



SSE Biodiversity Toolkit

Document Classification | **Public**
User Guide Version 1.0



Contents

CONTENTS	43
1 THE BIODIVERSITY TOOLKITS	46
1.1 USE OF A BNG CALCULATION TO SUPPORT DECISION MAKING	46
1.2 OVERVIEW OF THE APPROACH	48
1.3 DEVELOPMENT OF THE SSE BIODIVERSITY TOOLKITS	48
1.4 REQUIREMENTS FOR A BNG ASSESSMENT	49
1.5 THE MITIGATION HIERARCHY	50
2 BIODIVERSITY ASSESSMENT OVERVIEW	51
2.1 BASELINE HABITATS AND ACTION	51
2.2 HABITAT REMOVAL, CREATION, ENHANCEMENT AND TRANSITION	53
2.3 CALCULATING HABITAT UNITS	57
2.4 AREAS INCLUDED WITHIN THE ASSESSMENT	59
2.5 DESIGNATED SITES	60
2.6 DISTINCTIVENESS	62
2.7 CONDITION	63
2.8 CONNECTIVITY	67
2.9 STRATEGIC SIGNIFICANCE	67
2.10 RISK MULTIPLIERS	69
2.11 POST-WORKS BIODIVERSITY	70
2.12 GREEN INFRASTRUCTURE FEATURES	71
2.13 ANCIENT WOODLAND	72
2.14 PEATLANDS	75
2.15 INDIVIDUAL TREES	76
2.16 ANCIENT AND VETERAN TREES	79
2.17 EXCEPTIONAL ECOLOGICAL CIRCUMSTANCES UPLIFT	80
3 OPTIONEERING BIODIVERSITY TOOLKIT	81
3.1 TOOLKIT OVERVIEW	81
3.2 PROJECT DETAILS TAB	81
3.3 BIODIVERSITY UNIT CALCULATION	83
3.4 THE SUMMARY DASHBOARD	84
3.5 HABITAT TYPES DASHBOARD	84
3.6 DELIVERABLES	85
3.7 OPTIONEERING BIODIVERSITY TOOLKIT FLOWCHART	86
4 PROJECT BIODIVERSITY TOOLKIT	87
4.1 PROJECT DETAILS TAB	87
4.2 THE UNIT CALCULATION TAB	89
4.3 BEFORE WORKS (BASELINE) CALCULATIONS	90
4.4 DEVELOPMENTS WITH NO IMPACT ON BIODIVERSITY	91
4.5 ACTION (DURING WORKS)	92

4.6	AFTER WORKS (FOLLOWING ACTIONS).....	93
4.7	SUMMARY TABLES	100
4.8	THE DASHBOARD	100
5	PRODUCTION OF THE FINAL REPORTS.....	102
5.1	QUALITY ASSURANCE.....	102
5.2	OPTIONEERING REPORT.....	102
5.3	PROJECT DESIGN REPORTING	102
5.4	PROJECT AS-BUILT REPORTING.....	102
5.5	PROJECT WIDE NO NET LOSS AND NET GAIN FOR BIODIVERSITY	103
6	BIODIVERSITY NET GAIN CONSIDERATIONS	104
6.1	BEFORE SURVEY.....	104
6.2	RECORDING HABITATS.....	104
6.3	MAINTAINING THE BIODIVERSITY VALUE OF RETAINED HABITATS	105
	APPENDIX A: GLOSSARY OF TERMS	106
	APPENDIX B: NEW HABITAT INCLUSIONS.....	109
	JUNIPER SCRUB.....	109
	ATLANTIC HAZEL.....	110
	LOWLAND BEECH AND YEW WOODLAND	111
	OTHER SCOT'S PINE WOODLAND	112
	ADDITIONAL WETLAND CATEGORIES FOR AQUATIC MARGINAL VEGETATION AND OTHER WETLANDS.....	114
	MACHAIR	114
	APPENDIX C: WATERCOURSES	116
	WATERCOURSE DEFINITIONS	116
	BESPOKE WATERCOURSE ARRANGEMENTS	117

FIGURES:

Figure 1: The SSE Biodiversity Toolkits	48
Figure 2: Baseline Calculation Formula and Worked Example	58
Figure 3: Condition assessment example of mandatory requirement to achieve a certain condition	65
Figure 4: Post-intervention Biodiversity Calculation (for Newly Created Habitat)	71
Figure 5 - Optioneering Biodiversity Toolkit Tabs	81
Figure 6 – Project Details Tab	82
Figure 7 – Optioneering Biodiversity Toolkit (Linear Units).....	84
Figure 8 – Optioneering Biodiversity Toolkit – Summary Dashboard	84
Figure 9 – Optioneering Biodiversity Toolkit – Habitat Type Dashboard	85
Figure 10 – The Optioneering Biodiversity Toolkit Flowchart.....	86
Figure 11 – Project Biodiversity Toolkit Tabs	87
Figure 12 – The Project Details Tabs	89

Figure 13 – Habitats with Different Condition, Distinctiveness Scores and Status as ‘AW/AVT’ should be detailed in Separate Rows.....	91
Figure 14 – Action (During Works)	92
Figure 15 – Before works (Baseline) and Action (During Works).....	93
Figure 16 – After works actions	94
Figure 17 – Post-works and Net Change segment of unit calculation tab	99
Figure 18 – Biodiversity Toolkit Summary Tables Tabs	100
Figure 19 – Example of Summary Tables (UKHab).....	100
Figure 20 – Project Biodiversity Toolkit Dashboard Tab	100
Figure 21 - Dashboard.....	101
Figure 22 – Project wide no net loss and gain for biodiversity	104

TABLES:

Table 1: Strategic Significance Categories	68
Table 2: Size Classifications for Individual Trees Based on DBH	77
Table 3- Delivery Risk variations from English Statutory Biodiversity Metric	96
Table 4 – Delivery Risk Categories and Risk Multipliers.....	97
Table 5 – Time to Target Condition and Risk Multipliers	98
Table 6 - Spatial Risk Categories and Risk Multipliers	98
Table 7- Linear Watercourse Habitat Categories	116

1 The Biodiversity Toolkits

This document sets out the steps for undertaking Biodiversity Net Gain (BNG) calculations¹. BNG is a process for development projects, in which biodiversity is left in a measurably better state than it was prior to development. This is achieved by measures taken to avoid, minimise and/or compensate impacts of any given project. Projects should assess BNG as per the 10 BNG Good Practice Principles² and associated practical guide³.

This SSE Biodiversity Toolkit User Guide (hereafter referred to as the ‘User Guide’) describes how to assess impacts to biodiversity using the SSE Optioneering Biodiversity Toolkit and the SSE Project Biodiversity Toolkit (hereafter collectively referred to as the ‘SSE Biodiversity Toolkits’). The SSE Optioneering Biodiversity Toolkit allows for an assessment of the baseline habitat units and comparison between different site options, whilst the SSE Project Biodiversity Toolkit allows for an assessment of the baseline habitat units, and the change in habitat units due to development or offsetting works

1.1 USE OF A BNG CALCULATION TO SUPPORT DECISION MAKING

Our approach follows that of similar biodiversity calculators widely used across the UK, including England’s Statutory Biodiversity Metric (ESBM), by using habitats as a proxy for overall biodiversity. The simplicity of this approach means that the calculator outputs represent relative measures of change in biodiversity value and should therefore be interpreted alongside ecological advice, legal requirements and relevant policy when informing planning and decision-making.

This User Guide has been prepared to support application of the SSE methodology in the principal jurisdictions in which SSE companies currently operate, excluding England, where use of the ESBM is mandated. Some habitat types included within the SSE Biodiversity Toolkits are afforded differing levels of importance within national planning policy, associated standing advice and local planning policy. This can concern habitats that are identified to be of importance in planning policy, including habitats which are very difficult (or takes a very long time) to recreate, replace or restore to normal ecological function if impacted.

To maintain consistency in application across SSE users and jurisdictions, we have limited the habitats that cannot be quantified into habitat units through the SSE Biodiversity Toolkit calculations to those with features and qualities that cannot be well

¹ The calculation distinguishes between three different ‘modules’, each providing separate units. These are area, hedgerow (including lines of trees) and watercourse.

² CIEEM, CIRIA, IEMA (2016) Biodiversity Net Gain – Good practice principles for development. Available: <https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development/>

³ CIEEM, CIRIA, IEMA (2019) Biodiversity Net Gain – Good practice principles for development. A Practical Guide. Available: <http://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development-a-practical-guide/>

accounted for within the current Habitat Condition Assessment (HCA) methodology. This is restricted to ancient woodland, ancient and veteran trees (all of which are entered into the Toolkit to provide summaries of extent only), and land and freshwater habitats within specified categories of designated sites (which are not entered into the Toolkit and are described separately).

Avoidance, protection, mitigation and compensation of habitats must be considered with the reference to the relevant policies and standing advice⁴ relevant to the project.

The relationship between the BNG assessment and other assessments

BNG assessment is often undertaken and reported alongside other ecological assessments which fulfil other specific purposes for decision making or requirements of other regimes. BNG assessments are often included as a Technical Appendix of an Environmental Impact Assessment (EIA). BNG design should also account for relevant considerations from Ecological Impact Assessment (EclA) and may be influenced by other EIA subject matter.

It is not the purpose of BNG assessment or reporting to duplicate or replace relevant assessments under other regimes of such as EclA, Habitats Regulations Assessment (known as Habitats Regulations Appraisal in Scotland), or other assessments relevant to national guidance, policy or legislation (for example statutorily designated biological and geological sites, or requirements specific to World Heritage Sites).

The ecologist must ensure that the BNG assessment is consistent with and only uses the interpretation from the habitat classification and HCA used, and other terms with specific meanings in BNG such as “temporary loss” only apply the interpretation for BNG. Quantities of forest and woodland cover reported in BNG assessment must be categorised in accordance with the habitat classification used and may vary in extent from national forestry classifications. It is for the EIA coordinator to manage how information from a BNG assessment should be interpreted alongside other assessments, without requiring the BNG assessment to adopt terminology or interpretation contrary to the BNG methodology.

⁴ For example NatureScot ‘Advising on peatland habitats and carbon-rich soils in development management’ for compensation of peatland in Scotland

<https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management>

1.2 OVERVIEW OF THE APPROACH

When completing a BNG assessment, there are four broad steps:

STEP 1: assessment of the biodiversity baseline

STEP 2: inform avoidance, mitigation and compensation proposals (only applicable to the SSE project biodiversity toolkit)

STEP 3: assessment of post development biodiversity (only applicable to the SSE project biodiversity toolkit)

STEP 4: production of the final reports

The functions of the SSE Biodiversity Toolkits are presented in **Figure 1**.

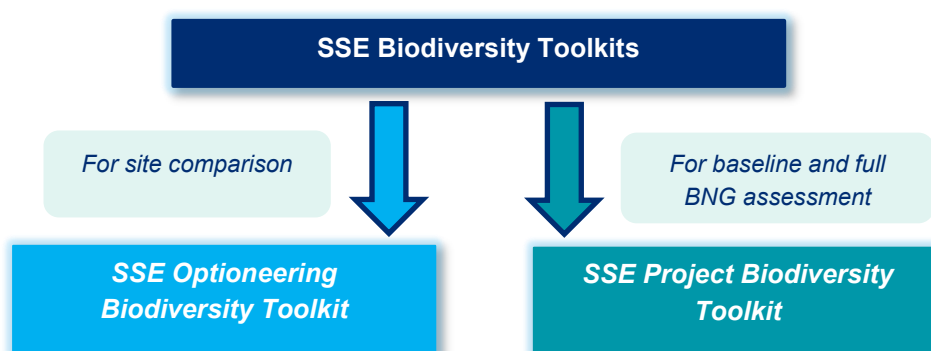


Figure 1: The SSE Biodiversity Toolkits

The SSE Biodiversity Toolkits are Microsoft Excel workbooks that enable quantitative biodiversity assessments. The SSE Biodiversity Toolkits can be used to assess the biodiversity impacts of a given development scheme or to assess the biodiversity benefits of a corresponding landscaping or offsetting scheme to help optimise their design.

1.3 DEVELOPMENT OF THE SSE BIODIVERSITY TOOLKITS

The SSE Biodiversity Toolkits are based on the latest versions of BNG toolkits produced by Scottish and Southern Electricity Networks Transmission (SSEN Transmission) and Scottish and Southern Energy Renewables (SSER). The SSE Biodiversity Toolkits are a co-designed approach between SSEN Transmission and SSER to quantify and assess biodiversity value. The SSE Biodiversity Toolkits are based on, and share features with,

the Department for Environment, Food and Rural Affairs (Defra) Metric 2012⁵ and subsequent versions 2.0, 3.1 and 4.0, which have culminated in England as the ESBM.

The guide to the SSE Optioneering Biodiversity Toolkit (hereafter referred to as the 'Optioneering Biodiversity Toolkit') can be found in **Section 3**.

The guide to the SSE Project Biodiversity Toolkit (hereafter referred to as the 'Project Biodiversity Toolkit') can be found in **Section 4**.

1.4 REQUIREMENTS FOR A BNG ASSESSMENT

The following is a list of the information required to complete a BNG assessment using the Optioneering Biodiversity Toolkit:

- The proposed red line boundary for each potential site location (further detail in **Section 2.4**);
- Area or length of each habitat (which may have been determined through desk-based assessment or field survey);
- UK Habitat Classification (hereafter referred to as 'UKHab'), Joint Nature Conservation Committee (JNCC) Phase 1 (hereafter referred to as 'Phase 1') or Fossitt information for each habitat (which may have been determined through desk-based assessment or field survey); and
- HCA score for each habitat (where applicable) or justification for methodology approach to assigning condition scoring based on a desk-based assessment.

The following is a list of the information required to complete a BNG assessment using the Project Biodiversity Toolkit:

- The red line boundary⁶ for the development (further detail in **Section 2.4**);
- Plans covering all areas of direct and indirect impacts of the development (ensuring this covers all areas affected during each phase of development);
- Temporary works plans clearly showing areas of permanent or temporary (refer to **Section 2.2.4**) habitat loss;
- Reinstatement and/or management plan (or equivalent), showing the permanent development and planting information for the areas of habitat to be created or enhanced;
- Area or length of each habitat;

⁵ Defra (2012). Technical paper: The metric for the biodiversity offsetting pilot in England [online]. Available: <https://www.gov.uk/government/publications/technical-paper-the-metric-for-the-biodiversity-offsetting-pilot-in-england>

⁶ Electricity Act 1989 section 37 applications, and underground cables implemented through Class 40 permitted development rights in Scotland do not have 'red line' boundaries. Development under those authorisations should consider the limits of deviation for overhead lines and construction working corridors for permitted development right underground cables as being the equivalent to a 'red line boundary' where the term is throughout this guide. The BNG assessment report will use the same terminology as the project description uses to describe the extent of land relevant to the authorisation.

- UKHab⁷, Phase 1 or Fossitt information for each habitat; and
- HCA score for each habitat (where applicable).

Habitat surveys and HCAs must be carried out by a competent person who can confidently identify the positive and negative indicator species for the relevant habitat types within the area, at the time of year the survey is undertaken. Furthermore, the SSE Biodiversity Toolkits and BNG assessments should be completed by a competent person who can appropriately advise on, undertake and scrutinise BNG assessments. It is recommended that surveyors and BNG assessors are therefore ‘capable’ or above under the Chartered Institute of Ecology and Environmental Management (CIEEM) Competency Framework for ‘Surveying’ and ‘Quantifying Biodiversity Gain’⁸ (as applicable).

Habitat surveys can be undertaken throughout the year, with the optimal survey season typically between April to September inclusive (for most habitats)⁹. Some habitats will have a distinct optimal survey season, where indicator species may be more evident. If surveys are completed out with the optimal survey season for that habitat, a precautionary approach must be taken to identify condition of the habitat, this may mean over-valuing baseline habitats. Limitations in the BNG assessment should be noted in the ‘notes’ section of the SSE Biodiversity Toolkits and accompanying BNG narrative report.

1.5 THE MITIGATION HIERARCHY

The principles of the Mitigation Hierarchy underpin the BNG assessment methodology and should be considered throughout each step in the assessment process.

The Mitigation Hierarchy

Avoidance – measures taken to avoid potential biodiversity impacts

Minimisation – measures taken to reduce the duration, intensity, extent and/or likelihood of impacts that can’t be avoided

On-site restoration - measures taken to enhance or recreate habitats after development impacts where avoidance or mitigation is not possible

Offset – (off-site compensation) – measures taken to compensate for any residual, adverse impacts after full implementation of the previous three steps of the Mitigation Hierarchy

⁷ SSEN Transmission requires that field mapping for all new projects is undertaken in UKHab (without translation from other classifications) and the ESBM HCA unless instructed otherwise. SSEN Transmission will only request Phase 1 where it is to update or be used for monitoring of legacy projects originally mapped in Phase 1 and being re-quantified in the legacy SSEN Transmission Biodiversity Toolkit. SSEN Transmission will only accept translation for optioneering stage only where it is reliant upon desk study data in a different classification such as Scottish EUNIS.

⁸ CIEEM Competency Framework <https://cieem.net/resource/competency-framework/>

⁹ The optimal survey season is likely to differ between locations. For example, in the north of Scotland, temperatures are likely to drop earlier in the year. Therefore, location should be taken into account when identifying suitable timing for any survey work, and a dynamic assessment of any survey limitations (seasonal or otherwise) should be carried out during the works and clearly outlined in the associated report.

The information gathered from the biodiversity baseline is used to inform avoidance, mitigation and compensation measures proposed for the project. The aim is to minimise the ecological impacts and provide opportunities for enhancing biodiversity.

It is the responsibility of the project team designing a project (engineers, ecologists, landscape architects etc.) to identify the type of impact caused by the scheme. This may already be set out in an EclA, which will identify whether impacts on biodiversity are direct or indirect, temporary or permanent, or result from cumulative impacts.

2 Biodiversity Assessment Overview

2.1 BASELINE HABITATS AND ACTION

The baseline habitats should be entered into the SSE Biodiversity Toolkits, including all characteristics (multipliers) which are discussed within this User Guide.

In the Project Biodiversity Toolkit, a decision is then required as to whether a habitat will be retained, lost (due to direct impacts) or degraded (due to indirect impacts) as part of a project.

2.1.1 Retained Habitats

Habitats can be considered retained if there will be no impact to the habitat resulting from the project, or if the land is expected to be restored to both the same habitat type and condition (or better) within 2 years from the commencement of impact.

Retained habitats that are not proposed for enhancement or transition are generally excluded from the Biodiversity Assessment Boundary, however certain retained habitats may still need to be accounted for within the Project Biodiversity Toolkit, such as components of mosaic habitats (see [Section 2.4](#)).

Determining whether a temporarily impacted feature can be treated as retained requires account of the time to target condition for successfully reinstating the habitat to the necessary condition (see [Section 4.6](#)), as well as the time between the habitat removal and the commencement of reinstatement works. For example, a temporary construction compound in place for 6 months on poor condition g4 modified grassland will result in the loss of the habitat for 6 months. The habitat then has a 1-year time to target condition for recovery to baseline habitat type and condition. The total impact of the temporary compound is 1.5 years and therefore assessed as 'retained', as the habitat would return to its existing habitat type and condition within 2 years. In the same scenario the loss of g3c other neutral grassland in poor condition would have a recovery time of two years with total impact of 2.5 years and therefore the habitat should be recorded as 'removed' to account for the loss of that habitat for over 2 years, with the time to target condition set

at 3 years (rounding up to the next full year)¹⁰. The habitat can then be recreated as part of the re-instatement, Landscape or Habitat Management Plan.

In certain circumstances e.g. offshore landfall and cable routes, a 5-year temporary impact rule for low and very low distinctiveness habitats may be considered in consultation with the client. This exceptional rule follows the Defra interpretation for Nationally Significant Infrastructure Projects (NSIPs) in England¹¹ that those habitats are 'retained' if you reinstate them to their original habitat type and condition:

- Within 5 years of the date the initial impact happened – for impacts on low or very low distinctiveness habitats¹².
- The 2- or 5-year period starts from the date the habitat area is impacted. The date of impact, and therefore the end of the 2- or 5-year period, may vary for different habitat areas across the site.

Habitats can also be included within the baseline of the Project Biodiversity Toolkit as 'retained' where further enhancement or transition is prescribed or required.

2.1.2 Direct Impacts

Habitats should be reported as 'lost' within the Project Biodiversity Toolkit if the habitat will be removed as part of the project and will not be reinstated within the relevant timescales (see above). This includes habitats that will be removed in favour of the creation of a new habitat type.

2.1.3 Indirect Impacts

In some instances, it may be assumed that retained habitats could be subject to indirect impacts where changes to the hydrology would be expected to occur beyond the point of impact, for example the loss of one area of blanket bog could result in indirect impacts associated with drying of adjacent blanket bog habitat. Indirect impacts should be included within the BNG assessment where habitats hydrologically and functionally connected to habitats subject to direct impacts occur beyond the direct footprint of the project. Consideration should be given to wetland and peatland habitats which may be sensitive to hydrological changes.

There is currently no standardised method to support objective, repeatable and proportionate assessment of indirect impacts using a biodiversity metric approach. The ESBM does not attempt to account for indirect impacts. The ESBM post-development intervention calculation is designed to assign risk and scoring for secured creation of a new habitat (following clearance of the baseline habitat) or the secured ongoing

¹⁰ Reasonable consideration of growing seasons and the timing of the work may be taken into account and support not rounding up to the next full year. If there is reasonable doubt about programme the presumption will be to round up to next full year.

¹¹ The ESBM extends this to five years for Nationally Significant Infrastructure Projects (defined in England within Schedule 3 of the Planning Act 2008 (as amended)) for low or very low distinctiveness habitats only

¹² Where impacts affect medium distinctiveness habitats (and above), the default 2-year rule applies.

improvement of a retained habitat (i.e. enhancement), but not the potential degradation of a retained habitat.

Attempts to proportionately account for loss through the selection of a lower condition status are not necessarily representative of the predicted ecological change, of how biodiversity value may take a long period of time to be lost (if not an abrupt loss), and will record no additional loss in BU if the habitat was already in poor condition (limiting opportunities for recordable deterioration of a poor condition habitat). Similarly, assigning a change in habitat type solely to generate a lower BU score may be inconsistent with the habitat classification (a change from one habitat type to another should only be entered where the predicted post-works botanical communities, hydrology and substrate are expected to meet the definition of that habitat). Interactions of the selected distinctiveness, condition, difficulty and time to target condition multipliers used to characterise a deterioration can produce perverse outcomes such as an indirectly impacted habitat scoring higher post-works than its baseline state, or disproportionate BU losses not representative of likely changes in relative nature conservation interest.

Therefore, in the absence of a wholly objective method, the Project Biodiversity Toolkit allows for a fixed multiplier reduction of post-works BU to be applied to account for indirect impacts consistently, with the caveat that this multiplier is not intended to represent a quantified loss in biodiversity value, but rather a 10% penalty for areas of habitat associated with potential indirect impacts (noting that this is above and beyond expectations typically expected through a biodiversity metric system).

The extent of any indirect impact areas should be determined on a case-by-case basis using evidence-based decision making which is clearly documented. The assessment for indirect impacts should consider the source, pathway and any proposed mitigation (which may limit the occurrence and/or extent of any indirect impacts). A standard buffer should not be applied where site-specific evidence indicates a different zone of influence.

To record indirect impacts in the Toolkit, enter the baseline habitat and the area of habitat affected by the indirect impact, select "*Indirect impact*" in the Action column (instead of "*Retain*" or "*Lost*"), and leave the post-development habitat field blank; this will apply the standard indirect impact adjustment, resulting in the post-development habitat retaining 90% of its baseline biodiversity units.

2.2 HABITAT REMOVAL, CREATION, ENHANCEMENT AND TRANSITION

The Optioneering Biodiversity Toolkit does not allow for the input of proposed habitat types. However, the Project Biodiversity Toolkit requires an end-to-end, story-based approach to demonstrate what will happen to each land parcel because of the project.

The Project Biodiversity Toolkit therefore requires users to select an appropriate After Work Action to describe the anticipated outcome for each baseline habitat. The selectable interventions in the Toolkit are habitat creation, habitat enhancement and habitat

transition. Habitat removal is also a relevant intervention for linear habitats but can be entered without requiring a selected intervention.

2.2.1 Habitat removal

Land associated with area-based habitats cannot be 'removed', as any baseline habitats that are 'lost' would be expected to be replaced with another habitat type. However, lengths of linear hedgerow habitats or linear watercourse habitats may be 'lost' without replacement and therefore removed entirely. In such instances, no habitat would be included within the 'After Work Action' section of the Project Biodiversity Toolkit. Similarly, no habitat would be expected to be included in the 'After Work Action' section of the Project Biodiversity Toolkit for baseline habitats that are 'retained' with no proposed enhancement. There is an option to select a 'bespoke' habitat removal/loss option whereby you can select what percentage of a habitat polygon will be lost and/or retained.

2.2.2 Habitat creation

Habitat creation should be selected as the After Work Action where a baseline habitat is lost and a new habitat is created. This may result from:

- The baseline habitat is lost due to development and/or management activities and replaced with a new habitat type associated with the development footprint or landscaping;
- The baseline habitat is lost due to development and/or management activities and restored, where the restoration period is expected to take longer than 2 years (or 5 years where applicable – see section 2.1.1), or a lower condition score is expected post-works (see [Section 2.1.3](#)); or
- The baseline habitat is intentionally removed as part of the project, to allow for the creation of a new more desirable habitat type.

When replacing a baseline habitat with a new habitat type, consideration should be given to the real-world implications for biodiversity of removing the existing habitat. Although the baseline habitat may have a lower biodiversity value within the SSE Biodiversity Toolkits, it may provide specific resources for local biodiversity that could be lost because of the project, even where a different post-works habitat achieves a higher overall score. In addition, there is a greater level of certainty that land will continue to support habitats already present on a site. Therefore, opportunities to restore or enhance baseline habitats should be considered in the first instance. Nonetheless, in some circumstances, restoration or enhancement of the baseline habitat (or broad habitat type) may not be practical or may not be expected to deliver the greatest biodiversity benefit. This may occur where direct replacement would conflict with other land management objectives, or where greater strategic biodiversity benefits can be achieved through the creation or enhancement of different habitats. In such cases, habitat creation should focus on

habitats that deliver the greatest biodiversity value while remaining consistent with local biodiversity priorities and requirements.

One important caveat applies to habitats for which true habitat creation is generally not achievable where the underlying habitat foundations are absent, such as bogs, coastal sand dunes, and limestone pavement. In these cases, the selection of habitat creation as the post development intervention should be limited to reinstatement of the baseline habitat following temporary works. Full restoration of prior functionality and achievement of targets of moderate or good condition may not always be practicable.

Juniper scrub and Atlantic hazel are considered challenging habitats to reinstate so are both have “Creation” disabled. Where they are removed for temporary works, a different habitat must be entered for the post development habitat, in accordance with the instructions in [Appendix B](#).

2.2.3 Habitat enhancement

Habitat enhancement should be selected as the After Work Action where a baseline habitat will be enhanced through management activities associated with the project. This may result from:

- The baseline habitat will be retained, and the condition of the baseline habitat is expected to be improved as part of the project;
- The baseline habitat will be changed to a higher distinctiveness habitat within the same broad habitat group, where the improvement can be undertaken without removal of the baseline habitat type;
- Restoration of relict high or very high distinctiveness habitats; or
- Restoration of intertidal habitats

Where management is intended to result in a change to a different broad habitat group, habitat transition should be selected instead.

2.2.4 Habitat transition

Transition is an intervention where the baseline habitat vegetation is retained and managed to result in an ecologically justified change into a different broad habitat group. Unlike habitat creation, the baseline habitat is not immediately removed. Instead, habitat value changes progressively through assisted accelerated succession or active habitat management.

By highlighting habitat transitions as an option, users are encouraged to pursue more ambitious ecological enhancements that would otherwise score poorly (or even negatively) under a simple habitat loss to creation approach. However, transition should only be applied where there is a clear ecological rationale and where the resulting habitat type is consistent with local environmental conditions and relevant habitat restoration

objectives. It must not be used solely to achieve a more desirable or higher scoring habitat within the metric.

Transition should be selected where:

- The existing habitat remains *in situ* during the early stages of management
- Habitat change occurs gradually over time rather than immediate habitat removal and replacement
- The target habitat belongs to a different broad habitat group from the baseline habitat
- The proposed change is ecologically achievable and supported by appropriate evidence and/or professional judgement
- Consideration is given to the loss of species resources in the baseline habitat
- Management interventions are designed to facilitate natural ecological succession or restoration processes (e.g. hydrology)

Examples may include woodland establishment through natural regeneration within existing scrub, bracken or grassland, wetland creation through hydrological restoration of grassland habitats, or the gradual development of scrub in species-poor grasslands.

Transition recognises that biodiversity value does not disappear instantaneously when habitat succession begins. During the transition period, elements of the baseline habitat continue to provide ecological functions while characteristics of the target habitat gradually develop.

However, users should carefully consider whether ecological resources associated with the baseline habitat may be lost before equivalent resources are provided by the target habitat. For example:

- Open grassland may support breeding waders, reptiles, or specialist plant communities that decline as scrub or woodland develops
- Scrub habitats may provide nesting and foraging habitats for specific open habitat birds that are reduced during progression to woodland
- Open heathland habitats may support species (e.g. hen harrier, golden eagle) that are incompatible with woodland development
- Bracken may support fritillary butterfly species of conservation concern (including high-brown, dark green, pearl-bordered, or small pearl-bordered) and can be an important habitat component for adders-

Transition should generally not be used where:

- The target habitat conflicts with local habitat conservation objectives (e.g. the baseline habitat supports priority species dependent on open habitat conditions)
- Habitat change would result in the loss of habitat types that are locally scarce or of high conservation value.
- The target habitat could only be achieved through partial removal of the existing habitat rather than gradual succession.
- The transition is proposed primarily to generate additional biodiversity units rather than deliver ecological benefits.

Particular care should be taken when considering a transition from open acidic habitat to woodland, where woodland establishment may alter soil conditions or vegetation

composition in a way that is inconsistent with retention of the baseline habitat during succession.

The post-transition habitat should be assigned a realistic target condition based on site constraints, ecological feasibility, and long-term management arrangements. Although transition may result in a temporary reduction in condition or distinctiveness during the establishment phase, users should seek to achieve the highest ecologically realistic target condition for the final habitat.

Transition should be considered a specialist intervention that reflects natural ecological processes and restoration trajectories, rather than a standard habitat creation measure. Its use should be supported by a robust ecological justification, consideration of any loss of species resources or habitat functions, and appropriate long-term management to achieve the target habitat condition.

2.3 CALCULATING HABITAT UNITS

There are three distinct habitat unit types calculated within the SSE Biodiversity Toolkits.

Area habitats

A Biodiversity Unit (BU) is the nominal figure used to quantify the biodiversity value of an area-based habitat. It represents the distinctiveness, condition, connectivity, strategic significance and total extent (i.e. area) of a habitat (measured in ha). Representing the biodiversity value of an area-based habitat via BU allows for a quantified comparison between the baseline biodiversity value and the post-works biodiversity value of a site, aiding the user to assess whether the project is designed to deliver a biodiversity net loss or net gain. The SSE Biodiversity Toolkits use the same basic formula for calculating BU as the ESBM, except for the 'connectivity' multiplier which was introduced in the Natural England Biodiversity Metric 2.0 and removed from the Natural England Biodiversity Metric 3.0 onwards. SSE has retained this multiplier based on feedback from consultees that 'connectivity' is a very important measure of habitat quality. The baseline formula that the SSE Biodiversity Toolkits use is shown below:

$$\text{Distinctiveness Score} \times \text{Condition Score} \times \text{Area (ha)} \times \text{Connectivity}^{13} \times \text{Strategic Significance} = \text{Biodiversity Units}$$

As well as the BU calculation, the BNG assessment for a project will include the collection of information on habitat type, informed by the botanical species communities and relevant habitat features, such as invasive non-native species and whether the habitat is

¹³ See also section 2.2.6, CONNECTIVITY

notable in planning policy. This information should be detailed in any relevant ecological documentation for the project.

Linear habitats

The calculation for linear hedgerow habitats and linear watercourse habitats produces Hedgerow Linear Units (HLU) and Watercourse Linear Units (WLU) (respectively). The calculation remains the same as that of area-based habitats; however, extent is instead measured by length (measured in km)

$$\text{Distinctiveness Score} \times \text{Condition Score} \times \text{Length (km)} \times \text{Connectivity} \times \text{Strategic Significance} = \text{Linear Units}$$

In the SSE Biodiversity Toolkits, the BU, HLU and WLU are calculated using the following characteristics of the habitats:

- Habitat area (ha) or length (km) (as applicable);
- Distinctiveness;
- Condition;
- Connectivity; and
- Strategic significance.

These characteristics are described in the Glossary ([Appendix A](#)).

Each characteristic is given a numerical value, which is set out in the SSE Biodiversity Toolkits. These values are multiplied together to calculate BU, HLU and WLU (as applicable to the habitat type). The habitat units associated with the baseline can be compared to the anticipated habitat units post-works to determine whether the project delivers a net gain in biodiversity. The formula and a worked example of a baseline calculation is shown in **Figure 2**. The formula and a worked example of a post-works calculation is shown in **Figure 4** (see [Section 2.11](#)).

PRE – Baseline biodiversity calculation

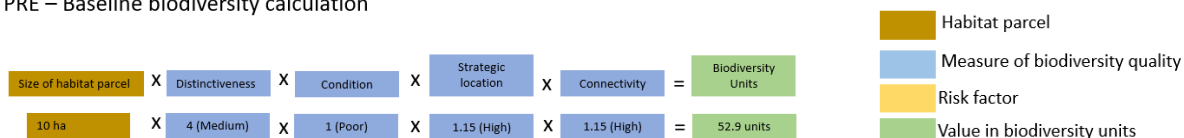


Figure 2: Baseline Calculation Formula and Worked Example

2.4 AREAS INCLUDED WITHIN THE ASSESSMENT

For the BNG assessment, SSE defines the ‘Biodiversity Assessment Boundary’ as all habitats expected to be subject to loss (whether for development or new habitat creation), indirect impacts, enhancement or transition (see [Section 3.1](#)).

The specification of the Biodiversity Assessment Boundary can affect the BNG requirement and will likely differ from the red line planning boundary. Retained habitats that will not be enhanced as part of the project would not typically be expected to be included within the Biodiversity Assessment Boundary (see [Section 2.1.1](#)). All mapping figures produced in support of the BNG assessment should clearly display the Biodiversity Assessment Boundary and any areas expected to be subject to direct impacts (i.e. habitat loss) or indirect impacts (i.e. habitat degradation). For example, from a wind farm this could consist of the access tracks, borrow pits, compounds and hardstands plus an area of indirect impact (the appropriate indirect impact buffer could be taken from the EclA chapter). All areas proposed for biodiversity enhancement (i.e. habitat creation, enhancement or transition) as part of the Habitat Management Plan, Landscape Management Plan, or secured through other arrangements (such as management agreements with third parties, which may be quantified in a separate Project Biodiversity Toolkits) should also be illustrated.

This approach limits the overall extent of habitat that needs to be accounted for in the Project Biodiversity Toolkit and is a deviation to the general approach within the ESBM but is consistent with its variation in England for nationally significant infrastructure projects for energy¹⁴.

For mosaic habitats, the distinction between retained, enhanced and transitioned habitats is linked to the management prescription (or reinstatement approach) and anticipated ecological outcome, rather than habitat type alone. The designation of habitat components as retained, enhanced or transitioned should not be confused with the habitat mapping approach used to define or record mosaics (see [Section 6.2](#)).

For example, a habitat area prescribed for blanket bog restoration may also contain dry heath components. Where no habitat management prescriptions are required for the dry heath, and this habitat is not expected to be affected by the proposed restoration measures, it may be treated as ‘retained’, while the blanket bog restoration area is classed as ‘enhanced’. As with all mosaic habitats, professional judgement should be applied when determining whether habitat components can reasonably be classified as retained, enhanced or transitioned, taking in account of, for instance, the hydrological

¹⁴ Nationally significant infrastructure projects: biodiversity gain statement for energy June 2026 [online]. Available at: <https://www.gov.uk/government/publications/nsips-biodiversity-gain-statement-for-energy> [accessed 02/07/2026]

connectivity between habitat components and any anticipated changes resulting from habitat enhancement measures.

Where an existing BNG commitment is applicable to land associated with the project, the proposed target habitat type and condition should be used as the baseline, to ensure that all former commitments are accounted for. Where the habitat baseline areas are derived from a previously agreed habitat target or historic BNG commitment for the same land, then please select Yes under the column "Previously assigned target" for the relevant habitat parcels. Leave blank in the default situation where the baseline is based on the habitat present at the time of assessment. Record details in the Notes column.

The SSE Biodiversity Toolkits are aimed to inform consenting decisions and appropriate compensation / enhancement associated with development projects and offsetting sites. Where forestry felling has occurred and there is a requirement to re-stock/re-plant commercial conifer elsewhere, this should not be included in the Project BNG Toolkit or the BNG assessment. In Scotland and Ireland there are defined policies and procedures which prescribe restocking and replanting requirements of commercial conifer, and it should be handled as such in each jurisdiction.

A **biodiversity offset** is conservation action taken to compensate for residual developmental impacts following appropriate avoidance and mitigation.

2.5 DESIGNATED SITES

2.5.1 Identification of Relevant Designated Sites

Statutorily designated biological and geological sites, and international convention sites, considered outside of BNG assessment (hereafter collectively referred to as 'Relevant Designated Sites') are:

- Special Areas of Conservation (SAC) (applicable to Scotland, Wales, Northern Ireland and the Republic of Ireland);
- Special Protection Areas (SPA) (applicable to Scotland, Wales, Northern Ireland and the Republic of Ireland);
- SSSI (applicable to Scotland and Wales);
- Areas of Special Scientific Interest (ASSI) (applicable to Northern Ireland);
- Natural Heritage Areas (applicable to the Republic of Ireland);
- Wetlands of International Importance (commonly known as Ramsar sites); and
- Natural or mixed World Heritage Sites

Reserves made under statutory powers (such as National Nature Reserves (NNR) and Local Nature Reserves (LNR)) or without statutory power (such as non-governmental organisation wildlife reserves), other conventions, accolades or non-statutory designations (such as Biogenetic Reserve and Biosphere Reserve) or land identified in development planning as Local Nature Conservation Sites (LNCS) or Sites of Importance for Nature Conservation (SINC) for planning policy) are not considered to be Relevant Designated Sites designations (although many coincide with Relevant Designated Sites),

and therefore guidance associated with Relevant Designated Sites is not applicable. However, their site interests, management plans and objectives should be considered when planning reinstatement, restoration, enhancement or transition.

Relevant designated sites within the Biodiversity Assessment Boundary must be clearly identified at an early stage.

2.5.2 Consideration of Relevant Designated Sites

The SSE Biodiversity Toolkits are not designed to account for impacts to notified or qualifying features of the Relevant Designated Sites. Therefore, these areas should be excluded from BNG calculations, except in exceptional circumstances for offsetting sites (see [Section 3.5](#)). Impacts upon habitats (and any notified or qualifying features) within the Relevant Designated Sites must therefore instead be addressed through separate processes (for example the EIA and/or Habitats Regulations Assessment (HRA)), in accordance with national legislation and policy, rather than as part of the BNG calculations. The BNG assessment should therefore focus on habitats within the Biodiversity Assessment Boundary that do not coincide with any Relevant Designated Sites, ensuring a clear separation between statutory site protection and BNG requirements, and recognising that habitat-based metrics cannot capture the complexity of notified/qualifying features or potentially conflicting management requirements.

2.5.3 Functionally linked habitat and impact on qualifying features

Habitat losses or changes outside a designated site may nevertheless indirectly affect notified or qualifying features through supporting foraging habitat, ecological connectivity, or other functional linkages. Potential interactions with qualifying features must be assessed through the relevant statutory assessment process. The BNG assessment must not independently assess those effects to identify avoidance, mitigation or compensation measures the findings of the statutory assessment processes can then inform post-development habitat proposals and BNG assessment. Examples of these impacts include:

- Loss or fragmentation of heathland reducing foraging habitat for SPA bird species (e.g. hen harrier or golden eagle);
- Hydrological or grazing changes affecting a nearby SSSI designated for blanket bog;
- Alterations to riparian habitat affecting water temperature, connectivity, or shading, and therefore impacting SAC qualifying species such as Atlantic salmon; and
- Changes to adjacent woodland affecting supporting habitat for species such as capercaillie.

2.5.4 Exceptional Cases for Delivering BNG within Designated Sites

BNG is not to be applied within Relevant Designated Sites that are impacted by the project, or where the measures are necessary mitigation or compensation for project impacts on notified or qualifying feature of a Relevant Designated Sites. Statutory requirements to avoid adverse effects on site integrity and deterioration of condition of any notified or qualifying features must take precedent over BNG or nature-positive commitments. However, SSE does not wish to prevent the potential for biodiversity

enhancement within Relevant Designated Sites where there would be an ecological benefit, particularly where this supports the restoration of a qualifying or notified feature that is currently in unfavourable condition or in decline. Therefore, in some circumstances biodiversity enhancement to deliver net gains within designated sites may be considered if it can be robustly demonstrated that such measures would not result in any adverse effects on any notified or qualifying features. Proposed measures must demonstrably support the site's conservation objectives, be consistent with site management statements or conservation advice, and must not be required through existing legal or contractual obligations. Such cases must be agreed on a case-by-case basis with the statutory nature conservation body and competent authority, with appropriate mechanisms in place to secure delivery.

2.5.5 Statutory Duty of Electricity Act 1989 licence holders in Scotland

Under section 12 of the Nature Conservation (Scotland) Act 2004, electricity network businesses (holders of a licence under section 6(1) of the Electricity Act 1989) in Scotland have a legal duty to further the conservation and enhancement of Site of Special Scientific Interest (SSSI) features.

2.6 DISTINCTIVENESS

Distinctiveness is automatically populated depending on the habitat type and relevant habitat classification system (i.e. UKHab, Phase 1 or Fossitt). It is dependent on the rarity, species richness, designations and the habitats' ability to support species which are not found in other habitats. Distinctiveness can be assigned as very high, high, medium, low or very low with corresponding multipliers of 8, 6, 4, 2 and 0 (or 1¹⁵) respectively.

The distinctiveness categories should remain at the auto populated level as far as practical. However, the SSE Toolkits are based on the ESBM and as such do not capture all the possible habitat value scenarios in Scotland, Northern Ireland and the Republic of Ireland. To this end, it is possible to adjust the distinctiveness value of habitats in the SSE Toolkits. When a distinctiveness value is altered from the default value, the cell will turn orange in colour which indicates that the distinctiveness value has been manually adjusted. Any change must only be a one-point step change lower or higher and any changes to the default values must be kept to a minimum and clearly justified in the BNG narrative report. An example of such a scenario is purple moor grass and rush pasture. To reflect the range of ecological conditions that may be encountered within habitats dominated by purple moor grass and rush, the SSE Biodiversity Toolkits will default the distinctiveness value of 'purple moor grass and rush pastures' to medium (with a default medium difficulty for creation, enhancement and transition). This default is intended to cover most scenarios, including many areas of *Molinia* and rush dominated vegetation which do not meet the criteria of Priority Habitat. However, where the habitat satisfies the

¹⁵ Non-native and ornamental hedgerow is the only habitat in the ESBM with a score of 1 for very low distinctiveness and this is mirrored in the SSE Biodiversity Toolkits

criteria for Priority Habitat, a suitably qualified and experienced ecologist may, using professional judgement, upgrade the distinctiveness to high (with manually uprating to high difficulty for creation, enhancement and transition). Any change must be clearly evidenced within the BNG report. This habitat can be species rich/poor, on deep/shallow peat or constitute a Groundwater-Dependent Terrestrial Ecosystem (GWDTE) or be non-GWDTE. Care should be taken when assessing this habitat in Scotland where extensive areas of *Molinia* and rush dominated vegetation are relatively common and may appear to fit within UKHab f2b Purple moor-grass and rush pastures but the vegetation lacks the floristic diversity indicative of the UK Biodiversity Action Plan Priority Habitat:

- In damp but not wet soil conditions, this rush dominated habitats may better be classified in UKHab as g3c8 (typically MG10, corresponding to “Grassland - Other neutral grassland” category in the toolkit) under neutral conditions, and g1d or g1b6 (corresponding to “Grassland - Other lowland acid grassland” or “Grassland - Upland acid grassland” categories in the toolkit, with rushes recorded in UKHab as a secondary code).
- In wet conditions, with frequent bryophytes, f2c (corresponding to “Fens (upland and lowland)” category in the toolkit) may be the more appropriate classification, whereas species-poor wet rush or *Molinia* vegetation may be more appropriately assigned to f2f (corresponding to “Other wetlands” category in the toolkit).
- A f2b classification should only be assigned where species-rich assemblages with reasonable representation of key species¹⁶ of the Priority Habitat are present. In these circumstances, the distinctiveness of the “Purple moor grass and rush pastures” category in the toolkit may be increased from medium to high. This vegetation is typically associated with the scarce NVC M24 and M26 communities of UKHab f2b5 “Purple moor-grass meadows (H4610) which represents Annex I 6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*), occurring mainly in England and Wales and extending northwards only as far as Argyll in Scotland. Species rich examples of NVC M22 and M23 may also be uprated to high distinctiveness where they are representative of the Priority Habitat.

2.7 CONDITION

Condition is a measure of the habitat quality in relation to the ecological optimum of the habitat type and allows for direct comparisons of habitat quality to be made for the same habitat type. It is determined by set condition criteria which are specific to the habitat type. Individual areas of habitat should be identified based on contiguous habitat type and

¹⁶ Species associated with the UK BAP Priority Habitat include: wavy St John's wort (*Hypericum undulatum*), whorled caraway (*Carum verticillatum*), water mint (*Mentha aquatica*), meadow thistle (*Cirsium dissectum*), globeflower (*Trollius europaeus*), marsh hawk's beard (*Crepis paludosa*), lesser butterfly orchid (*Plantanthera bifolia*) and wild angelica (*Angelica sylvestris*).

condition e.g. a homogenous woodland of one habitat type which has two different habitat conditions must be split into two individual parcels.

2.7.1 Habitat Condition Assessment

The HCA method should follow the latest published version of the ESBM HCA at the time of survey. The ESBM HCA sheets are within a Microsoft Excel document, which includes sheets for each of the relevant broad habitat types, and a guide to selecting the appropriate sheet. Whilst the ESBM HCA is the default method for habitat condition assessment within the SSE Biodiversity Toolkit, flexibility may be applied where alternative habitat-specific condition assessment methodologies are considered more appropriate for particular habitat types, including those being developed for the Scottish Planning Biodiversity Metric (SPBM)¹⁷. The method must be agreed beforehand.

The SSE Biodiversity Toolkits have also been adapted for use in the Republic of Ireland by including the Fossitt habitat classification system. When undertaking HCA in the Republic of Ireland, the relevant UKHab HCA sheet should be used. The toolkit provides a conversion table linking Fossitt habitat types to the corresponding UKHab types.

HCA follows the ESBM, excluding river and stream habitats (See definitions in [Appendices A and C](#)). All habitat types must be assigned a condition category of good, fairly good, moderate, fairly poor or poor¹⁸. Each habitat type has a specific condition sheet. For area-based habitats, once the broad habitat type has been identified, the corresponding condition sheet should be identified using the ESBM¹⁹. Condition assessment sheets for linear habitats of lines of trees and hedgerows can also be identified using the ESBM HCA.

Some low or very low distinctiveness habitats do not require a condition assessment and where applicable, these are marked as 'Condition Assessment N/A' (for habitats of low biodiversity value) or 'N/A - Other' (for habitats of no biodiversity value).

Some condition sheets include 'essential' criteria which must be met to achieve a specific habitat condition. **Figure 3** shows the essential criteria for wetland habitat types as an example.

¹⁷ NatureScot (2026). Habitat Condition Assessment Sheets: [scottish-planning-biodiversity-metric-habitat-condition-assessment.xlsx](https://www.nature.scot/biodiversity-metric-habitat-condition-assessment)

¹⁸ Any use of 'fairly good' or 'fairly poor' must be justified in the Notes column of the Toolkit or as comments on the cell of condition assessment rating, setting out which HCA criterion could not be determined and why

¹⁹ Defra (2026). Statutory Biodiversity Metric [online]. Available: <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

Core Criteria - must be assessed for all wetland habitat types :	
A	The water table is at, or near the surface throughout the year - this could be open water or saturation of soil at the surface. There is no artificial drainage, unless specifically to maintain water levels as specified above.
Note - this criterion is essential for achieving Good condition.	

Figure 3: Condition assessment example of mandatory requirement to achieve a certain condition

Where a habitat condition cannot be identified because the habitat has recently been destroyed, a precautionary approach is to be adopted whereby habitat type is identified from credible sources e.g. mapping or aerial imagery. The habitat type is required to be determined before the corresponding condition assessment sheet can be selected.

Therefore, habitat condition should be identified based on remaining field evidence or any other pre-existing information of the destroyed habitat where possible or else should assume 'good' condition using the precautionary principle.

The ESBM uses a separate condition assessment for river and canal habitats which utilises the Modular River Physical Survey (MoRPh) methodology. The SSE Biodiversity Toolkits deviate from the ESBM regarding the condition assessment methodology for canals and rivers and do not utilise the MoRPh methodology. The assessment method for rivers is to be further determined in other nations, once greater information is available on its use in England. In the absence of a specific methodology for assessing condition of watercourses in Scotland, Wales, Northern Ireland, the Republic of Ireland, interim instructions on assigning habitat category and condition to baseline and consideration of bespoke watercourse arrangements are detailed in [Appendix C](#).

At present in Scotland, Wales, Northern Ireland and the Republic of Ireland watercourse categorisation / condition assessment and what constitutes uplift and deterioration is an underdeveloped area. All watercourses >0.5m in width, with a water flow for 12 months of the year and that are affected by the development must be included in the assessment. Watercourses that are both less than <0.5m in width and flowing less than 12 months of the year may be excluded from calculations if no important ecological features are identified as reliant upon the feature, with justification provided in the accompanying report. Artificial drains on bogs are a negative feature and do not need to be accounted for.

2.7.2 Degraded Baseline Habitats

In some instances, habitat features that should be assessed as part of the HCA may have been lost prior to the field survey due to standard management practices, for example, a recently felled plantation within an existing crop management cycle, or a recently cut hay meadow. In such cases, a precautionary approach should be applied to the HCA process to avoid the accidental undermining of condition, that would naturally occur should the

habitat remain undeveloped. This helps ensure that the developer considers the habitat's potential for natural recovery associated with its ongoing cyclic management.

In addition, there may be instances where a habitat has been degraded due to ground investigation works undertaken under permitted development rights (which would not be subject to BNG assessment). In situations where a development subject to BNG is consented after the ground investigation works, the assessor should assign the baseline HCA score if known²⁰, or apply a precautionary approach HCA if a pre-investigation HCA had not been undertaken. This helps ensure that the developer accounts for the full impact of the project on a habitat.

The following guidance is only applicable to the aforementioned scenarios. This approach should not be used where there is reasonable evidence that the habitat has been altered as part of an authorised change which is unconnected with the development and is now representative of foreseeable use or land management (whereby the current habitat type and condition should be taken as the baseline).

If the ecologist believes that a habitat has been recently degraded through removal of habitat or measures that would deliberately lower its value before baseline assessment to reduce the compensation requirements, the appropriate approach to assigning a baseline should be discussed on a case-by-case basis with the developer²¹.

Furthermore, this methodology is only applicable to habitats that have been subject to recent loss of habitat features and should not be used to reduce field survey effort for other habitat parcels.

The ecologist should consider each relevant condition criteria to determine which can be accurately assessed. This may be achieved through field survey or desk study, where sufficient evidence can be obtained for the habitat parcel (i.e. assessments should not be based on assumptions from surrounding habitats). Where a condition criterion cannot be accurately assessed, it should be assigned a precautionary pass or a score of 3 (depending on the HCA sheet methodology). This approach does not automatically assign a habitat as being in Good condition; rather, it applies a higher level of precaution where data is limited.

In some instances (such as a felled non-native conifer plantation) there may be sufficient evidence from stocking species and density plans, herbivore management plans and historical imagery for example, to assess enough condition criteria to reach a conclusion

²⁰ Baseline habitat classification and HCA should be expected to take place during identification of options.

²¹ There may be circumstances where it can clearly be demonstrated that the change was independent of the development undergoing BNG assessment and the baseline should be recorded as observed during the field survey. For example, changes in land management by the owner or occupier that were prior to and unconnected with the proposed temporary occupation of that land for temporary works for overhead line installation along a wayleave

of Poor or Moderate condition, even where some precautionary passes or scores of 3 are applied.

Where an ecologist has undertaken an HCA in this manner, they should clearly state that a precautionary HCA has been carried out in the Notes within the SSE Biodiversity Toolkits and within the BNG narrative report and should outline the specific approach taken for each condition criteria (i.e. whether it has been assessed in the field, determined using desk-based evidence, or precautionarily assigned a pass or a score of 3).

2.8 CONNECTIVITY

Connectivity is a measure of the proximity of the habitat to similar related habitats which was included in the previous Natural England Metric 2.0²² but has since been removed from the Natural England Metric 3.0 onwards. The connectivity measure remains within the SSE Biodiversity Toolkits, and the default position conforms to the Natural England Biodiversity Metric 2.0 Beta Version.

Without a clear assessment process for assigning connectivity, a simplified approach for assigning a connectivity score should be applied, whereby high and very high distinctiveness habitats are assigned a 'medium' connectivity score, and all other habitats are assigned a 'low' connectivity score. In exceptional circumstances, uplifts in connectivity may be achieved when habitat creation and enhancement actions benefit linkage of a particular species²³, this should be agreed with project teams and Regulators.

2.9 STRATEGIC SIGNIFICANCE

Strategic significance identifies the local significance of a habitat and contributes to the overall quality of a habitat, similarly to distinctiveness, condition and connectivity.

Each habitat parcel is assigned a strategic significance category depending on if the habitat or area is included within any local plans, policies or strategies or is ecologically valuable.

Strategic significance should be worked out for each individual habitat separately using **Table 1** which is adapted from the Natural England Biodiversity Metric 3.1 and amended

²² IAN CROSHER A , SUSANNAH GOLD B , MAX HEAVER D , MATT HEYDON A , LAUREN MOORE D , STEPHEN PANKS A, SARAH SCOTT C , DAVE STONE A & NICK WHITE A . 2019. The Biodiversity Metric 2.0: auditing and accounting for biodiversity value. User guide (Beta Version, July 2019). Natural England.

²³ Improvements in connectivity may be realised within the SSE Biodiversity Toolkits, if it can be clearly demonstrated that a particular species will benefit from the proposed habitat creation. An example of this could be where two bat populations in wooded areas which are isolated from each other by open fields are connected/re-connected by planting a strip of woodland or line of trees between the two woodlands as a commuting corridor. Additionally, if species specific refugia or nesting provision are established within an existing habitat or included in the design of a new habitat, an increase in connectivity is permissible e.g. bird and bat boxes within a woodland or diver rafts on a lochan would all qualify. Other examples may include habitat creation or enhancement measures that reduce habitat isolation, facilitate species movement or strengthen ecological networks, such as species-rich grassland corridors connecting meadows, pollinator-friendly habitat strips, pond networks connected by rough grassland, and the provision of riparian woodland or wetland corridors. In such scenarios where consideration has been given to how species move

in line with the ESBM for medium significance. Strategic significance should not be identified on a site wide basis. When professional judgement has been used to assign 'medium' strategic significance for habitats not identified with a local plan, policy or strategy, the justification used should be included within the 'Notes' section of the SSE Biodiversity Toolkits and outlined within the BNG narrative report.

Table 1: Strategic Significance Categories

Strategic Significance Category	Strategic Significance Definition	Score
High	The habitat and/or location is formally identified in local strategy, plan ²⁴ or policy such as Local Plans spatial biodiversity policies, Local Biodiversity Action Plans, and green infrastructure strategies, or listing on the national list of habitats of principal importance for the purpose of conservation of biodiversity ²⁵	1.15
Medium (No suitable documents identified for assigning strategic significance)	Strategic significance can be recorded as medium if the habitat and/or location is considered ecologically desirable with one or all of the following criteria met: <ul style="list-style-type: none"> • The habitat type is ecologically desirable within the location. • The habitat provides ecological connectivity to other strategically significant areas. • Professional judgement determines the habitat and location as ecologically desirable 	1.1
Low	The habitat and/or location is not identified in a local strategy, plan or policy OR no strategy or plan is in place in the area and the area does not meet the 'Medium' criteria.	1

and interact with the landscape in the final BNG design, and where a clear benefit to a target species or species group can be demonstrated a 'high' connectivity rating should be applied.

²⁴ This could include habitat relevant to the interests of a non-statutory nature conservation site mapped on Local Development Plan (such as Local Nature Conservation Sites in Scotland), woodland within a spatial allocation in a Forestry and Woodland Strategy, habitats relevant to a mapped 'nature network' in Scotland (within the definition in NPF4)

²⁵ National lists of habitats of principal importance for the purposes of biodiversity being Scottish Biodiversity List (made under the Nature Conservation (Scotland) Act 2004 (as amended)), Northern Ireland's Priority Habitats (made under Wildlife and Natural Environment Act (Northern Ireland) 2011 (as amended)) and the Welsh Section 7 list (made under Environment (Wales) Act 2016 (as amended))

An example of how to assign strategic significance from the ESBM user guide is "if woodland is planted in an area that has been identified in a Local Nature Recovery Strategy as a strategic corridor between two existing areas of woodland it would be of high strategic significance; if the same location was not recognised in a local plan or strategy but the woodland would still create a strategic corridor this would be of medium strategic significance; if the woodland was in a location not recognised in a local plan or strategy and was isolated from other woodland habitat it would be of low strategic significance".

2.10 RISK MULTIPLIERS

Habitat creation and enhancement during the BNG process is not without risks and uncertainties. To mitigate for these risks, the Project BNG Toolkit includes risk multipliers for post-works habitats. The risk multipliers are included in the After Work Action biodiversity calculations, reducing the number of habitat units generated by an area or length of newly created or enhanced habitat. The risk factors do not cover all eventualities but provide a numerical value for the main risks to delivering biodiversity enhancement. The Project BNG Toolkit sets out three risk factors:

- How difficult it is to create or enhance a habitat (delivery risk);
- Time taken for created or enhanced habitats to reach target condition (temporal risk); and
- Distance of habitat compensation from the development footprint (spatial risk).

Difficulty risk

The delivery risk is the risk associated with the difficulty to create or restore a habitat and the uncertainty of outcome this creates. This risk will vary between habitat types due to ecological factors and the level of available information and techniques to create habitats within a realistic timeline. This risk is addressed by the habitat-specific 'difficulty' multiplier. See **Table 2, Section 4.7**.

Temporal risk

In delivering compensation for habitat loss, the timing of the impact may not coincide with the new habitat reaching the required quality or level of maturity, which could result in loss of biodiversity for a period of time. Additionally, there may be a time gap between the habitat loss and the start of the creation of a new habitat, which needs to be accounted for. For example, a development clears an area of woodland. Five years later it implements its compensation, which will take 25 years to reach target condition. As such, the time to target condition is 30 years in total and the assigned risk factor for this is 0.343. A summarised list of the time to target condition and risk factors are listed in **Table 3 in Section 4.7**. The risk factor scoring in the Project Biodiversity Toolkit is derived from the scoring values in the ESBM. It is recommended to add an explanation in the Notes column

in the Project Biodiversity Toolkit explaining any additional years applied to the default time to target condition (e.g. “TTTC +5 years due to delay in creation”).

Any advanced works or delay should be manually factored into the time to target condition years within the Project BNG Toolkit by entering the relevant number of years into the Advance Works and Delayed Works fields. Any deviation from the pre-populated values will be flagged orange in within the Project BNG Toolkit and will need to be clearly explained within the BNG narrative report and mentioned in the Notes column of the Project BNG Toolkit.

Note: The Natural England approach to advanced/delayed works is that the minimum 30-year maintenance and monitoring period for BNG starts at the end of construction i.e. after the implementation of habitat creation/enhancement and immediate landscaping aftercare. Projects should aim to bring forward most on-site HMP works to the construction phase and early operations to ensure BNG habitat enhancement and creation have at least the 30-year maintenance period to establish.

Spatial risk

Spatial risk is the risk associated with delivering compensation for the loss of a habitat at distance from that loss (i.e. generally the greater distance can mean a greater risk as the compensation will have lower connectivity to the original habitat). The spatial risk factor is applied to the After Work Action calculation when the compensation for habitat loss is being delivered at distances outside of the development site. Spatial risk multipliers can be seen in **Table 4** in **Section 4.7**.

2.11 POST-WORKS BIODIVERSITY

The post-works calculations should assess the following for habitats within the project site:

- Areas of no change:
 - Which areas will be retained with no action (i.e. no habitat enhancement or transition).
- Areas of loss (negative change):
 - Which areas will be permanently lost to works (i.e. no habitat creation);
 - Which areas will be temporarily lost due to the construction or management works and then reinstated (i.e. habitat creation)²⁶; and

²⁶ Land on wayleaves and servitudes (such as long linear electricity transmission and distribution infrastructure) that is temporarily impacted during development tends to be reinstated to the owner's satisfaction, with resumption of their land use rather than secured

- Indirect impacts (refer to **Section 2.1.3**).
- Areas of positive change:
 - Which areas will have action to increase habitat units improving the condition and possibly the distinctiveness of a broad habitat type (i.e. habitat enhancement); and
 - Which areas will have action to increase habitat units by changing one habitat to another (habitat creation or transition).

Please see **Section 2.3** for the definition of permanent and temporary impacts.

For each of the above steps, data should be collected on habitat type, distinctiveness and condition. The post-works BU, HLU and WLU are then calculated as follows:

POST – intervention biodiversity calculation (for newly created habitat)

Size of habitat parcel	X	Distinctiveness	X	Condition	X	Strategic location	X	Connectivity	X	Difficulty	X	Time to target condition	X	Spatial risk	=	Biodiversity Units
10 ha	X	6 (High)	X	3 (Good)	X	1.15 (High)	X	1.15 (High)	X	0.7 (med)	X	0.8 (5 yrs)	X	0.75	=	99 units

The net effect of an intervention or series of inventions on biodiversity if calculated as follows:

POST units	-	PRE units	=	Outcome
99 units	-	52.9 units	=	46.1 units

	Habitat parcel
	Measure of biodiversity quality
	Risk factor
	Value in biodiversity units

Figure 4: Post-intervention Biodiversity Calculation (for Newly Created Habitat)

2.12 GREEN INFRASTRUCTURE FEATURES

Development that does not require an ecological survey may still have the potential to deliver benefits for biodiversity. For example, trees and flower beds can be integrated within pavement or hard landscaping schemes, or green roofs and walls included within structures. Where development takes up these opportunities for enhancement the Project

to be returned to baseline habitat type or baseline condition, or enhancement. A return to prior land use, including prior land management, may not be sufficient to guarantee return to and maintenance at baseline condition over the longer term. This challenge has been recognised in England in the Defra guidance for NSIP energy projects which would include reinstated habitats on third party land in the metric calculations, but does not require them to be 'secured' (i.e. they do not have to be maintained for at least 30 years). Users of the SSE Toolkit should apply reasonable judgement as to what the likely outcome would be if reasonable effort for reinstatement takes place and prior land use resumes. It should be presumed that the establishment or recovery of semi-natural habitats on wayleaves or servitudes will rely upon the risk/success of natural regeneration and not proactive seeding/planting and management for establishment unless there is express agreement from the Project Team that those activities would be secured with the owner of the land. For NSIP guidance see Nationally significant infrastructure projects: biodiversity gain statement for energy June 2026 [online]. Available at: <https://www.gov.uk/government/publications/nsips-biodiversity-gain-statement-for-energy>

BNG Toolkit should still be used to demonstrate the habitat units gained from the creation of the new green space.

Green infrastructure features, such as green roofs, rain gardens and green walls should be assigned the UKHab, Phase 1 or Fossitt habitat classification that most closely represents the habitat.

Green walls consisting of climbing plants should be treated as linear habitats and green walls consisting of plug planting should be considered as area-based habitats.

2.13 ANCIENT WOODLAND

Ancient woodland includes areas that have been continuously wooded for a considerable period. Because these habitats have existed for hundreds of years, they have developed into important and biodiverse ecosystems. These ecosystems are unique and can be genetically distinct, therefore ancient woodland 'enhancement' is typically focused on the preservation and increase of existing features, rather than overall improvements for biodiversity. For this reason, the methodology for calculating BU is not considered to be appropriate for ancient woodland, as the value of the habitat type cannot be accurately determined by the current HCA system. Therefore, ancient woodland is calculated in the SSE Biodiversity Toolkits by extent, rather than quantified as BU. This can be achieved by selecting 'Yes' in the 'AW/AVT' column of the SSE Biodiversity Toolkits for rows associated with parcels of ancient woodland.

Selecting 'Yes' in the AW/AVT column will also trigger an alert highlighting the requirement to provide necessary additional information in the Notes column. For example, the AWI classification of the woodland. The advantage of entering ancient woodland into the Unit Calculation Tab and using the AW/AVT check box, is that the box can easily be un-checked and the feature reincorporated into standard woodland BU calculations if further information determines that it is not ancient woodland.

The specific definition of ancient woodland varies between countries within the UK. Interpretations of these definitions for the different jurisdictions relevant to the SSE Biodiversity Toolkits are provided in the sections below, with reference to the associated Ancient Woodland Inventory (AWI) for Scotland, Wales and Northern Ireland and the Ancient and Long-established Woodland Inventory (ALEWI) for the Republic of Ireland.

It is important to note that 'continuously wooded' does not mean that there has been uninterrupted tree cover across the area for the entire specified period, nor is the presence of 'ancient trees' required for a woodland to be classified as ancient. Both temporary and permanent open ground are important components of ancient woodland and reflect historical land management practices. For example, felled woodland would typically be expected to regenerate naturally from the existing seed bank, retaining the characteristics of the original botanical and fungal communities. As such, areas mapped as ancient woodland on the relevant AWI or ALEWI (as applicable) are still considered to be ancient woodland (even where there are currently no living trees), unless the soils

have been disturbed to such an extent that natural regeneration of woodland habitat is no longer possible.

In instances where soils have been damaged to such an extent that natural woodland regeneration is no longer possible, it may not be appropriate to consider the area as ancient woodland. For example, the area may have been previously developed with hardstanding or managed in a way that has damaged the former seed bank and severely degraded the land for tree growth (for instance, where the land has been cultivated for agricultural purposes over an extended period).

In such cases, the consultant should provide clear, evidence-based justification as to why the area can no longer be considered as ancient woodland and should instead be assessed purely according to the current dominant botanical community (as defined by the relevant habitat classification system).

Specific definitions of ancient woodland within each country relevant to the SSE Biodiversity Toolkits are provided in the sections below.

2.13.1 Scotland

In Scotland, there is currently no specific definition of ancient woodland associated with the BNG process. However, ancient woodland is defined in the National Planning Framework 4 (NPF4) as *“land that has remained continuously wooded since at least 1750”*.

In consistence with definitions provided in the Scottish AWI, SSE considers ancient woodland in Scotland to be areas listed on Scotland’s AWI as ancient woodland (including categories 1a and 2a). This includes areas interpreted as semi-natural woodland from maps dating from circa. 1750 (category 1a) or circa. 1860 (category 2a)²⁷.

Categories 1a and 2a on Scotland’s AWI include ancient semi-natural woodland (ASNW) and plantations on ancient woodland sites (PAWS).

Long-established woodlands of plantation origin (LEPO) (categories 1b and 2b on Scotland’s AWI) may be as ecologically rich as ancient woodland, however, they are not formally classified as ancient woodland and therefore are not considered to be ancient woodland within the BNG assessment process.

Similarly, ‘Other woodlands on ‘Roy’ woodland sites’ (category 3 on Scotland’s AWI) may retain some features of ancient woodland, however, they are not categorised

²⁷ The inclusion of the OS 1st Edition maps (circa. 1860) ensures that any areas of woodland that were not mapped during the rapid reconnaissance of the Roy Military Survey 1747 – 1755 (i.e. the 1750 maps), and or woodlands that were present in 1750 on the islands (which were not included on the Roy maps) are appropriately accounted for.

as ancient woodland outright and therefore are not considered to be ancient woodland within the BNG assessment process.

2.13.2 Wales

In Wales, ancient woodlands are defined as woodlands that have been in continuous existence since 1600 AD or earlier. The Welsh AWI classifies ancient woodland into four categories, including ASNW, PAWS, Restored Ancient Woodland Sites, and Ancient Woodland Sites of Unknown Category, all of which are considered as ancient woodland within the BNG assessment process.

ASNW is more specifically defined in the Welsh AWI as broadleaved woodland with predominantly native tree and shrub species that are believed to have been in existence for over 400 years. PAWS are defined as sites that are believed to have been continuously wooded for over 400 years and currently have a canopy comprising more than 50% non-native conifer species.

2.13.3 Northern Ireland

In Northern Ireland, ancient woodland refers to areas that can be shown, with a reasonable degree of certainty, to have been continuously wooded since 1600 AD. The Northern Irish AWI classifies ancient woodland into three distinct categories (1, 2, and 3), depending on the strength of evidence supporting their ancient origin and the existing botanical communities. Category 1 is considered to have 'strong' evidence, category 2 'moderately strong' evidence, and category 3 'moderately strong' evidence but supports fewer plant species associated with ancient woodland than the defined threshold. All three categories are considered as ancient woodland within the BNG assessment process.

Long-established woodland is also included in the Northern Ireland AWI, however, it is not formally classified as ancient woodland and therefore is not considered to be ancient woodland within the BNG assessment process.

2.13.4 Republic of Ireland

In the Republic of Ireland, ancient woodland refers to woodland that has had a continuous history of cover since before planting and afforestation became common practice (mid-1600s). The Republic of Ireland's ALEWI includes two categories associated with ancient woodland. These are Possible Ancient Woodland (PAW), which comprises stands that have been continuously wooded since 1660, and Ancient Woodland (AW), which represents an upgraded status for former PAW sites where additional research has confirmed an ancient origin. Both categories are considered as ancient woodland within the BNG assessment process.

Long-established Woodland (LEW) is also included in the Republic of Ireland's ALEWI. LEW includes areas that have been continuously wooded since 1830 and comprises two sub-categories. These are LEW(I), which includes stands for which no evidence of antiquity could be found in older documentation, and LEW(II), which includes stands for

which there is evidence that the site is not ancient. LEW is not considered to be ancient woodland and therefore is not considered to be ancient woodland within the BNG assessment process.

2.14 PEATLANDS

2.14.1 Active and Degraded Bog

The SSE Biodiversity Toolkits have deviated from the ESBM by incorporating degraded bog habitats which are assigned a distinctiveness category of 'high' rather than 'very high'. Careful consideration and professional judgement should be used as to when to use a degraded peatland habitat category. Habitats with frequent peat-forming vegetation and *Sphagnum* cover should not be assigned to a degraded peatland category and should instead be entered as an active bog category and assigned an appropriate condition category. However, for habitats that are very highly modified (characterised by very limited peat-forming vegetation), a degraded/modified habitat category may be more appropriate.

2.14.2 Condition Assessment

The HCA for peatland should be informed by ESBM HCA sheets. It may, by prior agreement, be undertaken using the SPBM method or a hybrid approach²⁸. If a degraded peatland habitat is selected, the HCA sheets no longer apply, and the habitat should be assigned a 'poor' habitat condition as standard. As a general rule, peatlands that are predominantly drained, dried and/or eroded, with very limited *Sphagnum* cover, should be assessed as degraded and therefore automatically considered as being in poor condition (and should be outlined in the Notes of the SSE Biodiversity Toolkits and justified within the BNG assessment report).

Assigning a 'poor' habitat condition ensures that the degraded/modified nature of the peatland is correctly reflected in the SSE Biodiversity Toolkits. For example, 1 ha of blanket bog in poor condition returns 10.12 BU whereas 1 ha of degraded blanket bog in poor condition returns 7.59 BU (both assessed with 'high' Strategic Significance).

2.14.3 Target Condition

Conversely, when restoring heavily degraded peatlands, careful consideration should be given to the quality of habitat that can realistically be expected to establish within 30 years. For example, in forest to bog restoration projects, the target habitat would typically

²⁸ SSE Renewables (only) allows the use of the SPBM HCA method or a hybrid approach of Metric specific condition sheets and other formal peatland condition guidance such as NatureScot Peatland Guidance (2026), Peatland Action: Peatland Condition Assessment or Peatland Code: Field Protocol Assessment Guidance. SSEN Transmission only uses ESBM HCA sheets for the time being.

Where the NatureScot methodology is applied, the resulting condition score should be translated to the SSE Biodiversity Toolkit condition categories as follows: Condition Class 1 = Good, Condition Class 2 = Fairly Good, Condition Class 3 = Moderate, Condition Class 4 = Fairly Poor and Condition Class 5 = Poor.

be blanket bog in moderate or good condition (where this is considered achievable). However, in some circumstances, a wet modified (degraded) bog habitat may represent the most precautionary and realistic target outcome. Habitat selection should be evidence-based and reflect the anticipated condition of the habitat at the end of the restoration period.

2.14.4 Peatland Drains

Artificial drains on bogs are a negative feature and are not necessary to compensate, or account for in the BNG baseline. Their exclusion from the BNG baseline can be justified in the narrative report. Where it is obvious from maps that a watercourse is of natural origin then it should be included in the baseline and BNG calculations. This decision may be informed by assessment of historic maps, if it appears that realignment or reprofiling of a natural watercourse has taken place.

2.15 INDIVIDUAL TREES

This section provides guidance on the assessment for individual trees. For additional guidance specific to ancient and veteran trees, see [Section 2.16](#).

2.15.1 Classifying Individual Trees

To classify as an Individual tree the tree must have a diameter at breast height (DBH) (with the 'height' being approximately 1.5 m from ground-level) of >75 millimetres (mm).

Individual trees can include:

- Individual Rural trees and individual Urban trees (professional discretion should be used to consider the degree of 'urbanisation' of habitats around the tree and assign the best fit habitat category for the location, although it is expected that rural trees will be present within unmanaged land or land managed for agricultural purposes, with all other individual trees expected to be urban);
- Individuals from blocks or groups of trees found within the perimeter of urban land, where the land beneath is representative of its own habitat type and is managed as such (for example, small blocks of groups/blocks of trees growing on modified grassland with a regular management regime or on mulch or other substrates as part of the landscaping on an urban site); and
- Trees should not be recorded as an individual tree if they are situated within a habitat type which is characterised by the presence of trees (unless they are a veteran or ancient tree at risk from the project).

2.15.2 Mapping and Calculating the Baseline Biodiversity Value of Individual Trees

Where an arboricultural survey is undertaken within the site, it is highly recommended that any GIS shapefiles be shared between the arborist and ecologist to prevent

discrepancies between the naming (i.e. ID provided within the reports) and mapping of each tree.

The condition and DBH of an individual tree should be recorded in the field using the ESBM HCA sheets and appropriate measuring equipment (it is recommended that the DBH measured by the arborist is used, if available).

Individual trees should be treated as an area-based habitat within the SSE Biodiversity Toolkits.

The area that the tree occupies should be considered by the size class that the tree falls within. The individual tree should be categorised into a size class of either small, medium, large, or very large based on the size of the DBH, as described in **Table 2** (unless the individual tree is an ancient or veteran tree, see [Section 2.16](#)).

Table 2: Size Classifications for Individual Trees Based on DBH

Size Class	Diameter and Breast Height (DBH) (cm)	Area (ha)
Small	>7.5 cm but ≤30 cm	0.0041
Medium	>30 cm but ≤60 cm	0.0163
Large	>60 cm but ≤90 cm	0.0366
Very large	>90 cm	0.0765

Trees of different condition must be included as separate rows in the SSE Biodiversity Toolkits. It is also recommended that trees of different species and size (i.e. small, medium or large) be incorporated separately within the SSE Biodiversity Toolkits. Trees of the same condition, species and size could be grouped together, although a proportionate approach in relation to the specific project should be considered and detailed within the BNG assessment report. For assistance in calculating the area of grouped individual trees, please see the 'Tree Helper' in the SSE Biodiversity Toolkits. If trees are grouped into one row, please outline the number of trees associated with the row within the notes. Ancient and veteran trees should not be grouped and should always be assigned individual rows (see [Section 2.16](#)).

The area associated with an individual tree should not be deducted from the total area of other habitats within the site. This is due to the expectation that the land beneath the tree will be managed separately as its own habitat, which would not necessarily be directly associated with the tree's presence (as would be expected in a woodland for example). Hence, the area beneath the tree should be recorded as the relevant habitat type and

captured within the SSE Biodiversity Toolkits separately (although the presence of individual trees within the land parcel should be clearly outlined in the Notes of the SSE Biodiversity Toolkits, to ensure that an appropriate assessment of the land can be undertaken where necessary).

2.15.3 Degradation of Individual Trees

Arboricultural input may not be necessary where individual trees will be removed or can be appropriately avoided. However, where works will take place nearby to individual trees that are proposed for retention, an arborist should be consulted to determine whether there is likely to be any degradation associated with the condition criteria, due to the proposed works. It is expected that this could be considered as part of the Arboricultural Impact Assessment (AIA), and therefore, early communication between the ecologist and arborist is recommended. If the land parcel associated with the individual tree will be altered or degraded to an extent that would impact upon the tree's vitality (and appropriate mitigation cannot be implemented to minimise adverse impacts), then this would be treated as a direct impact upon the individual tree (i.e. habitat loss) as a precautionary approach.

2.15.4 Enhancement of Individual Trees

The enhancement of an individual tree for biodiversity is difficult without causing potential adverse effects to the tree itself (i.e. reduced vitality for example). Therefore, the only criteria that may be appropriate for enhancement would be to change the management regime to improve the tree health (if feasible) or to remove any hard standing within the theoretical root footprint and create a vegetated ground flora beneath the canopy (providing it is done with support of an appropriately experienced and competent arborist so as not to cause damage to the roots). If the passing of these criteria alone was enough to raise the condition, then enhancement of an individual tree may be possible. However, for the most part it is expected that enhancement of individual trees based on the ESBM HCA sheets will be unachievable, without causing adverse impacts to the tree.

Natural size increases of existing trees over time is not considered to be biodiversity enhancement and should not be recorded within the Project Biodiversity Toolkit.

2.15.5 Creation of Individual Trees

The size class of a proposed tree should be based on the DBH at the time of planting. Hence, new trees would typically be expected to fall within the small-size class (including trees that will be planted with a DBH of <75 mm).

As such, we would only be accepting of a proposed tree to be considered to fall within the medium-size class if they met the criteria for a medium-size class at the time of planting and there was considered to be sufficient rooting zone around the tree to

accommodate a tree of that size (i.e. a symmetrical area of appropriate vegetation around the tree totalling at least 0.0163 ha).

Natural size increases of newly planted trees over time is not considered to be biodiversity enhancement and should not be recorded within the Project Biodiversity Toolkit.

Any delay to planting should be added to the time to target condition. It should be noted that the time in which the tree is planted is when it is put in its proposed planting space within the site, not for example, when it is brought/planted on-site as nursery stock.

2.15.6 Changes to Habitat Supporting Individual Trees

As outlined in [Section 2.15.2](#), the habitat beneath an individual tree should be recorded as a separate habitat in a different row of the SSE Biodiversity Toolkits.

The consultant should ensure that any changes to a habitat supporting an individual tree are also reflected in the assessment for that individual tree. It is expected that this assessment will be carried out by an appropriately competent and experienced person and will likely require arboricultural expertise.

2.16 ANCIENT AND VETERAN TREES

There are many definitions for the term 'veteran tree', which are inconsistent across the relevant jurisdictions. Therefore, ecologists are guided to refer to the respective national legislation, policy and/or guidance applicable to the project, in addition to the definitions outlined within the relevant habitat classification system. As all ancient trees are commonly regarded as veteran, it is recommended that all ancient trees are recorded and reported as veteran trees, to align with wider spread BNG practices.

It is the role of the ecologist to ensure that they have provided sufficient evidence and justification to support a trees classification as a veteran. The consultant should provide clear evidence-based justification for the tree's classification as a veteran. For example, photos and written descriptions of any relevant important ecological features and tree-related micro-habitats. The location of the tree should be recorded and clearly outlined within any relevant figures.

Veteran trees should largely be incorporated into the SSE Biodiversity Toolkits in the same way as individual trees (see [Section 2.15](#)). However, unlike other individual trees, veteran trees should always be inputted separately in individual rows rather than grouped together, to ensure sufficient information can be provided within the Notes section of the SSE Biodiversity Toolkits. In addition, the 'area' associated with an ancient or veteran tree should not be determined by its DBH (although this should still be recorded and provided in the Notes). Instead, the maximum rooting area should always be applied (i.e.

0.0765 ha or that of a very large individual tree) to ensure that sufficient consideration is provided to the tree's potential growth requirements.

Veteran trees typically provide a range of features that support unique species assemblages. Therefore, the HCA process is not considered to be appropriate to accurately account for the importance of veteran trees for biodiversity. For this reason, veteran trees are calculated in the SSE Biodiversity Toolkits by extent (i.e. the area of land with potential to support the veteran tree), rather than quantified as BU. This can be achieved by selecting 'Yes' in the 'AW/AVT' column of the SSE Biodiversity Toolkits for rows associated with veteran trees.

Selecting 'Yes' in the AW/AVT column will also trigger an alert highlighting the requirement to provide necessary additional information in the Notes column. For example, a summary of the rationale for the tree's classification as a veteran, or a reference given to where to find the relevant information. The advantage of entering veteran trees into the Unit Calculation Tab and using the AW/AVT check box, is that the box can easily be un-checked and the feature reincorporated into standard individual tree BU calculations if further information determines that it is not a veteran tree.

2.17 EXCEPTIONAL ECOLOGICAL CIRCUMSTANCES UPLIFT

Exceptional Ecological Circumstances Uplift (EECU) is a fixed uplift multiplier which can be applied in exceptional circumstances to projects that align with national or regional biodiversity strategies that would not be supported by normal weightings in the Project Biodiversity Toolkit. This is a fixed +15% uplift to the total number of BU applied post-calculation, triggered by a checkbox on relevant rows in the 'Unit Calculation' tab. It is applied at a row-level, for any applicable habitat parcel. It allows for targeted support of strategic priorities without distorting the ecological logic of the Project Biodiversity Toolkit.

The EECU has been included within the Project Biodiversity Toolkit to counter known limitations with biodiversity metrics based on the Statutory Metric approach in Scotland. An example of this is the low scoring applied to native woodland planting on heathland of 'high' distinctiveness even when proposed in regions assessed by national or local government as a suitable planting zone and by suitably qualified professionals on the ground. The EECU can be applied to rectify such a scenario on rare occasions when the following criteria are met:

- The baseline is fully explored and understood (including species presence beyond botanical communities);
- The exceptional circumstance is agreed in principle with the competent authority (usually the local planning authority), the uplift should be agreed and applied by a non-biased party who will consider all ecological aspects;
- The project is aligned with Good Practice principle 9 'Optimise Sustainability'; and
- It is above and beyond protected species licencing (i.e. exceptional circumstance does not mean standalone mitigation for a protected species can be considered as a valid reason).

The EECU must only be applied with written agreement from the planning authority. When requesting to use the EECU, the onus is on the Project Biodiversity Toolkit user to prove to the planning authority that there is a limitation with the Project Biodiversity Toolkit and that the land management activities proposed fully align with national planning policy, regional and local biodiversity strategies and make good ecological sense. With that in mind, the EECU is only for use on rare occasions where the land management prescriptions are too complex or nuanced for the Project Biodiversity Toolkit to capture the full ecological value.

3 Optioneering Biodiversity Toolkit

3.1 TOOLKIT OVERVIEW

The Optioneering Biodiversity Toolkit has been designed to help with decision making and mitigation by allowing the user to compare the baseline habitat units (and potential loss) of sites or designs and therefore allow for easier site/design selection.

The data required from each site for input into the Optioneering Biodiversity Toolkit is a biodiversity baseline identifying the habitats likely to be on site. This can be gained via remote sensing, online maps and/or aerial imagery that covers the strategic option area. This means the results will be estimations of the habitat units rather than fully accurate baselines.

There are ten available 'Option' tabs (highlighted in green in **Figure 5**), with each corresponding to a different site or design option for the selection process.

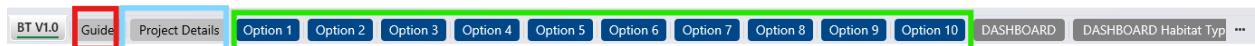


Figure 5 - Optioneering Biodiversity Toolkit Tabs

The Optioneering Biodiversity Toolkit by providing a baseline number of habitat units allows for quick identification of sites/designs that are of higher/lower value and therefore of higher/lower environmental impact. By working through the site/design options and identifying where a higher number of habitat units are impacted, developers can implement the mitigation hierarchy and demonstrate how impacts have been avoided and minimised.

The Optioneering Biodiversity Toolkit contains several tabs. The tab titled 'Guide' (as highlighted in red in **Figure 5**) contains further information on the Optioneering Biodiversity Toolkit and its use.

3.2 PROJECT DETAILS TAB

The Project Details tab (highlighted in blue in **Figure 5**), is shown in detail in **Figure 6**. Project details can be input into this page, such as project title, project lead and reference number as well as the Optioneering Biodiversity Toolkit lead and approver. There is a

drop-down menu for 'Habitat classification system', with the option of either UKHab, Phase 1 or Fossitt depending on which has been used for the habitat survey.

Once a classification system has been chosen in the 'Project Details' tab, the Optioneering Biodiversity Toolkit will adapt to this system and only offer drop-down options related to the chosen system in the Unit Calculation tab.

Below the project details is a table where each of the sites or designs (including name and location and a brief description of works) can be input.

There is another drop-down for 'Type of project', where the choices are linear or area, depending on what type of habitat is being assessed (e.g. cable route or a wind farm). If linear is chosen, the grey boxes beneath the 'End' of the Location (Grid reference) column will open and become light blue. The end point of the linear route can then be input.

A work-through example can be seen in **Figure 6**. To the work-through, the 'Habitat Classification System' will be UKHab and the 'Type of project' will be Area. As the 'Type of project' is Area, the 'End' option of the Location (Grid Reference) is greyed out.

sse Biodiversity Site Optioneering Toolkit				
Project title				
Project lead				
Project reference number				
Toolkit lead				
Toolkit approver				
Habitat classification system				
Date toolkit completed or updated		Type of project		
Site Ref	Site name	Location (Grid Reference)		Brief description of works
		Start	End	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Figure 6 – Project Details Tab

The name of the Site should be added to the Site name box; this will automatically update the names of the subsequent tabs with the relevant name once the tab is clicked on. The tab name should not be manually changed in the Optioneering Biodiversity Toolkit.

3.3 BIODIVERSITY UNIT CALCULATION

Within the Options tabs (labelled as Opt 1, Opt 2 etc. as highlighted in green in **Figure 7**), each habitat should be input independently, collated by habitat type, distinctiveness and condition. In the 'Calculation Units (Area/Linear (H.W))' tab, choose the correct habitat unit type:

- Phase1_Area – for use with area habitats;
- Phase1_Linear_H – for use with linear hedgerow habitats; and
- Phase1_Linear_W – for use with linear watercourse habitat.

The distinctiveness column will automatically populate. The rest of the data (condition, connectivity, strategic significance) can then be entered using the drop-down menus (see **Appendix A** for the Glossary). The area or length of habitat is also to be input manually (in ha and km respectively).

It is recommended that habitats other than ponds with an area of less than 0.01ha are not input into the biodiversity calculations as they are not large enough to be considered a viable habitat and to be effectively managed to increase overall biodiversity.

Once all the details have been input into the baseline, BU, HLU and WLU will calculate automatically.

Any notes can be added into the 'Notes' column beside each habitat row.

Once the habitat type, area, condition, connectivity and strategic significance ratings and AW/AVT status have been input, the Optioneering BNG Toolkit will automatically calculate the habitat units.



If the Calculation Unit had been input as Linear, the Optioneering Biodiversity Toolkit would have calculated linear units. The length for linear units must be input as km. **Figure 7** shows a worked example with both WLU and HLU. The Optioneering Biodiversity Toolkit has automatically calculated the HLU and the WLU. These scores are treated separately within the Optioneering Biodiversity Toolkit and should remain separate throughout the reporting process. The habitat units are not

interchangeable. For this reason, net gain should be achieved in each of the biodiversity areas represented by HLU and WLU.

Ref	Calculation Units (Area / Linear (H/W))	UK Habitats	Area or Length of Habitat (ha / km)	Condition Rating	Connectivity Rating	Strategic significance Rating	AW/AVT	Distinctiveness Band	AW/AVT Area (%)	Biodiversity Units	Area (%)	Linear Units (H)	Linear Units (W)
Project Total									16.67	17.39	100	4.60	4.00
1	UKHab_Linear_H	Native hedgerow	1.00	Moderate	Low	High	No	Low	0.00	0.00	23.81	4.60	0.00
2	UKHab_Linear_W	Ditches	1.00	Poor	Low	Low	No	Medium	0.00	0.00	23.81	0.00	4.00

Figure 7 – Optioneering Biodiversity Toolkit (Linear Units)

3.4 THE SUMMARY DASHBOARD

The Summary Dashboard tab allows for easy comparison of the Site options and automatically creates side by side bar charts allowing the user to compare the BU, HLU and WLU. **Figure 8** is an example of a Optioneering Biodiversity Toolkit that has been used to compare 3 design Options. Adjacent to the bar charts is a summary table summarising the BU, HLU and WLU and associated habitat area and length for each Option. Average BU per hectare are included for each option (BU/ha highlighted in red). Note that AW/AVT in Option 1 contributes to the summary of extents but not towards the total of BU.

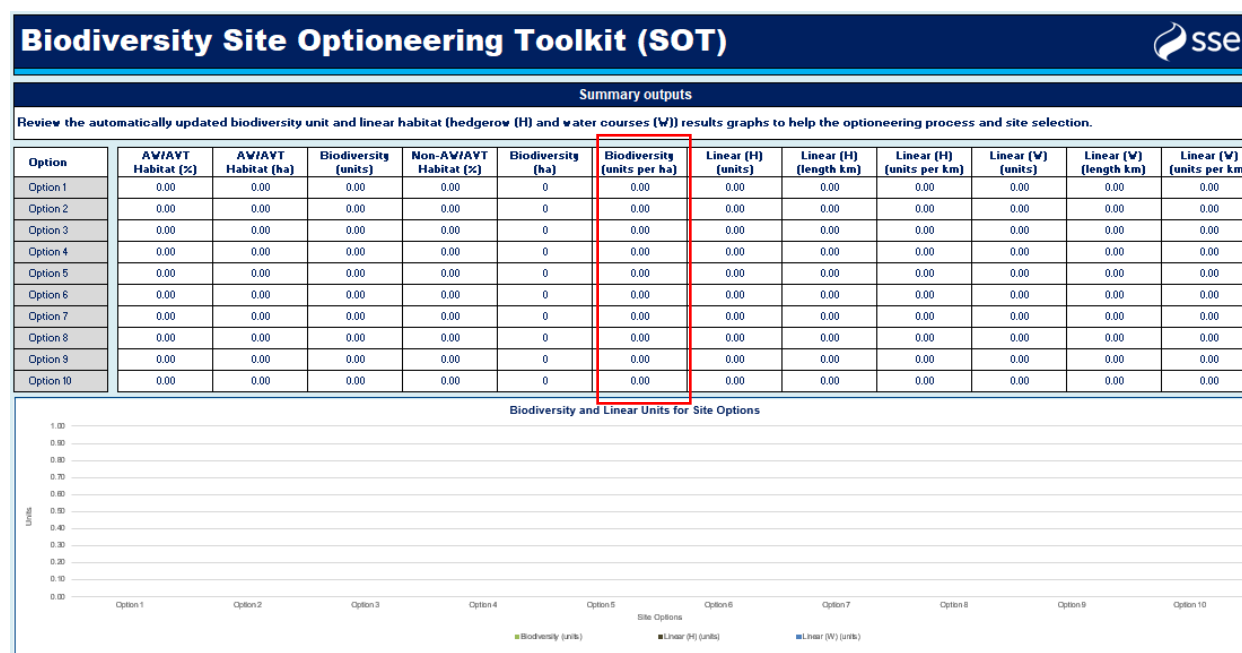


Figure 8 – Optioneering Biodiversity Toolkit – Summary Dashboard

3.5 HABITAT TYPES DASHBOARD

The Habitat Types Dashboard allows for easy comparison of the Site options with bar charts showing the percentage split of habitat units associated with the broad habitat type

within each option. The Habitat Types Dashboard also gives the percentage split of distinctiveness categories for habitat types within each option. **Figure 9** is an example of a Optioneering Biodiversity Toolkit that has been used to compare 3 option sites.

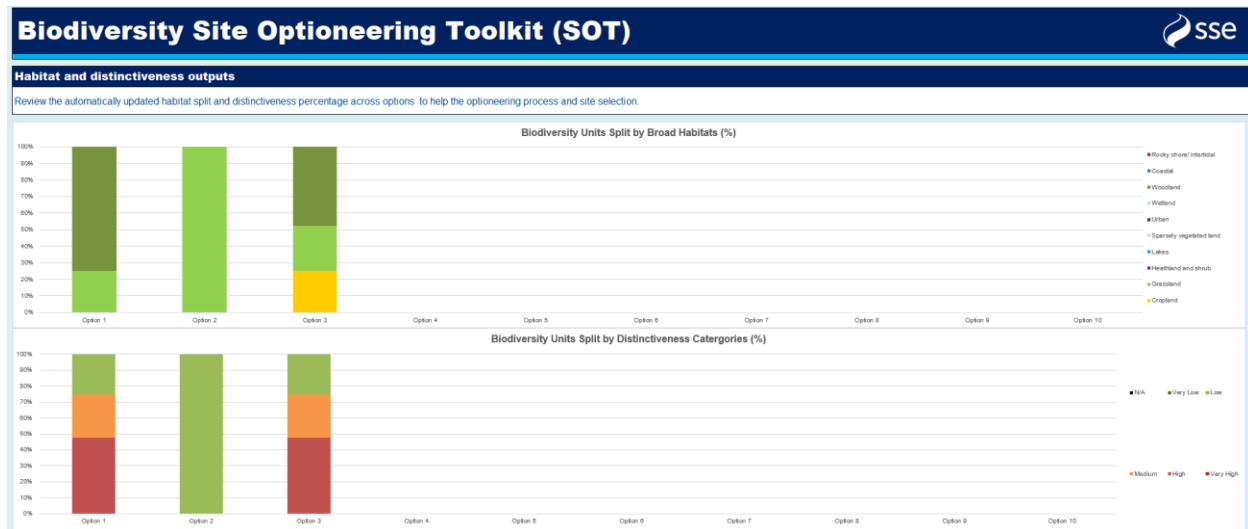


Figure 9 – Optioneering Biodiversity Toolkit – Habitat Type Dashboard

3.6 DELIVERABLES

The deliverables that accompany the Optioneering Biodiversity Toolkit are a Strategic Option Report to highlight areas of designated sites (excluded from the calculation) and valuable biodiversity (i.e. high distinctiveness habitats; ancient woodland, ancient and veteran trees) which should be avoided, and the production of a biodiversity hotspot map. The Optioneering Biodiversity Toolkit can also be used to deliver a Route Options Report for linear routes. These reports can be used to inform the engineering, land requirements and landscape designs to avoid and mitigate biodiversity impacts as far as possible, and direct development to the site of least biodiversity impact.

3.7 OPTIONEERING BIODIVERSITY TOOLKIT FLOWCHART

The flowchart in **Figure 10** is a step-by-step guide to using the Optioneering Biodiversity Toolkit.

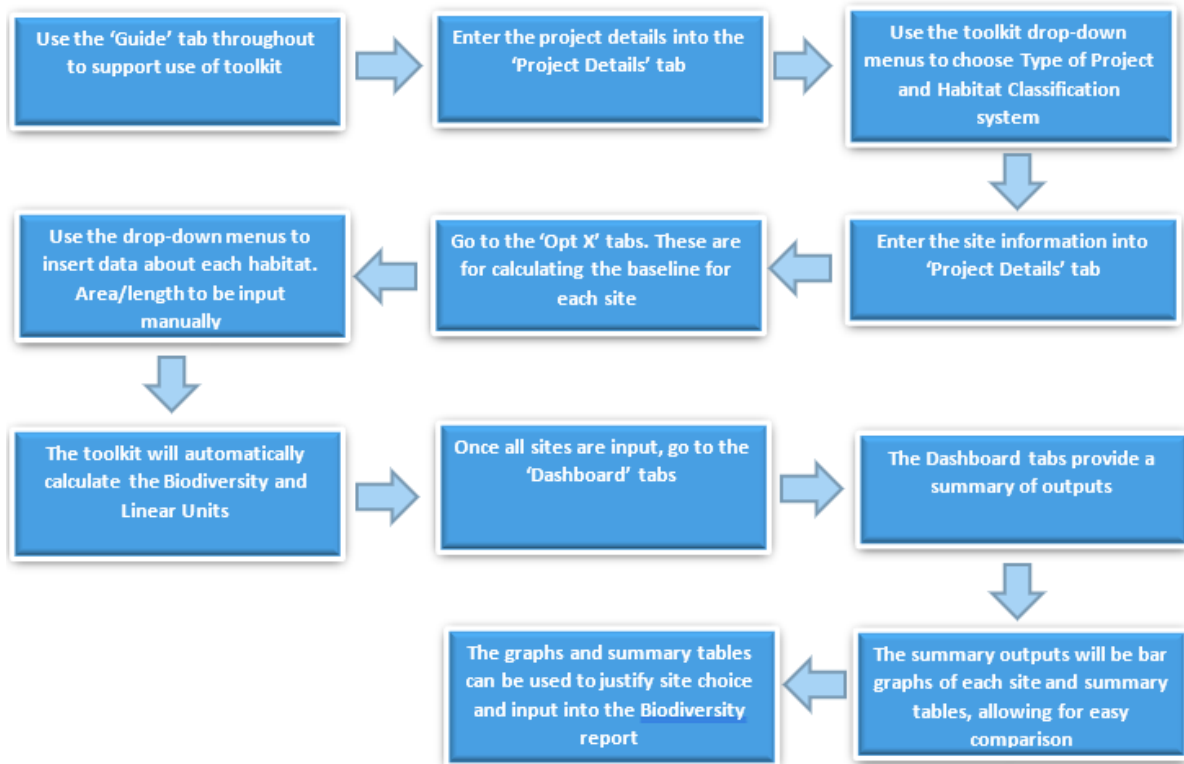


Figure 10 – The Optioneering Biodiversity Toolkit Flowchart

4 Project Biodiversity Toolkit

The Project Biodiversity Toolkit should be used to assess the impact of a proposed development or management plan within a site. The Project Biodiversity Toolkit will calculate the baseline habitat units and the proposed habitat units within the site, allowing for an assessment between the overall change in biodiversity value. In particular, the Project Biodiversity Toolkit can be used to assess whether a development will achieve sufficient biodiversity enhancement, or whether habitat units may need to be delivered offsite (and therefore can inform planning applications). In addition, the Project Biodiversity Toolkit can be used to assess the amount of habitat units that an offsetting site might be able to deliver.

The Project Biodiversity Toolkit contains several tabs. The tab titled 'Guide', **Figure 11**, contains further information on the Project Biodiversity Toolkit and its use.

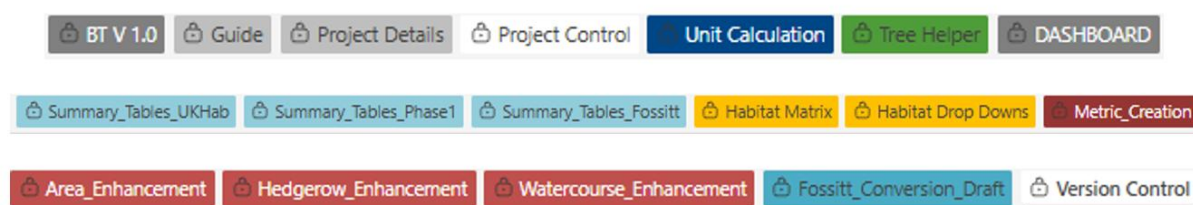


Figure 11 – Project Biodiversity Toolkit Tabs

For each habitat type, habitat units are calculated based on the approach set out in the ESBM. The change in habitat units are used as a proxy for a site's change in relative biodiversity value. The BU, HLU and WLU are kept separate throughout the assessment.

Throughout, the BNG assessor (ecologist) should work with individuals responsible for the design of the project (engineers, landscape architects, hydrologists etc.) to identify the type of impact caused by the scheme. This may already be set out in an EclA, which will identify whether impacts on biodiversity are direct or indirect, temporary or permanent, or resulting from cumulative impacts (however, consideration as to whether impacts are direct or indirect should be considered in line with **Section 3.1**).

4.1 PROJECT DETAILS TAB

Summary information about the project should be entered into the Project Details tab in the Project Biodiversity Toolkit to make it clear what the assessment covers (**Figure 12**).

These details include project title, lead and reference number²⁹ as well as the name of the toolkit lead and approver.

In the 'Project Details', there are five drop-down menus. The first is for the 'Habitat classification system', which provides a choice between UKHab, Phase 1 or Fossitt. Once the habitat classification system has been chosen, the Project Biodiversity Toolkit will automatically adapt to this and only offer the options that align with the chosen system.

The 'Site type' allows the Toolkit to be categorised as being the 'Development site' or a geographically separated 'Offset site'.

The 'Development/project type' lists development types. Any principal project or development type not falling within another specific category should use 'Any other principal type of development or development'.

The 'AW/AVT' dropdown is used if ancient woodland, ancient or veteran tree features have been listed in the 'Unit Calculation' tab.

A controlled drop-down field is also provided for 'Toolkit Version (Draft/Final)' to support categorisation and reporting.

The Project Details tab includes several additional fields that should be completed to support project tracking and reporting. These include:

- Size of Project (size of length of the project boundary, recorded in km or ha depending on whether the Type of project has been determined to be linear or area);
- Type of Consent;
- Consenting Body; and
- Has the data been condensed by Pivot Table? (Long linear developments can have hundreds or thousands of individual mappable habitat features which can be simplified in to a smaller number of recurring scenarios)

For location (Grid Reference), the 'Location end' cell will only open and turn from grey to light blue when the Type of project is linear. Where the Type of Project is area, this cell will remain grey and closed.

There is also a cell with space to enter a brief description of works. It is useful to outline the anticipated Project Start Date and Project Duration relative to the commencement of

²⁹ Users must enter the official project name and project ID as recorded within SSE systems to ensure consistency between the toolkit and corporate reporting systems and should check with their Project Team contact to ensure that they have the correct details

clearance works³⁰ and the length of time before restoration or creation of habitat commences.

A work-through example of the Project Details tab can be seen in **Figure 12**. Fields in this tab turn white from light blue when they are filled in. For this example, the ‘Habitat Classification System’ used is UKHab and the ‘Type of project’ is Area.

 Biodiversity Project Toolkit			
Project name	Insert project name		
Project lead	Insert project lead		
Project ID	Insert project reference number		
Toolkit lead	Insert toolkit lead		
Toolkit approver	Insert toolkit approver		
Habitat classification system	UKHab	Site type	Development site
Date toolkit completed or updated	DD/MM/YYYY	Development/project type	
Location start (grid reference)	Insert	Location end (grid reference)	Insert grid ref
Size of Project		AW/AVT (Yes/No)	
Toolkit Version (Draft/Final)		Type of Consent	Insert
Consenting Body	Insert		
Has the data been condensed by Pivot Table?			
Brief description of works			
Insert brief description, as per use guide			

Figure 12 – The Project Details Tabs

4.2 THE UNIT CALCULATION TAB

The Unit Calculation tab (shown in **Figures 13, 14, 15, and 16**) consists of a ‘Before works’ (Baseline) section, an ‘Action’ section and an ‘After work’ actions (Following actions) section as well as summary tables for the post-development habitat units and net change in habitat units.

In the Unit Calculation tab, the Before works section allows for calculation of the baseline habitat units. The details of each habitat should be input into the rows. The variables for

³⁰ Site clearance for ground investigation works may have been carried out under permitted development rights ahead of the main consent being granted which would allow the development to proceed. Where a measurable loss of habitat or condition has occurred then the project baseline should be taken as the habitat type and condition before ground investigation clearance commenced and the time between ground investigation site clearance and the commencement of habitat creation should be accounted for as the delay in creation.

calculating habitats units including habitat unit type, habitat type, condition, connectivity, and strategic significance are all selectable from drop-down menus. The area/length of a habitat is to be entered manually as either ha (for area-based habitats) or km (for linear watercourse habitats and linear hedgerow habitats).

As with Optioneering, it is recommended that habitats other than ponds with an area of less than 0.01ha are not input into the biodiversity calculations as they are not large enough to be considered a viable habitat and to be effectively managed to increase overall biodiversity.

The BU, HLU and WLU will be calculated automatically.

4.3 BEFORE WORKS (BASELINE) CALCULATIONS

The information gathered from the baseline habitat survey is used to inform avoidance, mitigation and compensation measures proposed for the project. The aim is to minimise the ecological impacts and provide opportunities for enhancing biodiversity.

The details of each habitat should be input into the rows. The variables for calculating habitat units including habitat classification system, habitat unit type (area or linear), habitat type, condition, connectivity, strategic significance, and AW/AVT status, are all drop-down menus. The area/length of a habitat is to be entered manually. Previously assigned target can be left blank unless an exception applies (see [Section 2.4](#))

When the habitat type is entered, the distinctiveness will be automatically populated. If there are areas of the same habitat but with differing condition, distinctiveness³¹, or status as a 'AW/AVT' feature, these should be detailed within separate rows (see **Figure 13**).

³¹ Note the rules regarding changing distinctiveness in Section 2.6. Any change must only be a one-point change higher/lower, and the change will be flagged by highlighting the cell orange. Justification for the manual adjustment must be detailed in the Toolkit Notes section and discussed within the accompanying report.

Ref	Before works (Baseline)											Units		
	Type	Calculation Units	Previously Assigned Target	Habitats	Area or Length of Habitat	Condition	Connectivity	Strategic significance	AW/AVT	Distinctiveness				
	(Area / Linear (H/W))	(Area / Linear (H/W))			(ha / km)	Rating	Rating	Rating		Band		Biodiversity (Area)	Linear (H)	Linear (W)
	Manual Input	Formula	Manual Input	Manual Input	Manual Input	Manual Input	Manual Input	Manual Input	Manual Input	Formula		Formula	Formula	Formula
Pro												13.80	0.00	0.00
1	Area	UKHab_Area		Woodland and forest - Other woodland, broadleaved	100	Poor	Low	High	No	Medium		4.60	-	-
2	Area	UKHab_Area		Woodland and forest - Other woodland, broadleaved	100	Moderate	Low	High	Yes	Medium		-	-	-
3	Area	UKHab_Area		Woodland and forest - Other woodland, broadleaved	100	Moderate	Low	High	No	Medium		3.20	-	-

Figure 13 – Habitats with Different Condition, Distinctiveness Scores and Status as ‘AW/AVT’ should be detailed in Separate Rows

After all the data has been entered, the *baseline* habitat units will be calculated automatically. This data can then be used in the Biodiversity Baseline Report (if required).

For the worked example above, the UKHab habitat classification has been used. As the UKHab habitat classification has been chosen for habitat classification in the Project Details tab, only UKHab habitat types will be available in the Unit Calculation tab.

A baseline habitat may need to be split into separate parcels/lengths and entered separately into the Project Biodiversity Toolkit, if the post-works expectations differ between segments of the habitat. For example, if half an area of hardstanding was to remain as hardstanding and the other half to be converted to grassland. This is to ensure that the Project Biodiversity Toolkit accurately demonstrates the end-to-end storey for each habitat.

4.4 DEVELOPMENTS WITH NO IMPACT ON BIODIVERSITY

Development that does not require an ecological survey may still have the potential to deliver benefits for biodiversity; however, this may be better demonstrated without the use of the Project Biodiversity Toolkit. Consideration can be given to guidance, including standing advice³², on how to provide biodiversity enhancement that would not be measured in biodiversity metrics.

³² For example NatureScot Developing with Nature guidance: Guidance on securing positive effects for biodiversity from local development to support NPF4 policy 3(c)
<https://www.nature.scot/doc/developing-nature-guidance>

4.5 ACTION (DURING WORKS)

In the Unit Calculation tab, there is an Action (**Figure 14**) section that allows for the calculation of habitat units. Landscape plans can be used to assess which areas/lengths of habitat will be retained, removed or subject to an indirect impact.

The consultant should select the appropriate Action for each habitat parcel. This is usually “Retained” or “Lost” but it can also be “Indirect Impact”.

It is not possible to have a new area habitat polygon post-works, as all applicable area should have a baseline. However, it is possible that new linear features or individual trees could be created post-works that were not there previously. In this instance the “New Linear Feature” or “New Individual Tree” option (as applicable) should be selected in the Action column to demonstrate that a new feature is being created that was not there previously. A corresponding baseline habitat with an area/length of 0 should be added, as the toolkit requires a baseline entry for all actions. For linear watercourse habitats, this may also apply to any additional lengths created as a result of increasing the sinuosity on an existing watercourse feature.

After inputting the Action, the Project Biodiversity Toolkit will automatically calculate the total area of each baseline habitat that will still be present post-works (except for habitats marked as AW/AVT). The Project Biodiversity Toolkit will then calculate the habitat units that will be retained or lost (whether temporarily or permanently, directly or indirectly) due to the project. The Project Biodiversity Toolkit will provide clarity on the habitats that are negatively affected by the project at this stage.

Where the Action shows an area habitat as removed, creation of an area habitat must be inputted into the After Works Action section. Potential areas for habitat creation should be identified at this stage.

Action (During Works)							
Area or Length of Habitat		Biodiversity Units		Linear Units (H)		Linear Units (W)	
Action	Percentage Retained <i>Add percentage manually if bespoke</i>	Retained	Removed	Retained	Removed	Retained	Removed
Manual Input	Formula	Formula	Formula	Formula	Formula	Formula	Formula
		9.20	4.60	0.00	0.00	0.00	0.00
Lost	0%	0.00	4.60	-	-	-	-
Retained	100%	-	-	-	-	-	-
Retained	100%	9.20	0.00	-	-	-	-

Figure 14 – Action (During Works)

Before works (Baseline)												
Ref	Ignore Row?	Habitat Classification System	Type	Calculation Units	Previously Assigned Target	Habitats	Area or Length of Habitat	Condition	Connectivity	Strategic significance	AW/AVT	Distinctiveness
			(Area / Linear (H/W))	(Area / Linear (H/W))			(ha / km)	Rating	Rating	Rating		Band <i>Habitat form or manually selected</i>
	Manual Input	Formula	Manual Input	Formula	Manual Input	Manual Input	Manual Input	Manual Input	Manual Input	Manual Input	Manual Input	Formula
Project Total												
1	Active	UKHab	Area	UKHab_Area		Woodland and forest - Other woodlands, broadleaved	1.00	Poor	Low	High	No	Medium
2	Active	UKHab	Area	UKHab_Area		Woodland and forest - Other woodlands, broadleaved	1.00	Moderate	Low	High	Yes	Medium
3	Active	UKHab	Area	UKHab_Area		Woodland and forest - Other woodlands, broadleaved	1.00	Moderate	Low	High	No	Medium

Action (During Works)									
Units			Area or Length of Habitat		Biodiversity Units		Linear Units (H)		Linear Units (W)
Biodiversity (Area)	Linear (H)	Linear (W)	Action	Percentage Retained <i>Add percentage manually if bespoke</i>	Retained	Removed	Retained	Removed	Retained
Formula	Formula	Formula	Manual Input	Formula	Formula	Formula	Formula	Formula	Formula
13.80	0.00	0.00			9.20	4.60	0.00	0.00	0.00
4.60	-	-	Lost	0%	0.00	4.60	-	-	-
-	-	-	Retained	100%	-	-	-	-	-
9.20	-	-	Retained	100%	9.20	0.00	-	-	-

Figure 15 – Before works (Baseline) and Action (During Works)

4.6 AFTER WORKS (FOLLOWING ACTIONS)

The area/length of the habitat to be created or enhanced, as well as the target condition, connectivity and strategic significance should be input into the 'After work' actions section (**Figure 16**).

Any habitat units resulting from the project, including newly created, enhanced and retained habitats, are referred to as post-works habitat units. Data to enable these to be calculated should be gathered from the ecological and landscape plans for the site, as well as other relevant information, for example retained habitat drawings.

The SSE Biodiversity Toolkits automatically round areas/lengths to the two decimal places, and do not show results <0.01 ha/km. Therefore, small discrepancies can occur due to rounding errors. In addition, discrepancies can occur due to mapping inaccuracies.

For larger landscape scale projects e.g. overhead line projects or windfarms, a larger discrepancy may be acceptable to account for the accumulated rounding errors and mapping inaccuracies across multiple habitat parcels. Professional judgement can be used to identify a sufficient tolerance, considering the scale of the project, the source of the discrepancy, and whether the discrepancy could influence the biodiversity calculations.

Where such discrepancies occur, these should be investigated and justified within the narrative report. Full justification for any discrepancy allowance of more than 0.01 ha must

be provided within the report as part of the limitations section. The justification should clearly describe the cause of the discrepancies, the tolerance applied, and why this is considered appropriate.

After work actions (Following Actions)									
After work action	Habitats	Area or Length of Habitat	Target Condition	Connectivity	Strategic significance	EECU	Distinctiveness	Difficulty	Time to target condition
		(ha /km)	Rating	Rating	Rating	Highlighted orange if yes	Band	Highlighted orange if manually adjusted	(Years) Highlighted orange if manually adjusted
Manual Input	Manual Input	Manual Input	Manual Input	Manual Input	Manual Input	Manual Input	Formula	Formula	Formula
Project Total									
Creation	Woodland and forest - Other woodland; broadleaved	1.00	Good	Low	High	No	Medium	Low	30+
Retained									Enter Manually
Enhancement	Woodland and forest - Other woodland; broadleaved	1.00	Good	Low	High	No	Medium	Low	10

BL	BM	BN	BO	BP	CG	CH	CI
Advanced Works	Delayed Works	New Time to Target Condition	New Time to Target Condition	Spatial	After works units		
(Years)	(Years)	(Years)	(Check)		Biodiversity (Area)	Linear (H)	Linear (W)
Manual Input	Manual Input	Formula	Formula	Manual Input	Formula	Formula	Formula
		30	Time under 30 years		7.95	0.00	0.00
		Enter Time at Column BU	Time over 30 years		4.73	-	-
		10	Time under 30 years		-	TBC	TBC
					3.22	-	-

Figure 16 – After works actions

In the Project Biodiversity Toolkit, select whether the habitat is being enhanced, transitioned, or created from the drop-down menu in the 'After Works' (Following Actions) section, which is located in the Unit Calculation tab. For retained ancient woodland baseline parcels, or for habitats parcels subject to indirect impacts, select the 'retained' option; this will grey out the remaining post-development fields (as is the row 2 seen in Figure 16).

Habitat enhancement is the improvement of the condition of an existing habitat, which leads to increased biodiversity value.

Habitat transition is the managed conversion of an existing habitat into a different broad habitat group through active management or assisted accelerated succession, while initially retaining the baseline habitat vegetation, and leading to increased biodiversity value.

Habitat creation is the removal or the loss of the present habitat in the action of creating a new habitat.

In the Project Biodiversity Toolkit, the appropriate equation is automatically selected once either Creation, Enhancement or Transition are selected in the 'After work action' drop-down menu.

For the After works calculations, three risk multipliers are factored into the calculations. These are the delivery risk (difficulty), the time to target condition and spatial risk. The Project Biodiversity Toolkit will automatically populate (for habitat creation and for habitat transition) the difficulty and time to target condition values based on the data input within the 'After work' actions section using the values primarily derived from the ESBM.

However, there are exceptions where the Project Biodiversity Toolkit assigns its own values, bespoke to the Scottish and Irish context (e.g. blanket bog which is assigned a medium difficulty for creation and enhancement), or where new habitats not included in the ESBM are present (see [Appendix B](#) for further detail) (see **Table 3** below). The ESBM assigns a very high difficulty to creation and high difficulty to enhancement for blanket bog. This change from the ESBM is based on experience of blanket bog restoration in a Scottish context.

Table 3- Delivery Risk variations from English Statutory Biodiversity Metric

Habitat	ESBM Difficulty for creation / enhancement	SSE Difficulty for creation / enhancement	Comments
Blanket Bog (split in SSE Toolkit into Wetland - Blanket bog; and Wetland - Degraded blanket bog)	Very High / High	Medium / Medium	Reduced to Medium difficulty for creation and enhancement based on experience of bog restoration in a Scottish context.
Lowland raised bog (split in SSE Toolkit into Wetland – Active raised bog; Wetland - Degraded raised bog; and Wetland – Other degraded raised bog)	Very High / High	Medium / Medium	Reduced to Medium difficulties for creation and enhancement based on experience of bog restoration in a Scottish context
Depressions on peat substrates (H7150)	Very High / High	Medium / Medium	Reduced to Medium difficulties for creation and enhancement based on experience of bog restoration in a Scottish context
Purple moor grass and rush pastures	High / High	Medium / Medium	Many areas of Molinia and rush dominated vegetation which have been assigned under this category previously would not meet the definition of the UK BAP Priority Habitat. Examples genuinely conforming with the UK BAP Priority Habitat should be assigned High difficulties for creation and enhancement.

Each risk factor is given a numerical value. These are set out in the Project Biodiversity Toolkit. These numbers are multiplied together to calculate habitat units. The habitat units

before the project can be then compared to the habitat units post-works to identify whether the project delivers sufficient biodiversity enhancement.

Delivery risk is the risk associated with the difficulty to create or restore a habitat (**Table 4**). The delivery risk should be input underneath the 'Difficulty' column. If the auto-assigned difficulty values for a habitat are manually adjusted, then the varied cell will flag orange and full justification will be expected in the Toolkit notes and accompanying narrative report.

Table 4 – Delivery Risk Categories and Risk Multipliers

Difficulty of creation/enhancement	Risk Multiplier
Very High	0.10
High	0.33
Medium	0.67
Low	1

Time to target condition is the number of years it is estimated to take before the restoration, enhancement or creation of a habitat reaches the proposed condition. The time to target condition will vary depending on whether the habitat is being created or enhanced, and the baseline and proposed condition (if enhancement is proposed). The number of years associated with the time to target condition is automatically populated within the Project Biodiversity Toolkit and follows the ESBM. These values are only auto populated for habitat creation and transition and must be manually entered for habitat enhancement (please refer to the enhancement tabs for these scores).

Time to target condition multipliers are shown in **Table 5**. As with difficulty values, the time to target condition can be manually changed from the auto-populated values based on professional judgement, with the cell will flag orange. Any adjustments must be fully justified within the 'Notes' cells and within the narrative report. If the time to target condition populates as 'Not possible' this shows that that the proposed habitat creation or enhancement is not considered to be achievable. In this instance, the value should not be edited and the proposed habitat type and/or condition should be reconsidered.

Table 5 – Time to Target Condition and Risk Multipliers

Years to target condition	Risk Multiplier
1	0.965
5	0.837
10	0.700
20	0.490
30	0.343

For projects where there will be a loss of biodiversity over time, it can be minimised or avoided by initiating offset works prior to any habitat losses. The Project Biodiversity Toolkit can account for ‘habitat created in advance’ via a reduction in the time to target condition and difficulty. Similarly, habitat creation/enhancement works that would be delayed can be accounted for by increasing the time to target condition.

Any areas of compensation outside of the development site (i.e. offsets) will require application of the spatial risk multipliers (**Table 6**).

Table 6 - Spatial Risk Categories and Risk Multipliers

Category	Risk Multiplier
Compensation within LPA of impact Site. Called ‘Within’ in Toolkit	1
Compensation outside LPA of impact Site but within neighbouring LPA. Called ‘Neighbouring’ in Toolkit	0.75
Compensation outside LPA of the impact Site and outside neighbouring LPA of Site. Called ‘Outside’ in Toolkit	0.5

To calculate the *post-development* habitat units, enter the target habitat type, target condition and area/length into the Unit Calculation tab in the relevant After Works Actions cells. Then enter the connectivity rating and the strategic significance rating using the

associated drop-down menus. The scores for these ratings will appear automatically. This will calculate the post-works habitat units.

Please note that the After-Works Actions sections are normally filled grey to avoid data entry. To enter details of an area/length of habitat enhancement or creation into the Project Biodiversity Toolkit, first the Before Works (Baseline) and Action sections must be completed. The Project Biodiversity Toolkit will then automatically fill the cells light blue to allow data entry.

A Toolkit may require more rows for data entry for After work development in relation to the Before works habitat feature lost / impacted. In this case, simply add new items to the Before works (Baseline) sections. The Project Biodiversity Toolkit will then automatically fill the cells light blue to allow data entry.

The total baseline and post-works areas/lengths should be the same to ensure no gaps or double counting.

Post development			Net change					
Post development units			Net change in units					
Biodiversity (Area)	Linear (H)	Linear (W)	Biodiversity (Area)	Biodiversity (Area) %	Lin		ear (W)	Linear (W)%
Formula	Formula	Formula	Formula	Formula	Formula		Formula	Formula
17.15	0.00	0.00	3.35		(		),00	
4.73	-	-	0.13	+2.90%	-	-	-	-
-	-	-	-	-	-	-	-	-
12.42	-	-	3.22	+35.00%	-	-	-	-

Figure 17 – Post-works and Net Change segment of unit calculation tab

At the end of the process, the Project Biodiversity Toolkit will have automatically calculated the post-works habitat units as well as the Net change in habitat units for each habitat and will allow the user to assess whether a project has delivered biodiversity enhancement by allowing comparison between the baseline and post-works habitat units.

The working example shown in **Figure 17** shows a positive net change in habitat units, an increase of 3.35 BU overall.

4.7 Summary Tables

Use the Summary Tables Tabs (**Figure 18**, highlighted red) within the Project Biodiversity Toolkit to view a net summary in habitat extent and biodiversity value (units) for each habitat type, including habitats of very and high distinctiveness. See **Figure 19** for an example.



Figure 18 – Biodiversity Toolkit Summary Tables Tabs

Click in the Table Name to be redirected to it		Before Works	Retained	Post Development	Change	Percentage Change (%)
UKHab						
Area Habitats Summary - Change in Extent		0.00 ha	0.00 ha	0.00 ha	0.00 ha	0.00%
Area Habitats Summary - Change in Biodiversity Value		0.00 BU	0.00 BU	0.00 BU	0.00 BU	0.00%
Watercourse Habitats Summary - Change in Extent		0.00 km	0.00 km	0.00 km	0.00 km	0.00%
Watercourse Habitats Summary - Change in Biodiversity Value		0.00 WU	0.00 WU	0.00 WU	0.00 WU	0.00%
Hedgerow Habitats Summary - Change in Extent		0.00 km	0.00 km	0.00 km	0.00 km	0.00%
Hedgerow Habitats Summary - Change in Biodiversity Value		0.00 LU	0.00 LU	0.00 LU	0.00 LU	0.00%
Very High and High Distinctiveness - Area Habitats Summary - Change in Extent		0.00 ha	0.00 ha	0.00 ha	0.00 ha	0.00%
Very High and High Distinctiveness - Area Habitats Summary - Change in Biodiversity Values		0.00 BU	0.00 BU	0.00 BU	0.00 BU	0.00%
Very High and High Distinctiveness - Watercourse Habitats Summary - Change in Extent		0.00 km	0.00 km	0.00 km	0.00 km	0.00%
Very High and High Distinctiveness - Watercourse Habitats Summary - Change in Biodiversity Value		0.00 WU	0.00 WU	0.00 WU	0.00 WU	0.00%
Very High and High Distinctiveness - Hedgerow Habitats Summary - Change in Extent		0.00 km	0.00 km	0.00 km	0.00 km	0.00%
Very High and High Distinctiveness - Hedgerow Habitats Summary - Change in Biodiversity Value		0.00 LU	0.00 LU	0.00 LU	0.00 LU	0.00%
Change in Extent of habitats included in biodiversity calculation				Values in the table		
Change in Biodiversity Value of habitats included in biodiversity calculation				Values in the table		
Ancient woodland, ancient and veteran trees - Change in Extent		0.00 ha	0.00 ha	0.00 ha	0.00 ha	0.00
Area Habitats Summary - Change in Extent						
Broad Habitat Type	UKHab Type	Before Works (ha)	Retained Area (ha)	Post Development (ha)	Area Change (ha)	Percentage Change (%)
Coastal lagoons	Coastal lagoons - Coastal lagoons	0.00	0.00	0.00	0.00	0.00%
Coastal saltmarsh	Coastal saltmarsh - Artificial saltmarshes and saline reedbeds	0.00	0.00	0.00	0.00	0.00%
Coastal saltmarsh	Coastal saltmarsh - Saltmarshes and saline reedbeds	0.00	0.00	0.00	0.00	0.00%
Cropland	Cropland - Arable field margins cultivated annually	0.00	0.00	0.00	0.00	0.00%
Cropland	Cropland - Arable field margins game bird mix	0.00	0.00	0.00	0.00	0.00%
Cropland	Cropland - Arable field margins pollen and nectar	0.00	0.00	0.00	0.00	0.00%
Cropland	Cropland - Arable field margins tussocky	0.00	0.00	0.00	0.00	0.00%
Cropland	Cropland - Cereal crops	0.00	0.00	0.00	0.00	0.00%
Cropland	Cropland - Horticulture	0.00	0.00	0.00	0.00	0.00%
Cropland	Cropland - Intensive orchards	0.00	0.00	0.00	0.00	0.00%
Cropland	Cropland - Non-cereal crops	0.00	0.00	0.00	0.00	0.00%
Cropland	Cropland - Temporary grass and clover leys	0.00	0.00	0.00	0.00	0.00%
Cropland	Cropland - Winter stubble	0.00	0.00	0.00	0.00	0.00%

Figure 19 – Example of Summary Tables (UKHab)

4.8 THE DASHBOARD

Use the Dashboard Tab (**Figure 20**, highlighted red) within the Project Biodiversity Toolkit to support reporting on changes in biodiversity value.

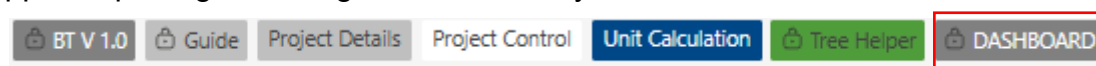


Figure 20 – Project Biodiversity Toolkit Dashboard Tab

The Dashboard tab is automatically populated, providing summary information for reporting and decision-making purposes. These summary tables and charts should be included in the final narrative report. They provide opportunities for monitoring the impacts

of a project on biodiversity value. The final narrative report should also include a short explanation on how the development has followed the ten BNG Good Practice Principles.

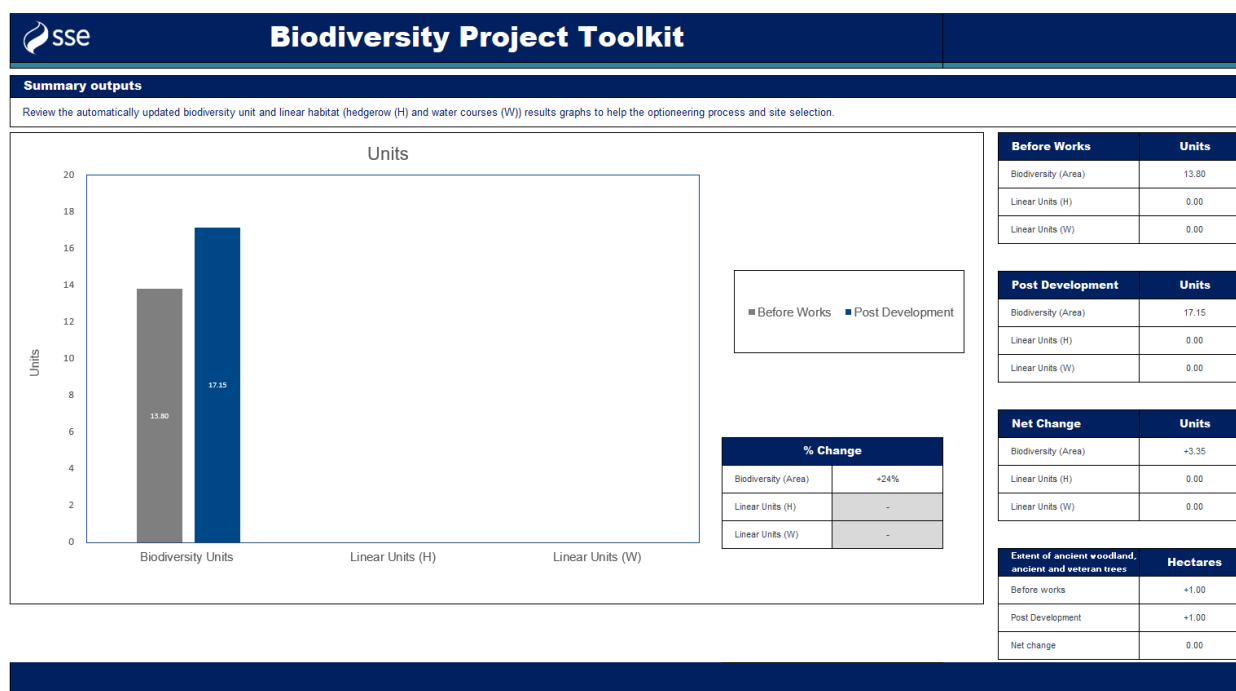


Figure 21 - Dashboard

The three tables to the right of the dashboard (**Figure 21**) show the baseline (Before works) and Post-works habitat units for the development overall as well as the net change. There is also a bar chart that visually demonstrates the change in habitat units before works and Post-works. A small table beside the bar chart shows the percentage change in habitat units. AW/AVT features are reported as extents separately within the summary tables.

The bar chart and tables on the dashboard can be used within the narrative report.

5 Production of the Final Reports

5.1 QUALITY ASSURANCE

In-house quality assurance should be undertaken after all data has been entered into the SSE Biodiversity Toolkits and the associated BNG assessment report has been written, to ensure that there are no errors in the data. The quality assurance should be completed by a competent and experienced staff member who is 'proficient' or above under the Chartered Institute of Ecology and Environmental Management (CIEEM) Competency Framework for 'Surveying' and 'Quantifying Biodiversity Gain'³³. When completing the SSE Biodiversity Toolkits, ecologists should produce an associated report detailing the findings and including any limitations or assumptions made and justifications for any site-specific deviations from defined values based on professional judgment during the assessment process.

5.2 OPTIONEERING REPORT

SSE's Optioneering Biodiversity Toolkit can be used to inform the site selection process by providing a biodiversity baseline for the different site options. The summary graphs and tables found in the Dashboard tab can be used to inform decisions.

5.3 PROJECT DESIGN REPORTING

The calculations quantify the predicted scale and scope of biodiversity unit loss or gain from a scheme design. This should be summarised and communicated to the project design team at the earliest opportunity. This can then be used as part of a design review process to influence built and landscaping design and construction works activities and programme to avoid and minimise impacts and influence the design and timing of onsite landscaping to target required habitat types. This reinforces the application of the mitigation hierarchy.

Once the scheme has been finalised, the detailed calculations, inputs and outputs should be included in the suite of documents upon which the decision to progress with the scheme is made. For example, as an appendix to the EclA. The final copy of the biodiversity project toolkit populated for the project should also be submitted to the determining authority in support of information set out in any related reports.

5.4 PROJECT AS-BUILT REPORTING

Calculating biodiversity units during the design stage entails a prediction of losses and gains in habitat and is not to be considered the project's final balance regarding

³³ CIEEM (2024) Competency Framework [online]. Available at: <https://cieem.net/resource/competency-framework/> [accessed 10/08/2026]

biodiversity units on completion of habitat creation and / or enhancement. These design-stage predictions should be validated during project construction by collecting 'as-built' data on the actual losses and gains in habitat. Biodiversity unit calculations should be undertaken at regular intervals as construction progresses to help identify any issues early on and to ensure that the project's biodiversity target remains on track. The 'as-built' biodiversity unit calculation is to be reported on completion of the scheme. Only on delivery of the habitats will the project be able to be assessed as achieving net gain or No Net Loss.

For secured land, ongoing management will be required to deliver the predicted gains, and a long-term management plan should be detailed in the biodiversity report.

Temporarily occupied third party land typically required during the development of long linear electricity transmission and distribution infrastructure tends to be reinstated to the owner's satisfaction for their resumption of land use rather than committing that land to full recovery to baseline habitat condition, enhancement or transformation to a higher value habitat. The asset may be kept installed through wayleave agreement or servitude without developer control of the land. Such arrangements do not extend to requiring land management to achieve and maintain habitat at a prescribed target. The owner or occupier may change how they manage and use that land in future, resulting in different habitat types in future. Toolkit users should apply reasonable judgement to predict what the likely outcome would be if reasonable effort for reinstatement takes place and prior land use resumes and set out their assumptions in the accompanying report. Reasonable judgement should apply as to what the likely outcome would be if reasonable effort for reinstatement takes place and prior land use resumes, without the forecasted outcome being secured, monitored or subject to intervention if outcomes vary.

5.5 PROJECT WIDE NO NET LOSS AND NET GAIN FOR BIODIVERSITY

Applying the methodology enables a project to identify as either a 'No Net Loss' or 'Net Gain' biodiversity project overall. Whilst impacts on designated sites (SAC, SPA, SSSI, ASSI, NHA, Ramsar sites; and natural or mixed World Heritage Sites), ancient woodland, ancient and veteran trees (AW/AVT entries in the Toolkit), and legally protected species are dealt with separately, project wide claims can only be made where a project has both avoided or fully mitigated³⁴ for any potential impacts on those features, and has post-development units as a percentage of the baseline units that are (and displayed on **Figure 22**):

95% - 104%: the project can predict it will achieve a project-wide biodiversity **No Net Loss in design** for the habitats assessed.

³⁴ To fully mitigate means to put in place actions that completely negate the impacts of the development. For example, putting in place settling ponds that remove sediment and as a result the sediment does not affect the associated wetland.

105% or more: the project can predict it will achieve a project-wide biodiversity **Net Gain in design for the habitats assessed.**

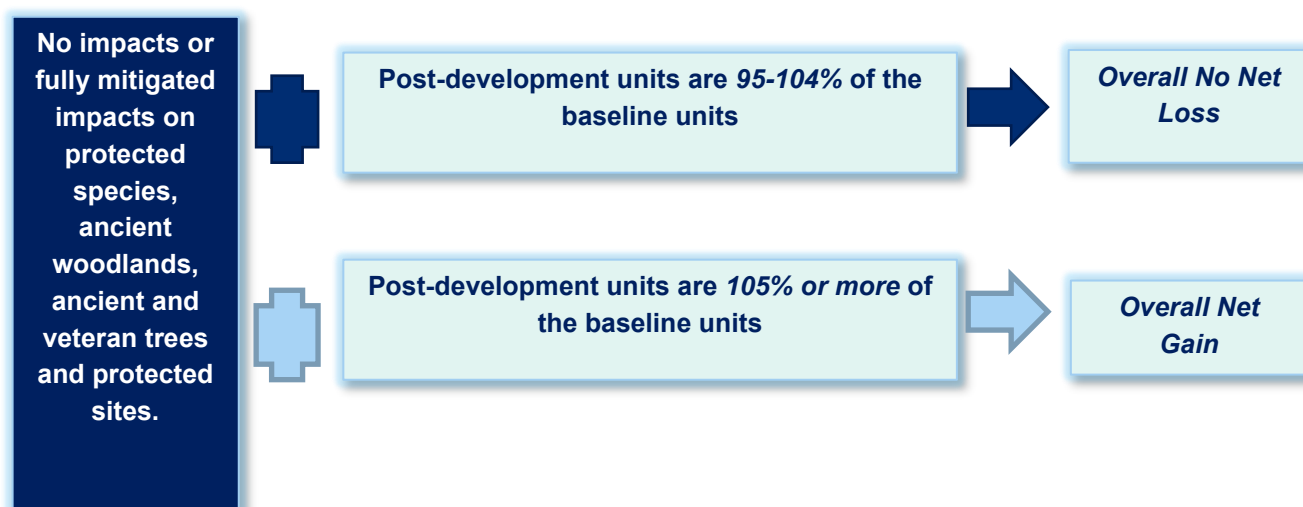


Figure 22 – Project wide no net loss and gain for biodiversity

This gain needs to be demonstrated separately for each biodiversity unit type.

It is important to remember that the BNG calculations will predict net gain in design or predict that BNG is possible but will not deliver net gain. Ongoing management must be undertaken for a development to reach net gain.

6 Biodiversity Net Gain Considerations

6.1 Before Survey

Set the survey extent, at this point you should consider undertaking surveys for the full red line boundary, or whether it is possible to set an acceptable buffer around your development (within the red line boundary) which will be the limit of survey extent. This survey area selection process is to ensure a sufficient extent is surveyed to account for potential design changes and to identify habitats that should be avoided or opportunities for habitat enhancement. Consider using mapping platforms or aerial imagery to pre-map habitat extents (to be ground-truthed). Consider which HCA forms that you are likely to require in the field / whether you require paper copies of maps / HCA forms or mapping on a tablet. Utilise the preparation time to do a desk top review for information related to the site i.e. designated sites, existing habitat data, etc.

6.2 Recording Habitats

Mapping individual habitats with no mosaic provides the most readily compatible data for input into the BNG Toolkits. Habitat mosaics should not be used as a mechanism to avoid mapping habitats separately where this can reasonably be achieved at the chosen mapping scale. Consistent with emerging UKHab Version 2.1 and SPBM guidance,

mosaic treatment should generally be limited to habitat components that cannot be meaningfully separated, such as habitat patches below the applicable MMA/MMU or transitional habitat zones. However, where mosaic habitats are present across a habitat parcel, the ecologist should determine the ratio of habitats, e.g. 60% heathland in moderate condition and 40% acid grassland in poor condition. If the habitat extent is 1 ha in total, it would translate to 0.6ha heathland and 0.4ha acid grassland (for toolkit input). For habitats recorded as mosaics, the basis of the estimated proportions should be documented within the assessment report.

Hedgerows, watercourses, and lines of trees are mapped as linear features (entered in km in the Toolkit). The Toolkit accounts for lines of trees, either solitary or associated with banks/ditches and/or ecologically viable, Native (species rich) hedgerows which can be associated with trees and or a bank/ditch). In the Republic of Ireland, please use UKHab or Phase 1 codes for hedgerows and individual trees, not Fossitt, to realise the full uplift in hedge creation and enhancement.

HCA for Ditches is available. Ditches are defined as artificially created linear water-conveyancing features that are less than 5m wide and likely to retain water for more than 4 months of the year. For all other water courses above the threshold set out in section 2.7 of the User Guide, follow SSE User Guide for habitat condition linked to distinctiveness or undertake a bespoke habitat condition assessment for the suitability of a selected species

The ESBM requires a HCA sheet per polygon to understand the condition of habitats at the site. On large renewable or transmission projects, it may not be feasible or economically efficient to undertake HCA in each polygon. In such cases, it should be at the discretion of the ecologist to determine an adequate sampling density to fully understand the condition of habitats at a particular site. If the condition of a habitat is not known for a particular site or area of a site, then a precautionary score should be selected for the BNG assessment.

6.3 Maintaining the biodiversity value of retained habitats

Where habitats are classified as 'retained' (regardless of inclusion in or exclusion from calculations), appropriate measures for ongoing management should be secured and documented within the relevant project documentation to prevent any decline in habitat type or condition resulting from development or during operation (which could for example result in the cessation of land management practices which had maintained the habitat type and condition). This includes ensuring that retained habitats can be avoided during development and/or management activities, except where works are being undertaken to improve the habitat. Any decline in the condition of habitats classified as 'retained' because of development works is likely to adversely affect overall BNG outcomes.

Appendix A: Glossary of Terms

Term	Definition
Biodiversity Unit	A Biodiversity Unit is a nominal figure that is derived from a calculation using numerical values assigned for the distinctiveness, condition and size (area), connectivity and strategic significance of a habitat. Post-Development Biodiversity Units are calculated using risk factor multipliers to aid the discussion of loss, impacts avoided and gains of habitat because of management and development activities. The tool automatically calculates the number of Biodiversity Units based on the information that the user inputs.
Condition	<p>Condition is one of the measures of habitat quality and measures the area against the ecological optimum of the habitat type and allows for direct comparisons between the same habitat types to be made. Habitat condition can be identified as Good, Fairly Good, Moderate, Fairly Poor and Poor. Condition is assessed using the ESBM habitat condition assessment criteria for the identified habitat (with the exception of rivers and canals).</p> <p>Some habitat condition assessments include essential criteria which must be met in order to achieve a specific condition. Some low distinctiveness habitats do not require a habitat condition assessment e.g. cropland, bracken etc.</p>
Connectivity	The relationship of a particular habitat patch to other surrounding similar or related semi-natural habitats facilitating flows of species and ecosystem service,
Distinctiveness	<p>Distinctiveness is a collective measure of biodiversity and includes parameters such as species richness, diversity, rarity and the degree to which a habitat supports species rarely found in other habitats (Defra 2012). The tool maps out the relevant distinctiveness band (Very High/High / Medium / Low/Very Low) in the habitat matrix and will automatically assign the band to your selection.</p> <p>Phase 1 and Fossitt habitats can have two distinctiveness options. In this case the ecologist should use their expertise to assign a distinctiveness to the habitat. If the necessary information is not available, the ecologist should take a precautionary approach and choose the highest distinctiveness.</p>
ESBM (English Statutory Biodiversity Metric)	The statutory biodiversity metric used to calculate biodiversity units and Biodiversity Net Gain requirements for developments in England
Geospatial Reference	A reference, generally created by mapping software, for the specific location of a parcel of habitat.
Habitat Creation	The removal or the loss of the present habitat in the action of creating the new one or creating habitat where none was previously present (including bare ground).

	This includes, for example, removing scrub to create a wetland habitat or removing hardstanding to create new grassland habitat.
Habitat Enhancement	<p>The improvement of the condition of an existing habitat, thereby increasing the biodiversity value of a habitat type. Enhancement is achieved through measures that improve habitat biodiversity capacity and/or remove factors that detract from its value,</p> <p>This includes increasing the diversity of species that can be supported by a habitat, for example by managing improved grassland so that it becomes semi-improved grassland, which would seek to increase species diversity.</p>
Local Biodiversity Priorities	Local (county or equivalent) biodiversity, green infrastructure or offsetting strategies. For example, local Biodiversity Action Plans (BAPs).
Linear Unit	<p>A Linear unit is a nominal figure that is derived from a calculation using numerical values assigned for condition and length of a linear habitat.</p> <p>In the ESBM, distinctiveness, condition, strategic significance and connectivity are assessed for each linear habitat.</p> <p>In the toolkit the linear habitats or hedgerows or watercourses are input separately.</p>
Parcel	A defined land area that is used to split different habitats for calculation purposes.
Priority Habitat	Priority habitats are identified as being the most threatened habitats and requiring conservation action by the UK Biodiversity Action Plan (UK BAP), originally written between 1995 and 1999 and revised in 2007.
Risk Factors	Any risks to the delivery of biodiversity outcomes and the ongoing management of these outcomes. Within the metric, the risks associated with delivery and the location of the offset are taken into consideration using risk factors, as indicated below (delivery, spatial and temporal).
Risk Factor 1: Difficulty	Difficulty is the risk associated with the difficulty to create or enhance any specific habitat i.e. how hard (Very High / High / Medium / Low) it is to restore / enhance / create the habitat identified. Please note that the level of difficulty differs depending on whether you are creating or restoring the habitat. The level of difficulty for restoration and recreation for each habitat type is specified in the SSE Biodiversity Toolkits.
Risk Factor 2: Spatial Risk	Spatial risk is the risk associated with delivering compensation for the loss of a habitat at a distance from that loss (i.e. generally the greater distance can mean a greater risk) and in relation to areas of strategic priority for biodiversity.
Risk Factor 3: Temporal Risk	In delivering compensation for habitat loss, the timing of the impact may not coincide with the new habitat reaching the required quality or level of maturity, which could result in loss of biodiversity for a period of time. Additionally, there may be a time gap between the habitat loss and the start of the creation or enhancement of new habitat. Where possible, the development should

	prevent this additional time gap through starting creation or enhancement prior to habitat loss. Where this is not possible and is justified, any additional time gap needs to be accounted for. These two-time lags together are called the Temporal Risk. The Temporal Risk categories go from 0 years to 30+ years.
SPBM (Scottish Planning Biodiversity Metric)	A Scottish Government commissioned biodiversity metric being developed by NatureScot to support the delivery of National Planning Framework 4 (NPF4) Policy 3b assessment of national and major developments, or those subject to Environmental Impact Assessment.
Strategic Significance	Strategic significance gives extra value to habitats that are located in optimum locations for biodiversity and other environmental objectives, such as areas that are the focus of green infrastructure or local biodiversity plans. The categories are; <ul style="list-style-type: none"> • High strategic significance; • Medium strategic significance and; • Low strategic significance
Target Condition	The condition that the habitat will attain because of your actions. There are 18 categories ranging from 'Lower distinctiveness habitats' to 'Good-good.'
Transition	Transition is an intervention where the baseline habitat vegetation is retained and managed to result in an ecologically justified change into a different broad habitat group. Unlike habitat creation, the baseline habitat is not immediately removed. Instead, habitat value changes progressively through assisted accelerated succession or active habitat management.

Appendix B: New Habitat Inclusions

Several habitat types described in UKHab are not included within the ESBM and are not considered to be accurately represented by the broad habitat categories. In addition, some habitats listed within the ESBM are considered to have different value weightings in Scotland. Therefore, additional habitat types have been incorporated into the SSE Biodiversity Toolkits beyond those included in the ESBM. These additional habitat types are outlined in the sections below.

JUNIPER SCRUB

Habitat Classification

Juniper (*Juniperus communis*) is listed on the UK Biodiversity Action Plan (UKBAP) and the Scottish Biodiversity List (SBL). Furthermore, juniper scrub can in some cases be associated with the Annex I habitat '5130 *Juniperus communis* formations on heaths or calcareous grasslands'. While juniper scrub is listed within UKHab (described as 'h3k juniper scrub'), the habitat is not included in the ESBM and was not included in either SSEN Transmission's or SSER's previous biodiversity toolkits. As a result, mixed scrub is typically used as a proxy. However, this habitat type does not adequately capture the ecological value of juniper scrub. Therefore, 'Juniper scrub' is now included as its own habitat type within the SSE Biodiversity Toolkits under the broad habitat category 'Heathland and shrub'. Juniper scrub has been assigned High distinctiveness, which is considered to be consistent with other habitat types of similar ecological value.

Habitat Condition Assessment

As Juniper scrub is not included in the ESBM, it is not mentioned as an applicable habitat type on the ESBM 'Scrub' HCA Sheets. However, Condition Assessment Criteria A on sheets '20A. Scrub' and '20B. Scrub' is that:

- 'The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in natural range):
 - At least 80% of scrub is native;
 - There are at least three native woody species; and
 - **No single species comprises more than 75% of the cover** (except Hazel *Corylus avellana*, Common **Juniper *Juniperus communis***, Sea buckthorn *Hippophae rhamnoides* (only in its restricted native range), or Box *Buxus sempervirens*, which can be up to 100% cover)'.

Therefore, we consider the ESBM 'Scrub' HCA Sheets to be suitable for use in assessing Juniper scrub, as although the habitat is not specifically outlined as an applicable habitat

type, scrub dominated by Juniper is specifically referenced within the Condition Assessment Criteria.

Creation and Enhancement

The creation of Juniper scrub is considered to be difficult to achieve, as there is a high risk of failure associated with a range of environmental factors, including disease. Therefore, the creation of Juniper scrub cannot be included within the Project BNG Toolkit. Instead, it is recommended that consultants propose the creation of Mixed scrub. In the first instance, these areas of Mixed scrub could be designed to be dominated by Juniper, while maintaining flexibility to adjust species composition and density over time, if required.

SSE does not, however, wish to discourage the enhancement of existing areas of established Juniper scrub by improving condition. Although there is currently no published guidance on the difficulty and TTTC associated with enhancing Juniper scrub, the risk is considered to be significantly lower where the habitat is already established. Nonetheless, a High difficulty rating should be applied as a precautionary approach.

The condition of scrub habitats is largely determined by the structural diversity of the habitat, which is typically improved through a greater range of age classes within the dominant woody species. Juniper is a slow-growing species and can take between 4 and 9 years to reach sexual maturity^{35,36}. Therefore, where Juniper is already present, it is expected that several years may be required to increase the age range of the population and, consequently, the structural diversity of the habitat.

Accordingly, the proposed TTTC for Juniper scrub has been aligned with that applied to Hazel scrub and Willow scrub within the ESBM, whereby enhancement is expected to take between 5 and 15 years depending on the baseline and proposed condition.

ATLANTIC HAZEL

Habitat Classification

Atlantic hazel forms some of our most ancient woodlands. These habitats are extremely important for Scotland's native biodiversity and support some of the richest assemblages of oceanic mosses, liverworts and lichens found in the whole of Europe.

Atlantic hazel is included in UKHab as a combined habitat code, including 'h3b5 Atlantic hazel' and the secondary code '25 Temperate rainforest'. Atlantic hazel was not included in the ESBM or the former SSER Transmission Toolkit or SSER Toolkit. However, it has been incorporated into the SSE Toolkits to ensure it can be properly captured within

³⁵ DEFRA, 2017. Juniper: Management Guidelines.

³⁶ Plantlife, 2020. Juniper *Juniperus communis* Species Fact Sheet.

habitat assessments. To align with other habitat types of similar ecological importance, Atlantic hazel has been assigned High distinctiveness.

Whilst Atlantic hazel is defined within UKHab, the definition of temperate rainforest is still reported to be a work in progress. UKHab states that *"further research and evaluation is required to refine these criteria"*. Nonetheless, Averis, 2023 sets out seven suggested criteria, based on plant and lichen communities, for identifying temperate rainforest habitat within woodland ecosystems in Britain and Ireland.

Habitat Condition Assessment

In the absence of further published guidance, consultants should assess the condition of Atlantic hazel in the same manner as the broader habitat type, hazel scrub. Accordingly, the ESBM 'Scrub' HCA Sheets should be used to assess the condition of Atlantic hazel.

Creation and Enhancement

As previously noted, Atlantic hazel is classified using the combined UKHab codes 'h3b5 Atlantic hazel' and '25 Temperate rainforest'. The definition of temperate rainforest relies on several criteria, including the presence of distinctive plant and lichen assemblages. As there are currently no standardised and reliable techniques to ensure that these assemblages would establish within the 30-year period typically associated with BNG, the creation of temperate rainforest (and therefore Atlantic hazel) is not considered feasible within BNG timescales.

Nonetheless, in suitable locations, consultants may consider the creation of Hazel scrub. The establishment of Hazel scrub in appropriate areas could provide the conditions necessary for Atlantic hazel to develop in the future and should therefore still be regarded as an important habitat objective in these circumstances. In such cases, consultants should aim to create a habitat structure consistent with Atlantic hazel, recognising that the associated plant and lichen assemblages are likely to take considerably longer to establish (and with the consideration that they may never successfully establish in these areas).

Where Atlantic hazel is already present, it can be assumed that the necessary plant and lichen communities required to meet the habitat definition are also present. Therefore, the enhancement of Atlantic hazel is considered appropriate within the SSE Project Toolkit. Although there is no specific published TTTC or difficulty associated with Atlantic hazel, the TTTC and difficulty assigned to Hazel scrub are considered appropriate, as the dominant habitat structure remains the same.

LOWLAND BEECH AND YEW WOODLAND

Habitat Classification

Lowland beech and yew woodland (categorised as 'w1c lowland beech and yew woodland' in UKHab) is considered to be a priority habitat. The habitat type is included within the ESBM and the former SSER Transmission and SSER Biodiversity Toolkits and

is assigned High distinctiveness due to its priority status and ecological importance. However, Lowland beech and yew woodland is not native to all regions and is not considered to be a priority habitat in Scotland, therefore, it could be considered to have a lower ecological value to local biodiversity in some parts of the country (particularly the north).

As such, in the SSE Biodiversity Toolkits, the habitat has been split into two separate categories including:

- Lowland beech and yew woodland (within priority habitat range); and
- Lowland beech and yew woodland (outside of priority habitat range).

Lowland beech and yew woodland (within priority habitat range) has been assigned High distinctiveness, in line with the Lowland beech and yew woodland category in the ESBM. However, Lowland beech and yew woodland (outside priority habitat range) has been assigned medium distinctiveness, to acknowledge that the habitat is not native to these areas.

Habitat Condition Assessment

The ESBM 'Woodland' HCA Sheets should be used to assess the condition for both sub-categories.

Creation and Enhancement

The difficulty and TTTC for both sub-categories should align with those proposed for Lowland beech and yew woodland in the ESBM.

OTHER SCOT'S PINE WOODLAND

Habitat Classification

Caledonian forest is Scotland's native ancient temperate pine forest and currently survives only in small, isolated fragments. As such, the UKHab definition for Caledonian forest (i.e. w2a5 Caledonian Forest (H91C0)) is aligned with the Annex I definition, which states that, to be classified as this habitat type, the forest must comprise relict, indigenous pine forests of appropriate botanical communities, or self-sown stands naturally regenerated from stock of genuinely native local origin recorded in the Caledonian Pinewood Inventory.

In the ESBM and the former SSER Transmission and SSER Biodiversity Toolkits, Scots pine woodland that does not meet the definition of w2a5 Caledonian Forest (H91C0) would be incorporated into the BNG calculations as 'Other Scots pine woodland'. 'Other Scots pine woodland' is assigned Medium distinctiveness in the ESBM and former SSER

Transmission and SSER Biodiversity Toolkits, reflecting the fact that it is often comprised of planted Scots pine with limited ecological value.

Nonetheless, the UK BAP (1995) Costed Habitat Action Plan for Native Pine Woodlands included a target for new native pinewoods to be established through natural colonisation or planting within the Caledonian Pinewood Zone³⁷, in recognition of the value of such native Scot pine woodland habitats in the area. This is due to the likelihood for forests within the Caledonian Pinewood Zone, that do not meet the criteria for the Annex I habitat and therefore do not meet the criteria for w2a5 Caledonian Forest (H91C0), to function ecologically as native pinewood. Furthermore, there are likely to be areas of land within the Caledonian Pinewood Zone that have suitable environmental conditions to support native pinewoods, and likely did so historically, but are no longer wooded or are planted with inappropriate species.

Therefore, to recognise the importance of native Scots pine woodland within the Caledonian Pinewood Zone, the 'Other Scot's pine woodland' classification has been split into two separate sub-categories within the SSE Biodiversity Toolkits:

- Other Scots pine woodland (within Caledonian Pinewood Zone); and
- Other Scots pine woodland (outside of Caledonian Pinewood Zone).

Other Scot's pine woodland (outside of Caledonian Pinewood Zone) has been assigned Medium distinctiveness, in line with the Other Scots pine category in the ESBM. However, Other Scots pine woodland (within Caledonian Pinewood Zone) has been assigned High distinctiveness to acknowledge the importance of native pinewoods in these areas.

Habitat Condition Assessment

The ESBM 'Woodland' HCA Sheets should be used to assess the condition for both sub-categories.

Creation and Enhancement

The difficulty and TTTC for both sub-categories should align with those proposed for Other Scots pine woodland in the ESBM.

Some examples of Caledonian forest can have a low density of Scots pine, with a canopy cover as low as 25% separating the woodland from an ericoid heath.

Woodland planting over heathland would typically be regarded as a loss of heathland habitat for the creation of woodland, which would generally have a negative BU outcome.

³⁷ SpatialData.gov.scot - Caledonian Pinewood Zone
<https://spatialdata.gov.scot/geonetwork/srv/eng/catalog.search#/metadata/1fcd4b1b-63f6-4465-9b94-c21ccc2178fd>

However, in specific circumstances, new native pinewoods can be created over heathland to result in an uplift of BU. This is providing that all of the below requirements are satisfied:

- Location is within the Caledonian Pinewood Zone;
- The baseline habitat is Upland heathland in Poor condition; and
- Proposed planting would be at a lower density to result in a climax Scots pine canopy cover of approximately 25% across the heathland.

In this instance, the baseline habitat entered into the Toolkit would be Upland heathland in Poor condition, which would be treated as retained. The After Work Actions would be entered as the creation of Other Scots pine woodland (within Caledonian Pinewood Zone), applying standard difficulty and TTTC for creation for Other Scots pine woodland.

ADDITIONAL WETLAND CATEGORIES FOR AQUATIC MARGINAL VEGETATION AND OTHER WETLANDS

Two wetlands which were not accounted for in previous English Biodiversity Metric lists, and were previously entered and accounted for as Wetland – Reedbeds, are now included as 'Wetland – Aquatic marginal vegetation'³⁸ and 'Wetland – Other wetlands'. These correspond to the UKHab categories "f2d Aquatic marginal vegetation" and "f2f Other wetlands". In the absence of specific data tables for these categories, the new habitats will apply the same difficulties and TTTC as 'Wetland – Reedbeds' and both also use the 'Wetland' HCA Sheet.

MACHAIR

Habitat Classification

Machair is one of Scotland's most distinctive and internationally important coastal habitats. It is largely restricted to the north and west of Scotland, as well as western Ireland. The habitat is associated with low-lying coastal plains formed by calcareous shell-rich sand blown inland from beaches and dunes by strong prevailing winds. Traditional low-intensity crofting and grazing practices play a fundamental role in the development and maintenance of machair systems and their characteristic biodiversity.

Machair is recognised as Annex I habitat H21A0 Machairs, one of Europe's rarest coastal habitats. In the Republic of Ireland, machair is classed as a high distinctiveness habitat (Fossitt category CD6). In Scotland, unlike most habitats included within UKHab, machair

³⁸ The rule of not including habitats with an area of less than 0.01ha (other than ponds) in baseline should be considered when considering the entry of 'Wetland – Aquatic marginal vegetation'.

is not represented as a standalone primary habitat code. Instead, UKHab recognises machair under secondary habitat code “70 Machair (H21A0)” that may be applied to a range of habitats occurring within a wider “machair system”. In the strictest sense, machair refers to relatively flat, low-lying grassland occurring on calcareous sand over impermeable substrates. However, the wider machair system can also include beaches, dunes, dune slacks, fens, swamps, lochs, saltmarsh, grassland, heath and mire habitats that occur within the same system. It is also often associated with an inland transition to heathland and mire known as “blackland”, which may include sand-influenced peatland.

Accordingly, machair has been introduced as a habitat category within the toolkit, under the broad habitat category “Grasslands”, and assigned Very High distinctiveness. Although represented within UKHab as a secondary habitat code rather than a standalone primary habitat, machair is recognised as a distinctive habitat system comprising a mosaic of coastal and terrestrial habitats. These may include coastal sand dunes, saltmarsh and saline reedbeds, fens, lowland calcareous grassland, lowland heathland and other associated habitats. Users should record any habitat area that meet the strictest definition of machair, whilst clearly identifying other habitat components of the wider machair system within the assessment report and, where appropriate, within the “notes” column of the toolkit.

Habitat Condition Assessment

The condition of machair should be assessed using the bespoke Machair Habitat Condition Assessment methodology included within the emerging SPBM. This approach recognises that the ecological value of machair is derived from the functioning of the wider habitat system and the interaction between its constituent habitat components, rather than solely from the condition of any individual component habitat. Users should clearly state in the BNG assessment report that only the machair HCA component of the SPBM has been used, and that biodiversity net gain has been assessed using the SSE toolkit and not the full SPBM.

Creation and Enhancement

Machair is dependent upon a unique combination of coastal geomorphology, shell-sand deposition, hydrological conditions, climatic factors and traditional land management practices. Nonetheless, to ensure alignment with the emerging Scottish Planning Biodiversity Metric, both the creation and enhancement of machair may be included within the toolkit. Given the complexity of the habitat and the ecological processes and management practices that support it, proposals for machair creation or enhancement should be informed by robust evidence demonstrating that the target habitat can be achieved and maintained. Appropriate measures may include the restoration or establishment of traditional grazing and crofting practices, restoration of natural coastal processes, improvements to hydrological connectivity, and the management of habitats that contribute to the wider machair system.

Appendix C: Watercourses

WATERCOURSE DEFINITIONS

The UK Habitat Classification

The watercourse types listed within the SSE Biodiversity Toolkits include the relevant broad habitat types listed in UKHab, as well as additional habitat types to consider man-made watercourse structures. The definitions for each watercourse type included within the SSE Biodiversity Toolkits are provided in **Table 7**.

Table 7- Linear Watercourse Habitat Categories

Habitat Type	Distinctiveness	Definition
Priority Habitat	<i>Very high</i>	Rivers that fall under the UKHab definition of <i>r2a Rivers (priority habitat)</i> .
Other rivers and streams	<i>High</i>	Rivers and streams that do not meet the criteria of <i>r2a Rivers (priority habitat)</i> and therefore meet the definition of <i>r1b Other rivers and streams</i> .
Canals	<i>Medium</i>	Watercourses that fall under the UKHab definition of <i>r1e Canals</i> .
Ditches	<i>Medium</i>	<p>Artificially created linear water-conveyancing features:</p> <ul style="list-style-type: none"> • Which are < 5 m wide; and • Are likely to retain water for more than 4 months of the year. <p>A watercourse should not be categorised as a ditch if it meets the definition of:</p> <ul style="list-style-type: none"> • A higher distinctiveness watercourse habitat; or • A canal. <p>It should be noted that any ditches that are associated with artificially drained peatlands and are not artificially re-routed natural watercourses, should be considered to be a feature of a degraded peatland hydrological system, rather than as a watercourse feature. In this instance, the ditch should not be recorded as a watercourse feature, but should instead be considered as part of the HCA process for the peatland habitat.</p>
Culverts	<i>Low</i>	It is recognised that the approach to defining a culvert varies between relevant regimes in the different jurisdictions. Therefore, to ensure standardised usage of the biodiversity toolkits, the methodology has adopted England's SBM approach to defining culverts, to align with wider spread BNG practices.

Therefore, a culvert is considered to be a covered channel or pipe designed to prevent the obstruction of a watercourse or drainage path by an artificial construction.

Culverted sections of any watercourse type should be recorded separately as 'culvert'.

Assigning Watercourse Condition

In the absence of an established watercourse condition assessment in the relevant jurisdictions to the SSE Biodiversity Toolkits, SSE are currently proposing to assign a condition to a watercourse based on the distinctiveness (unless for bespoke arrangements, see Section 7.2.1). Therefore, the condition of linear watercourse habitats should be assigned as follows:

- Very high distinctiveness = Good condition;
- High distinctiveness = Good condition;
- Medium distinctiveness = Moderate condition; and
- Low distinctiveness = Poor condition.

This is with the exception of:

- Ditches – which should continue to be assessed using the relevant ESBM HCA Sheets; and
- Culverts – which should always be assigned poor condition.

BESPOKE WATERCOURSE ARRANGEMENTS

In the absence of a watercourse condition assessment in the relevant jurisdictions, SSE are proposing an assumption-based approach to assigning watercourse condition, dependent on the distinctiveness of the habitat.

Nonetheless, this methodology poses a considerable limitation in delivering watercourse enhancement, as demonstratable biodiversity enhancement within the Project Biodiversity Toolkit can generally only be achieved by creating additional lengths of watercourse (for example, enhancing sinuosity to increase length), or by changing a watercourse from one habitat type to another (for example, re-naturalising a ditch back into its original stream-like structure). Whilst these measures can provide biodiversity benefits, they do not adequately recognise enhancements that improve the ecological condition and functioning of existing rivers and streams, particularly where these habitats are already of high distinctiveness or constitute Priority Habitats.

Therefore, in some instances, it may be more appropriate to utilise bespoke assessment methods to demonstrate the baseline value of a watercourse and potential for biodiversity enhancement. Bespoke assessment methods are likely to be dependent on the target species assemblages.

SSE proposes that a rapid salmonid habitat assessment may be an appropriate bespoke assessment method for major rivers that appear on a 1:50,000 scale map (OS, OSI, OSNI).

The assessment should be undertaken over a reach extending 50 m upstream and 50 m downstream of the impact location (e.g. a proposed watercourse crossing or proposed offsetting area). Where the proposed impact is adjacent to a watercourse, condition should be assessed over the length of channel potentially affected by the project.

The assessment should consider habitat suitability and availability for key salmonid life stages, including spawning, incubation, juvenile rearing (fry and parr), refuge, adult holding and migration. Factors considered should include:

- Availability and quality of spawning substrate;
- Diversity of flow types and channel morphology;
- Availability of juvenile rearing habitat;
- Availability of cover and refuge habitat;
- Habitat connectivity and fish passage;
- Riparian condition and shading; and
- Evidence of anthropogenic modification or degradation.

When using the salmonid habitat assessment method, the condition should be assigned as follows:

- Good Condition – The reach provides high-quality, well-connected habitat supporting most or all salmonid life stages, with limited evidence of degradation or hydromorphological modification;
- Moderate Condition – The reach provides suitable habitat for some salmonid life stages but exhibits constraints that reduce habitat quality, extent, connectivity, or ecological function; and
- Poor Condition: The reach provides limited, fragmented, or degraded habitat for salmonids, with significant constraints on habitat availability, quality, ecological function, or fish passage.

Using the rapid salmonid habitat assessment method, SSE proposes that biodiversity enhancement associated with watercourses may be achieved through improvements in habitat condition, delivered by introducing, restoring or enhancing features that directly support salmonid life stages. Such measures may increase the quality, extent, diversity, connectivity or functionality of habitat within an existing watercourse without altering its habitat type or extent.

Examples of enhancement measures include:

- Creation or restoration of suitable spawning substrate;
- Improvement of juvenile rearing habitat through increased channel diversity and flow heterogeneity;
- Installation or restoration of instream cover and refuge features, such as large woody structures;
- Removal or modification of barriers to fish passage;
- Restoration of natural channel morphology and geomorphological processes;

- Enhancement of riparian vegetation to provide shading, bank stability and inputs of organic matter;
- Reconnection of habitat features that improve movement opportunities for fish and other aquatic species; and
- Removal of sources of habitat degradation where they limit ecological function.

The objective should be to achieve a measurable improvement in ecological condition through the provision, restoration or enhancement of habitat features that support salmonid populations. The scale of enhancement should be proportionate to the magnitude of the impact and informed by site-specific habitat assessments. Priority should be given to measures that address identified habitat limitations within the affected catchment and provide clear ecological benefits for one or more salmonid life stages.

All proposed watercourse enhancements should be designed with consideration of local ecological requirements, fisheries management objectives, relevant planning policy, River Basin Management Plan objectives, and water environment legislation. Where necessary, engagement should be undertaken with regulators, fisheries trusts, fisheries boards, landowners and other relevant stakeholders to ensure that enhancement measures are appropriate, deliverable and sustainable in the long term.

All watercourse enhancement and compensation measures should be developed, designed and reviewed by suitably qualified and experienced aquatic ecology or fisheries specialists. Any licences, permits or consents required to undertake the works must be obtained prior to implementation.