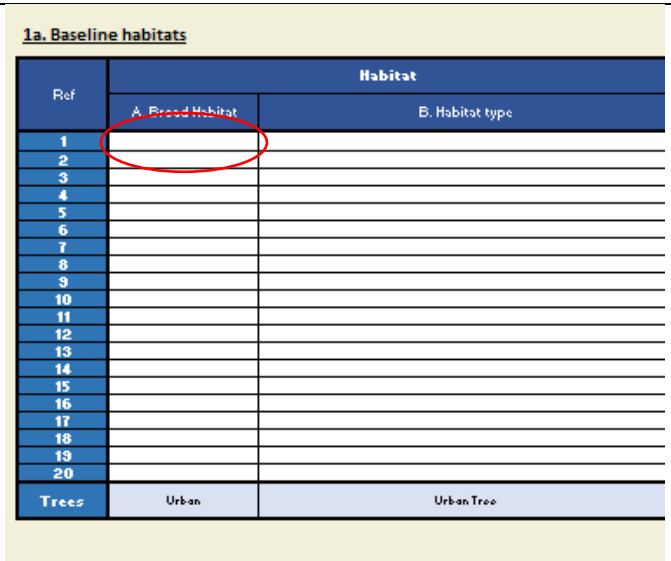
Then, for each habitat parcel, enter the area retained or enhanced. Scroll down to enter data on habitats created and habitats enhanced. At the end is a table to measure the area of any street trees on your development site.

The tab also provides results (whether you have met rules for replacing one habitat with another) for the area based habitats, allowing you to check the results as you enter data.



The white fields are where you can enter information. Use the drop down menus wherever available.

5.AREA HABITATS TAB:
Step by step guide 1
BASELINE DATA: Fill in the broad habitat type from the drop-down menu. Each habitat parcel should be added as a separate row.


1a. Baseline habitats

Ref	Habitat	
	A. Broad Habitat	B. Habitat type
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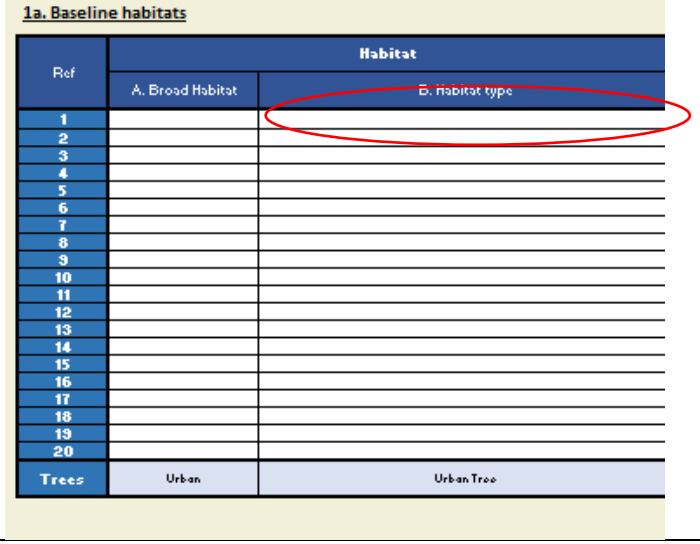
19		
20		
Trees	Urban	Urban Tree

5.AREA HABITATS TAB:
Step by step guide 2
BASELINE DATA: Fill in the habitat type from the drop down. Each habitat parcel should be added as a separate row.

If the habitats present on site do not match those within the SSM metric you will need to use the Biodiversity Metric 3.1 instead.


1a. Baseline habitats

Ref	Habitat	
	A. Broad Habitat	B. Habitat type
1		
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9		
10		
11		
12		
13		
14		
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16		
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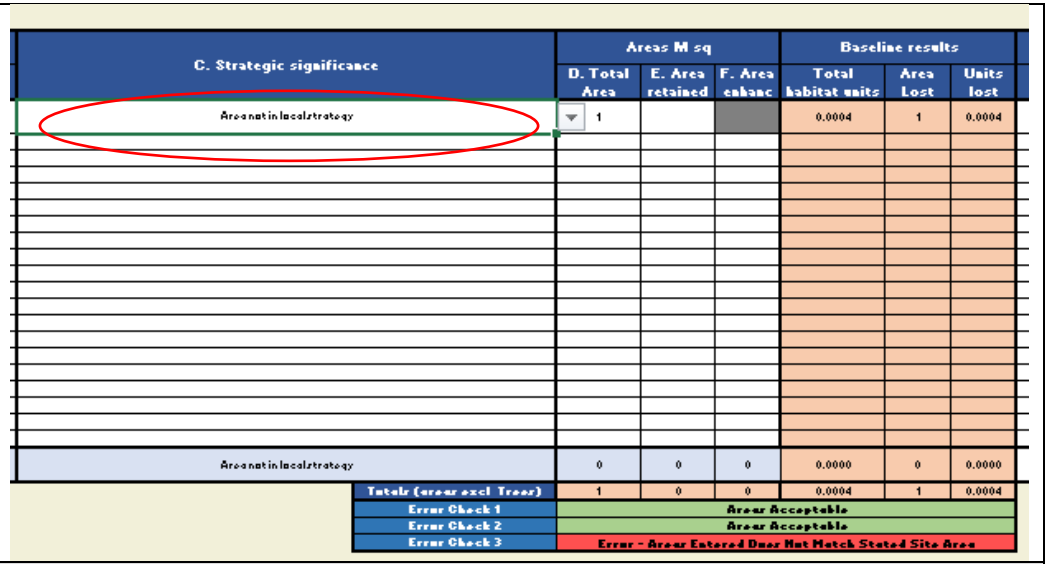
18		
19		
20		
Trees	Urban	Urban Tree

5.AREA HABITATS TAB:

Step by step guide 3

BASELINE DATA: Fill in the strategic significance of the habitat from the drop-down for each habitat parcel.



IDENTIFYING WHAT HAPPENS TO EACH HABITAT PARCEL (It can be destroyed, retained or enhanced)

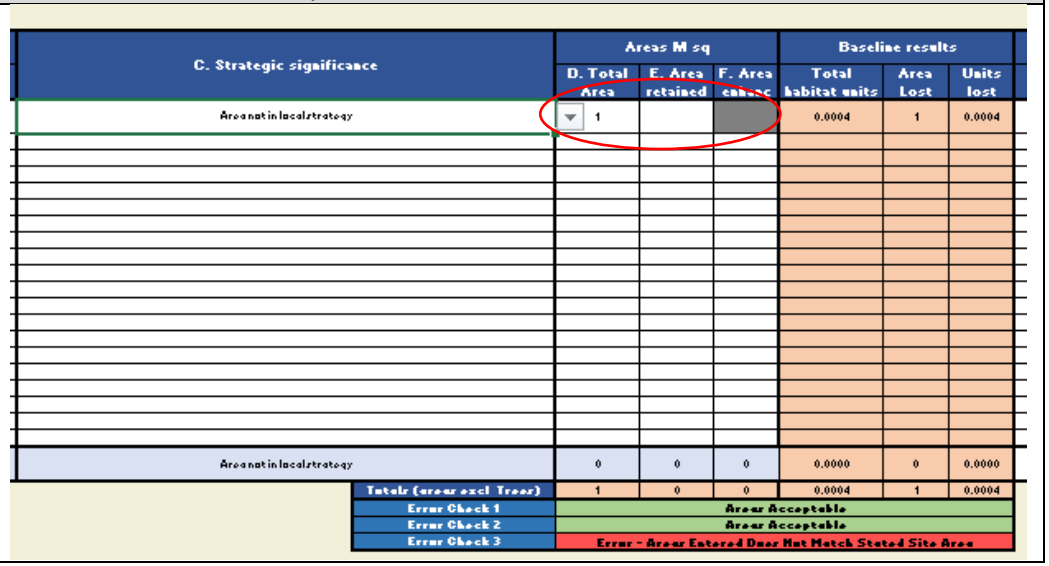
5.AREA HABITATS TAB:

Step by step guide 4

DEVELOPMENT IMPACT: For each habitat parcel fill in the total area in square metres. If part or all of the habitat parcel is retained and/or enhanced fill in the relevant column with the area that is retained or enhanced.

Please note that if the habitat is enhanced you do not need to also include the area in the retained column, it is assumed that it is retained and then enhanced.

If the corresponding cell for the area enhanced is coloured grey it is not possible to enhance the selected habitat type, and no area should be entered in the grey cell.



DATA ENTRY FOR THE AREA BASED HABITATS IDENTIFIED IN THE LANDSCAPE PLAN THAT ARE BEING CREATED OR ENHANCED	
5.AREA HABITATS TAB: **Step by step guide 5** HABITAT CREATION: Below table 1a go to the table called 1b Habitats to be created. The white columns within this table should be completed in the same way as for table 1a with information on each habitat that will be created on the site as a result of the development.	1b. Habitats to be created Condition Assessment Ref | A. Broad Habitat | B. Habitat type | Acceptable condition options | C. Targeted condition | D. Strategic significance | E. Total Area M sq. | Habitat units created onsite 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 Trees | Urban | Urban Tree | Moderate | Moderate | Area not in local strategy | 0 | 0.0000 Totals (areas excl. Trees) | 0 | 0.0000 Error Check 4 | Error - Area of habitat creation must match area lost
5.AREA HABITATS TAB: **Step by step guide 5** HABITATS ENHANCED: Below table 1b go to the table called 1c Habitats to be enhanced. The first three columns will be automatically completed if you entered an area of habitat that will be enhanced in table 1a. You will need to complete the habitat type that the enhancement is resulting in and the strategic significance of the habitat parcel. The condition will be automatically completed. Note that if you are not enhancing any habitats then this table will be left blank.	1c. Habitats to be enhanced Baseline ref | Existing Habitat Type: Broad habitat type | Existing habitat type | Enhanced Habitat type: Enhancement Type | A. Enhanced habitat type | B. Strategic significance | Area Enhanced | Enhanced Condition | Total Value | Net Improvement 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 Trees | Urban | Urban tree | Condition | Urban Tree | Area not in local strategy | 0 | Good | 0.0000 | 0.0000 Totals (areas excl. Trees) | 0 | 0.0000 | 0.0000
5.AREA HABITATS TAB: 1d URBAN TREES: At the bottom of table 1a, 1b and 1c there is a row for urban trees. If you have urban trees on the development site they are treated as an area-based habitat.	1.d - Urban Tree Area Calculator Tree size (Diameter at breast height) | A. Total number of trees pre development | B. Number of trees lost to development | C. Number of trees retained & enhanced post development | D. Number of new trees planted post development | Areas: Area pre development | Area lost to development | Area Enhanced by development | Area of new trees planted post Small -DBH 10cm | Medium - DBH 30cm | Large DBH - 50cm | Total

To include the urban trees in the assessment, add the number of urban trees present before the development, the number being lost, the number being enhanced, and the number being planted into table 1d.

The trees should be split into the following categories: small (≤ 30cm diameter at breast height (DBH)), medium (> 30 to ≤ 90cm DBH) or large (> 90cm DBH).

Adding information into table 1d will automatically fill in the information into tables 1a, 1b and 1c.

5.AREA HABITATS TAB:

RESULTS: The results of the area-based habitat assessment are set out in tables 1e and 1f below table 1d.

1e. Trading Summary

Distinctiveness Band	Trading Rules Satisfied
Broad Habitat Type	Trading Rules Satisfied

1f. Habitat trading assessment

Broad habitat types	Distinctiveness band	Baseline units lost	Onsite provision	Net change	Trading satisfied
Cropland	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Grassland	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Heathland and shrub	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Intertidal	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Intertidal sediment	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Lakes	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Sparsely vegetated land	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Urban	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Woodland and forest	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Coastal Saltmarsh	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A

Distinctiveness band	Baseline units lost	Onsite provision	Net change	Trading satisfied
Medium distinctiveness	0.0000	0.000	0.0000	Yes
Low distinctiveness	0.0000	0.000	0.0000	Yes
Are there sufficient Medium distinctiveness units to cover low distinctiveness losses?		0.0000		Yes

COMPLETING THE ASSESSMENT FOR HEDGEROWS AND LINES OF TREES AND WATER COURSES
To add information on the hedgerows and lines of trees in the baseline or in the development plan open the tab called 6**. HEDGES & LINES OF TREES.** To add information on the watercourses in the baseline or in the development plan open the tab called 7**. WATERCOURSE.** For hedgerows and lines of trees and watercourses the information should be completed in the same way as for the area-based habitats, but instead of the area measurement a length measurement, in metres, should be used. For hedgerows, if there is a gap of three metres or more then the habitat should be mapped as two separate hedgerows. If the habitats present on site do not match those within the SSM metric you will need to use the Biodiversity Metric 3.1 instead.

VIEWING THE RESULTS

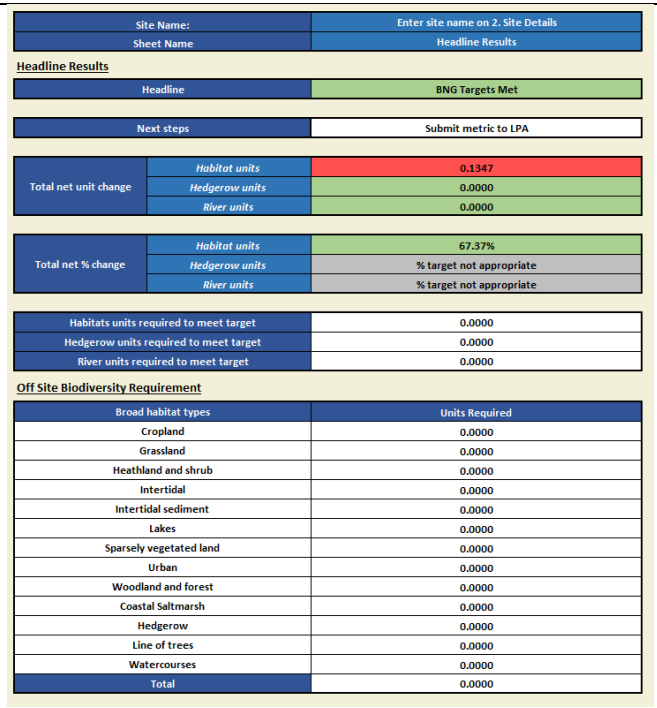
8.HEADLINE RESULTS TAB:

When you have finished entering all the site data click on tab 8. Headline Results to view the results. The headline results tab presents the results for the area habitats, the hedges & lines of trees and the watercourses. This tab also shows the final result (here flagged in red as the net gain target has not been met in this case).

Biodiversity net gain will only be achieved when the targets are met for each of the three habitat categories measured in the SSM: area-based habitats, the hedges and lines of trees and the watercourses.

If biodiversity net gain is not delivered onsite it can be delivered through habitat enhancement or creation off-site. The Off-site Biodiversity Requirement table sets out the units that will be needed for each broad habitat type in order to deliver biodiversity net gain off-site.

If further habitat avoidance, creation or enhancement is not possible on site and further biodiversity units are required to achieve BNG, contact the local planning authority to discuss the options for delivering these gains elsewhere, or offsetting.



Site Name:	Enter site name on 2. Site Details
Sheet Name	Headline Results

Headline Results

Headline	BNG Targets Met

Next steps	Submit metric to LPA

Total net unit change	*Habitat units*	0.1347
	Hedgerow units	0.0000
	River units	0.0000

Total net % change	*Habitat units*	67.37%
	Hedgerow units	% target not appropriate
	River units	% target not appropriate

Habitats units required to meet target	0.0000
Hedgerow units required to meet target	0.0000
River units required to meet target	0.0000

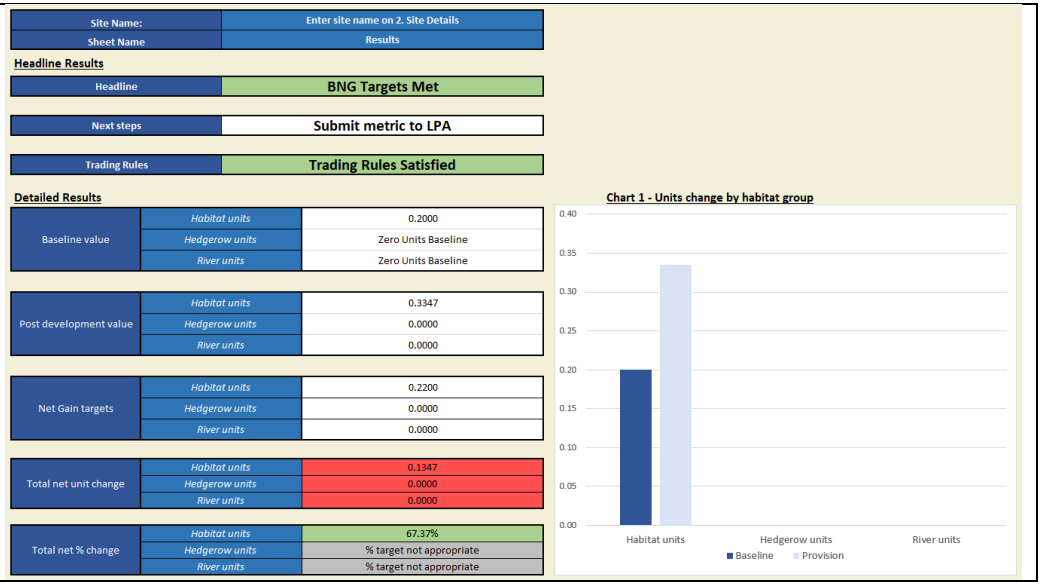
Off Site Biodiversity Requirement

Broad habitat types	Units Required
Cropland	0.0000
Grassland	0.0000
Heathland and shrub	0.0000
Intertidal	0.0000
Intertidal sediment	0.0000
Lakes	0.0000
Sparsely vegetated land	0.0000
Urban	0.0000
Woodland and forest	0.0000
Coastal Saltmarsh	0.0000
Hedgerow	0.0000
Line of trees	0.0000
Watercourses	0.0000
Total	0.0000

9.DETAILED RESULTS TAB:

The Detailed Results tab provides a more detailed breakdown of the results and any off-site requirements.

This tab splits the biodiversity results and any off-site requirements by distinctiveness as well as broad habitat.



Site Name:	Enter site name on 2. Site Details
Sheet Name	Results

Headline Results

Headline	BNG Targets Met
Next steps	Submit metric to LPA
Trading Rules	Trading Rules Satisfied

Detailed Results

Baseline value	*Habitat units*	0.2000
	Hedgerow units	Zero Units Baseline
	River units	Zero Units Baseline
Post development value	*Habitat units*	0.3347
	Hedgerow units	0.0000
	River units	0.0000
Net Gain targets	*Habitat units*	0.2200
	Hedgerow units	0.0000
	River units	0.0000
Total net unit change	*Habitat units*	0.1347
	Hedgerow units	0.0000
	River units	0.0000
Total net % change	*Habitat units*	67.37%
	Hedgerow units	% target not appropriate
	River units	% target not appropriate

Chart 1 - Units change by habitat group

Toolkit Errors

If there are gaps in the information you have added to the metric, or you have added the information incorrectly, error messages will be flagged within the toolkit and highlighted in a red box. There are a range of errors that can occur when filling in the SSM. These errors, what they relate to and how to address them is set out in Appendix 2.

It is important that all errors are addressed before the results are reviewed.

Understanding the results

The results are presented on tab '8. Headline Results'.

The results show the change in biodiversity value for linear hedge and tree habitats, rivers/watercourses and area habitats separately.

The results are set out to show the:

- Change in the area or length of the habitat
- Change in units for each habitat type
- Percentage change in units for each different habitat type

What to do if you do not have a percentage change reported in the results

This might be because there are no habitats on site before the development, and a percentage change cannot be calculated from zero.

In this situation you should contact the local planning authority to ask what the biodiversity net gain requirement will be. This could be a requirement for an increase in a number of biodiversity units, an area or length of habitat.

What to do if your results are not the required percentage gain

If your results do not show the net gain percentage required it will mean that further work to avoid impacts, enhance additional habitats or create new areas of habitat will be needed to deliver a net gain.

The additional actions required will need to be targeted to the habitats that do not show the required gain, for example, creating a greater length of hedgerow where the hedgerow percentage increase in units are not at the required level. This could be delivered on the development site or off-site.

The units required to deliver net gain will be identified within the Headline Results Tabs. You should also take note of the units required to achieve no net loss on the detailed results tab to inform the type of habitat and distinctiveness required to make up the shortfall in biodiversity units and satisfy the trading rules of the metric. If additional avoidance, creation or enhancement is required you should seek units or credits from off-site providers.

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CIEEM, CIRIA, IEMA. 2016. Biodiversity Net Gain – Good Practice Principles for Development. https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf

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Glossary

Area habitats	habitats that are given an area value in the SSM. This includes grasslands, woodlands, ponds, wetlands and heathlands.
Biodiversity	The variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.
Biodiversity net gain	A specific, measurable outcome of a development that deliver demonstrable and quantifiable benefits to biodiversity compared to the baseline situation.
Biodiversity unit	A proxy measure of the value of an area of biodiversity based on various aspects of habitats, including the type, size, condition and location.
Condition	A score based on the quality of the habitat. This is determined by condition criteria set out in the technical supplement for Biodiversity Metric 3.1. For the SSM the starting condition is set at medium or low (depending on the habitat). The condition score ranges from 1 to 3, with 1 denoting poor condition and 3 denoting good condition.
Creation	The act of planting and managing a habitat from on an area of land where there is no evidence of that habitat being present.
Distinctiveness	A score based on the type of habitat present. This ranges from 2 to 8 within the Biodiversity Metric 3.1 and 2 to 4 within the SSM. For example, modified /amenity grassland is given a score of 2.
Enhancement	The act of managing a habitat so that the existing habitat is made better for biodiversity.
Habitat	The place or type of site where an organism or population naturally occurs. Often used in the wider sense referring to major assemblages of plants and animals found together.
Hedgerow / line of trees or Linear habitats	habitats that are given a length value in the SSM. These include hedgerows and lines of trees.
Irreplaceable habitat	Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen.
Priority habitats and species	Species and Habitats of Principal Importance included in the England Biodiversity List published by the Secretary of State under section 41 of the Natural Environment and Rural Communities Act 2006.
River habitats	River or stream habitats that are given a length value in the SSM. These include any habitat with flowing water.
Site of Special Scientific Interest (SSSI)	Sites designated by Natural England under the Wildlife and Countryside Act 1981.
Strategic significance	A score based on whether the location of the development has been identified locally as significant for nature. This is given a score of 1 for sites that are not identified as significant and 1.15 for those that are.
Target condition	The condition of the habitat that will be delivered as a result of the post development habitat management.
Urban tree	A tree that is in an urban environment and not included within the description of the sounding habitat.

APPENDIX 1 - Habitat List within SSM, starting condition and enhancement options

Broad Habitat Group	Habitat Type	Distinctiveness Category	Trading Notes	Can the habitat be retained and then enhanced within the SSM
Cropland	Arable field margins cultivated annually	Medium	Same broad habitat or a higher distinctiveness habitat required	No
Cropland	Arable field margins game bird mix	Medium	Same broad habitat or a higher distinctiveness habitat required	No
Cropland	Arable field margins pollen & nectar	Medium	Same broad habitat or a higher distinctiveness habitat required	No
Cropland	Arable field margins tussocky	Medium	Same broad habitat or a higher distinctiveness habitat required	No
Cropland	Cereal crops	Low	Same distinctiveness or better habitat required	Yes - to any medium distinctiveness cropland habitat
Cropland	Cereal crops winter stubble	Medium	Same broad habitat or a higher distinctiveness habitat required	No
Cropland	Horticulture	Low	Same distinctiveness or better habitat required	Yes - to any medium distinctiveness cropland habitat
Cropland	Intensive orchards	Low	Same distinctiveness or better habitat required	Yes - to any medium distinctiveness cropland habitat
Cropland	Non-cereal crops	Low	Same distinctiveness or better habitat required	Yes - to any medium distinctiveness cropland habitat
Cropland	Temporary grass and clover leys	Low	Same distinctiveness or better habitat required	Yes - to any medium distinctiveness grassland habitat
Grassland	Bracken	Low	Same distinctiveness or better habitat required	Yes - to any medium distinctiveness cropland habitat
Grassland	Modified grassland	Low	Same distinctiveness or better habitat required	Yes - to any medium distinctiveness cropland habitat Or to a good condition grassland

Grassland	Other lowland acid grassland	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Grassland	Other neutral grassland	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Grassland	Upland acid grassland	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Heathland and shrub	Blackthorn scrub	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Heathland and shrub	Bramble scrub	Medium	Same broad habitat or a higher distinctiveness habitat required	No
Heathland and shrub	Gorse scrub	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Heathland and shrub	Hawthorn scrub	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Heathland and shrub	Hazel scrub	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Heathland and shrub	Mixed scrub	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Heathland and shrub	Rhododendron scrub	Low	Same distinctiveness or better habitat required	No
Heathland and shrub	Sea buckthorn scrub (other)	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Lakes	Ornamental lake or pond	Low	Same distinctiveness or better habitat required	Yes - to a non-priority habitat pond Or to a good condition pond
Lakes	Ponds (non-priority Habitat)	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition

Lakes	Reservoirs	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Sparsely vegetated land	Ruderal/Ephemeral	Low	Same distinctiveness or better habitat required	Yes – to urban -open mosaic habitat Or to good condition
Sparsely vegetated land	Other inland rock and scree	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Urban	Allotments	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Urban	Artificial unvegetated, unsealed surface	V.Low	Compensation Not Required	No
Urban	Bioswale	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Urban	Biodiverse green roof	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Urban	Built linear features	V.Low	Compensation Not Required	No
Urban	Cemeteries and churchyards	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Urban	Developed land; sealed surface	V.Low	Compensation Not Required	No
Urban	Other green roof	Low	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Urban	Façade-bound green wall	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Urban	Ground based green wall	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Urban	Ground level planters	Low	Same distinctiveness or better habitat required	No
Urban	Intensive green roof	Low	Same distinctiveness or better habitat required	Yes – to an extensive green roof or brown roof
Urban	Introduced shrub	Low	Same distinctiveness or better habitat required	No

Urban	Rain garden	Low	Same distinctiveness or better habitat required	No
Urban	Active sand pit quarry or open cast mine	Low	Same distinctiveness or better habitat required	Yes – to Sparsely vegetated land - Other inland rock and scree
Urban	Urban tree	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Urban	Sustainable urban drainage feature	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Urban	Un-vegetated garden	V.Low	Compensation Not Required	No
Urban	Vacant/derelict land/ bareground	Low	Same distinctiveness or better habitat required	No
Urban	Vegetated garden	Low	Same distinctiveness or better habitat required	No
Woodland and forest	Other coniferous woodland	Low	Same distinctiveness or better habitat required	Yes – to any medium distinctiveness woodland Or to a good condition woodland
Woodland and forest	Other Scot's pine woodland	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Woodland and forest	Other woodland; broadleaved	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Woodland and forest	Other woodland; mixed	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Intertidal sediment	Littoral coarse sediment	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Coastal Saltmarsh	Artificial saltmarshes and saline reedbeds	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Intertidal sediment	Artificial littoral coarse sediment	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Intertidal sediment	Artificial littoral mud	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition

Intertidal sediment	Artificial littoral sand	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Intertidal sediment	Artificial littoral muddy sand	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Intertidal sediment	Artificial littoral mixed sediments	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Intertidal sediment	Artificial littoral seagrass	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Intertidal sediment	Artificial littoral biogenic reefs	Low	Same distinctiveness or better habitat required	Yes – to the same habitat in good condition
Intertidal sediment	Littoral sand	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Intertidal sediment	Littoral muddy sand	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Intertidal	Artificial hard structures	Low	Same distinctiveness or better habitat required	Yes – to intertidal artificial hard structures with Integrated Greening of Grey Infrastructure (IGGI) of either medium or good condition
Intertidal	Artificial features of hard structures	Low	Same distinctiveness or better habitat required	Yes – to intertidal artificial hard structures with Integrated Greening of Grey Infrastructure (IGGI) of either medium or good condition
Intertidal	Artificial hard structures with Integrated Greening of Grey Infrastructure (IGGI)	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Hedgerow	Native species rich hedgerow	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Hedgerow	Native hedgerow - associated with bank or ditch	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition

Hedgerow	Native hedgerow with trees	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Hedgerow	Native hedgerow	Low	Same distinctiveness or better habitat required	Yes – to any medium distinctiveness hedge and/or to good condition
Hedgerow	Hedge ornamental non native	V.Low	Compensation Not Required	No
Line of trees	Line of trees	Low	Same distinctiveness or better habitat required	Yes – to any medium distinctiveness hedge with trees or line of trees and/or to good condition
Line of trees	Line of trees (ecologically valuable)	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Line of trees	Line of trees - associated with bank or ditch	Low	Same distinctiveness or better habitat required	Yes – to any medium distinctiveness hedge with trees or line of trees and/or to good condition
Line of trees	Line of trees (ecologically valuable) - with Bank or Ditch	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Rivers	Ditches	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Rivers	Canals	Medium	Same broad habitat or a higher distinctiveness habitat required	Yes – to the same habitat in good condition
Rivers	Culvert	Low	Same distinctiveness or better habitat required	Yes – to any medium distinctiveness river (canals or ditches)

APPENDIX 2– SSM Error list and comments

Error	Sheets	Comments
ERROR- Site too large for metric - USE MAIN METRIC	3. Desktop Assessment	If your site is above 5000m sq.. or is above 10,000m sq. and classed as "other" in Q14, the main 3.1 metric must be used
ERROR- Footprint too large for metric - USE MAIN METRIC	3. Desktop Assessment	The building footprint entered is too high. The main 3.1 metric must be used
ERROR - Footprint larger than development area	3. Desktop Assessment	The building footprint entered must be lower than the total site area in Q15
ERROR- Number of units too large for metric - USE MAIN METRIC	3. Desktop Assessment	If your development is 10 or more residential units, the main 3.1 metric must be used.
ERROR- Site too complex for metric - USE MAIN METRIC	3. Desktop Assessment	If a designated site is within your site boundary, the site must be assessed by an ecologist and the main 3.1 metric must be used
ERROR- Site walkover required	3. Desktop Assessment	A site walk over by an ecologist or competent person is a requirement of completing the SMM
ERROR - Site photographs required to support application	4. Supporting Information	Photos are required of each habitat type on site if the walkover is not completed by an ecologist or competent person
Rule Based Errors Present On Sheet - Red Cells Highlight Errors	5. Area Habitats 6. Hedges & Lines of Trees 7. Watercourses	One or more errors or important matters for consideration are present. Please read the content of all the red highlighted cells below and carry out the required actions
Technical Errors On Sheet	5. Area Habitats 6. Hedges & Lines of Trees 7. Watercourses	This error indicates that there is a drop-down option or an area that is incorrectly entered or is missing from a row on the sheet. Please check all cells requiring data entry
ERROR - Site exceeds areas appropriate for the small site metric	5. Area Habitats	The total area of habitats entered for the site baseline is greater than that which is acceptable within this metric, please use the main 3.1 metric
ERROR - Areas Retained and Enhanced Exceed Total Area	5. Area Habitats	The areas recorded as retained and/or enhanced exceeds the total area of that habitat type
ERROR - Areas Entered Does Not Match Stated Site Area	5. Area Habitats	The total area of baseline habitats entered does not match the site area stated on the site details sheet
ERROR - Area of habitat creation must match area lost	5. Area Habitats	The total area of habitats created must match the total area of habitats lost in order to balance the site

ERROR - Trading Rules Not Satisfied - Insufficient Medium Distinctiveness Units Created	5. Area Habitats 6. Hedges & Lines of Trees 7. Watercourses	Habitat types lost to development are of higher value than those created or enhanced to replace them. This may lead to higher costs to meet the compensation requirements. It is recommended you consider the habitats created or enhanced further to see if any improvement is feasible.
ERROR - Trading Rules Not Satisfied - Insufficient Units Created Within Habitat Groups	5. Area Habitats 6. Hedges & Lines of Trees 7. Watercourses	The amount of habitat units lost to development is higher than those created or enhanced to replace them. This may lead to higher costs to meet the compensation requirements. It is recommended you consider the habitats created or enhanced further to see if any improvement is feasible
ERROR - Lengths Retained and Enhanced Exceed Total Length	6. Hedges & Lines of Trees 7. Watercourses	The lengths recorded as retained and/or enhanced exceed the total length of that habitat type
Area error	5. Area Habitats	One of the area values required for the calculation has not been entered, been entered incorrectly or falls outside the metric parameters. Please check that all required fields have been completed and that no mistakes have been made
Value missing	5. Area Habitats	One of the area values required for the calculation has not been entered or has been entered incorrectly. Please check that all required fields have been completed and that no mistakes have been made
Length error	6. Hedges & Lines of Trees 7. Watercourses	One of the lengths required for the calculation has not been entered or has been entered incorrectly. Please check that all required fields have been completed and that no mistakes have been made

APPENDIX 3 – Detailed description of the Small Site Metric

What the metric measures

The Small Site Metric (SSM) and Biodiversity Metric 3.1 use habitat, the places in which species live, as a proxy to describe biodiversity. These habitats are converted into measurable 'biodiversity units'. These biodiversity units are the 'currency' of the metric.

Biodiversity units are calculated using the size of a parcel of habitat and its quality. The metric uses habitat area as its core measurement, except for linear habitats where habitat length is used. To assess the quality of a habitat the metric scores habitats of different types, such as woodland or grassland, according to their relative biodiversity value. Habitats that are scarce or declining typically score highly relative to habitats that are more common and widespread. The metric also takes account of the condition of a habitat.

Where new habitat is created, or existing habitat is enhanced, the difficulty and associated risks of doing so are taken into account by the metric.

How area habitat biodiversity units are calculated

To measure the biodiversity value of habitats it is first necessary to define the site boundaries and then divide it into appropriate parcels as needed. Parcels are simply distinct portions of each habitat type present. The habitat type and size of these parcels, and the condition of the habitat it contains, should then be recorded. The metric uses standard methodologies for categorising habitats so this can be done alongside routine ecological surveying. The biodiversity unit value of each habitat parcel is then calculated. To determine the unit value of a habitat parcel we assess its 'quality'. The assessment of quality comprises three components.

Distinctiveness	A score based on the type of habitat present. This ranges from 0 to 8 within the Biodiversity Metric 3.1 and 0 to 4 within the SSM. For example, modified/amenity grassland is given a score of 2.
Condition	A score based on the quality of the habitat. This is determined by condition criteria set out in the technical supplement for the Biodiversity Metric 3.1. For the SSM the starting condition is set at medium or low (depending on the habitat). The condition scores range from 1 for poor condition to 3 for good condition.
Strategic significance	A score based on whether the location of the development has been identified locally as significant for nature. This is given a score of 1 for sites which are not identified as significant and 1.15 for those which are.

Figure Appendix 3-1 Quality factors – distinctiveness, condition and strategic significance

The metric operates by applying a score to each of these elements. It then multiplies the size of each habitat parcel with each of these 'quality' scores to produce a number that represents the biodiversity unit value of each habitat. The initial calculation represents the 'baseline' or 'pre-intervention' value in biodiversity units.

The calculation is then repeated for the post-development scenario. This calculation should include any measures to retain existing habitats and create or enhance habitats to generate additional

biodiversity units. This gives the user a post-development biodiversity unit score. At this point, because the metric is measuring predicted changes rather than existing habitats, additional factors to account for the risk associated with creating, restoring or enhancing habitats are also considered. Figure Appendix 3-2 sets out the two risks incorporated into the SSM. As with the baseline, the area or length and 'quality scores' are multiplied together along with the associated risk factor values to get the post development biodiversity unit figure.

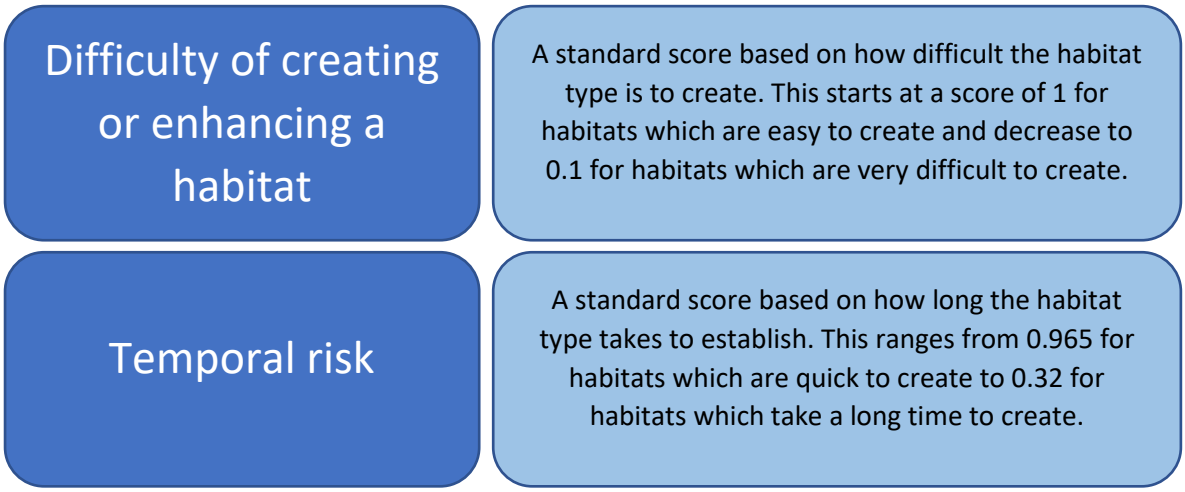

Figure Appendix 3-2 Risk factors – difficulty and temporal risk factors

The predicted value of the habitats in biodiversity units post-development is then deducted from the baseline pre-intervention unit score to give a net change unit value. If your project has explicit biodiversity unit requirements then the metric can be used to calculate the numbers of units your design is predicted to deliver. The design can be revised to improve the number of biodiversity units obtained.

APPENDIX 4 – Landscape UKHab translation table

The following translation table has been provided to assist landscape architects, architects, planning consultants and other professionals who may be more familiar with landscape terminologies to use the SSM.

Broad Habitat	Landscape Term	Unique Landscape Term (inc. code)	SSM Habitat	Distinctiveness
Coastal saltmarsh	Saltmarsh	Saltmarsh - A2.5	Saltmarshes and saline reedbeds	Medium
Cropland	Cropland	Arable - c1c	Cereal crops	Low
		Arable - c1c7	Cereal crops other	Low
		Arable - c1d	Non-cereal crops	Low
		Arable - c1b	Temporary grass and clover leys	Low
	Cropland margins	Arable - c1a7	Arable field margins cultivated annually	Medium
		Arable - c1a8	Arable field margins game bird mix	Medium
		Arable - c1a6	Arable field margins pollen & nectar	Medium
		Arable - c1a	Arable field margins tussocky	Medium
		Arable - c1c5	Cereal crops winter stubble	Medium
	Horticulture	Horticulture - c1f	Horticulture	Low
	Orchard	Orchard - c1e	Intensive orchards	Low
Grassland	Amenity Grassland or Grassland Seed Mix	Amenity Grassland - g4	Modified grassland	Low
		Amenity Grassland - g4	Other neutral grassland	Medium
	Bracken	Bracken - g1c	Bracken	Low
	Meadow Grassland or Wildflower Seeding	Meadow Grassland - g1d	Other lowland acid grassland	Medium
		Meadow Grassland - g3c	Other neutral grassland	Medium
		Meadow Grassland - g1b	Upland acid grassland	Medium

Heathland and shrub	Invasive Scrub	Invasive Scrub - h3g	Rhododendron scrub	Low
	Native Scrub	Native Scrub - h3a	Blackthorn scrub	Medium
		Native Scrub - h3d	Bramble scrub	Medium
		Native Scrub - h3e	Gorse scrub	Medium
		Native Scrub - h3f	Hawthorn scrub	Medium
		Native Scrub - h3b	Hazel scrub	Medium
		Native Scrub - h3h	Mixed scrub	Medium
		Native Scrub - h3cNE2	Sea buckthorn scrub (other)	Low
Hedgerow	Native Hedge	Native Hedge - h2NE5	Native hedgerow	Low
		Native Hedge - h2NE2	Native species rich hedgerow	Medium
		Native Hedge - h2NE9	Native hedgerow - associated with bank or ditch	Medium
	Native Hedge with Standard Trees	Native Hedge with Standard Trees - h2NE4	Native hedgerow with trees	Low
		Native Hedge with Standard Trees - h2NE1	Native species rich hedgerow with trees	Medium
		Native Hedge with Standard Trees - h2NE8	Native hedgerow with trees - associated with bank or ditch	Medium
	Ornamental Hedge	Ornamental Hedge - h2NE3	Hedge ornamental non-native	V.Low
	Standard Trees	Standard Trees - w1g6NE4	Line of trees - associated with bank or ditch	Low
		Standard Trees - w1g6NE2	Line of trees	Low
		Standard Trees - w1g6NE1	Line of trees (ecologically valuable) - associated with bank or ditch	Medium

		Standard Trees - w1g6NE3	Line of trees (ecologically valuable)	Medium
Intertidal	INTERTIDAL TBC	INTERTIDAL TBC - ART_A1.4	Artificial features of hard structures	Low
	INTERTIDAL TBC	INTERTIDAL TBC - ART_A1	Artificial hard structures	Low
	INTERTIDAL TBC	INTERTIDAL TBC - ART_A1_IGGI	Artificial hard structures with Integrated Greening of Grey Infrastructure (IGGI)	Medium
Intertidal sediment	INTERTIDAL TBC	INTERTIDAL TBC - ART_A2.7	Artificial littoral biogenic reefs	Low
	INTERTIDAL TBC	INTERTIDAL TBC - ART_A2.1	Artificial littoral coarse sediment	Low
	INTERTIDAL TBC	INTERTIDAL TBC - ART_A2.4	Artificial littoral mixed sediments	Low
	INTERTIDAL TBC	INTERTIDAL TBC - ART_A2.3	Artificial littoral mud	Low
	INTERTIDAL TBC	INTERTIDAL TBC - ART_A2.24	Artificial littoral muddy sand	Low
	INTERTIDAL TBC	INTERTIDAL TBC - ART_A2.21	Artificial littoral sand	Low
	INTERTIDAL TBC	INTERTIDAL TBC - ART_A2.6	Artificial littoral seagrass	Low
	INTERTIDAL TBC	INTERTIDAL TBC - A2.4	Littoral mixed sediments	Low
	INTERTIDAL TBC	INTERTIDAL TBC - A2.21	Littoral sand	Medium
Lakes	Reservoirs	Reservoirs - 108	Reservoirs	Medium
	Wildlfe Pond	Wildlfe Pond - r1b	Ponds (non-priority habitat)	Medium
Rivers & Streams	Canal	Canal - r1eNE1	Canals	Medium
	Culvert	Culvert - rNE1	Culvert	Low
	Ditch	Ditch - r1eNE2	Ditches	Medium
Sparsely vegetated land	Ruderals	Ruderals - 17	Ruderal/ephemeral	Low
	Scree	Scree - s1d	Other inland rock and scree	Medium
Urban	Allotments	Allotments - 910	Allotments	Low
	Bareground	Bareground - 350	Vacant/derelict land/ bareground	Low
	Biodiverse Roof	Biodiverse Roof - 1113	Brown roof	Medium
	Bioswale	Bioswale - 1191	Bioswale	Low
	Cemetery	Cemetery - 800	Cemeteries and churchyards	Medium
	Garden	Garden - 231	Vegetated garden	Low

		Garden - 232	Un-vegetated garden	V.Low
	Green Roof	Green Roof - 1111	Intensive green roof	Medium
	Green Roof - Sedum	Green Roof - Sedum - 1112	Extensive green roof	Low
	Green Wall	Green Wall - 1122	Facade-bound green wall	Low
		Green Wall - 1121	Ground based green wall	Low
	Impermeable Hardscape	Impermeable Hardscape - u1b	Developed land; sealed surface	V.Low
	Ornamental Pond	Ornamental Pond - 362	Ornamental lake or pond	Low
	Ornamental Shrub Planting	Ornamental Shrub Planting - 1160	Introduced shrub	Low
	Permeable Hardscape	Permeable Hardscape - u1c	Artificial unvegetated, unsealed surface	V.Low
	Planters	Planters - 1140	Ground level planters	Low
	Quarry	Quarry - 1030	Sand pit quarry or open cast mine	Low
	Standard Tree	Standard Tree - 1170	Urban tree	Low
	SUDS	SUDS - 1192	Rain garden	Low
		SUDS - 1119	Sustainable urban drainage feature	Low
	Wall	Wall - u1e	Built linear features	V.Low
Woodland and forest	Conifer Woodland	Conifer Woodland - w2c	Other coniferous woodland	Low
		Conifer Woodland - w2b	Other Scot's pine woodland	Medium
	Native Broadleaved Woodland	Native Broadleaved Woodland - w1g	Other woodland; broadleaved	Medium
	Native Mixed Woodland	Native Mixed Woodland - w1h	Other woodland; mixed	Medium