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Process for designing and implementing Biodiversity Net Gain — Specification



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Summary of pages

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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 August 2021. It was prepared by Technical Committee BDY/1, *Biodiversity management*. A list of organizations represented on this committee can be obtained on request to the committee manager.

BSI Committee BDY/1 takes collective responsibility for the preparation of this British Standard. The Committee wishes to acknowledge the personal contribution of the late Rachel Hoskin.

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Requirements in this standard are drafted in accordance with *Rules for the structure and drafting of UK standards*, subclause **G.1.1**, which states, “Requirements should be expressed using wording such as: ‘When tested as described in [Annex A](#), the product shall ...’”. This means that only those products that are capable of passing the specified test will be deemed to conform to this standard.

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. “organization” rather than “organisation”).

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Section 1: Biodiversity Net Gain

Introduction

Biodiversity represents the variety of life and includes plants, animals, fungi and micro-organisms, the communities they form and habitats they live in. Biodiversity provides essential services for people, including carbon storage, clean air and food. It also underpins our wellbeing and is valued for its intrinsic worth.

In recent years, recognition of the joint biodiversity and climate crisis has gained pace. Now governments, businesses, organizations and the public are not only seeking to protect biodiversity, but also to enhance biodiversity through all sectors of society and the economy, including economic development.

For many years, balancing economic growth with environmental sustainability was seen as “either or” with difficult trade-offs of either sacrificing the natural environment, or holding back growth in order to protect nature. Recently, however, several initiatives have emerged for development to play its role in protecting, restoring, and enhancing the environment. One such initiative is Biodiversity Net Gain (BNG).

BNG is a specific, quantifiable outcome from project activities that deliver demonstrable benefits for biodiversity compared to the baseline situation.

In 2016, environmental professional institutes published the *BNG: Good practice principles for development* [N1] to support developments across the UK achieve BNG in accordance with good practice. These principles aimed to set a benchmark of “what good looks like” and they include the mitigation hierarchy (see [3.1.9](#)) and avoiding impacts on irreplaceable habitats (see [3.1.8](#)). In 2019, the principles were supplemented with practical guidance on designing, implementing and the long-term maintenance and monitoring of BNG throughout a project lifecycle [N2].

This British Standard builds on, and adds to, that foundational work. It translates the principles, and actions to implement them, into a process. The aim is to provide a consistent and structured process for designing and implementing BNG that is based on good practice.

This British Standard is intended for all sizes of projects, and for all types of development sectors. It can be applied to any project, including development not requiring planning permission, as well as land or estate management.

Most developments involve a logical sequence through the four broad stages of:

- a) preparation;
- b) design;
- c) implementation; and
- d) maintenance and management.

The process of BNG within this British Standard is founded on those stages, with the aim that these stages can be applied to small developments with minimal biodiversity impact, as well as large-scale developments involving optioneering or master planning.

Some activities described in this British Standard are refined and updated as the BNG process is implemented. For example, when the project’s biodiversity baseline is assessed using desk-based studies during the Preparation stage, and then updated following site surveys during the

Design stage. [Annex A](#) contains a guide on which activities might be relevant to different stages of the process.

The ecological impact of some development projects will be assessed and mitigated through Ecological Impact Assessment (EcIA). The process for achieving BNG, as set out in this British Standard, complements but does not replace EcIA. EcIA is a process of identifying, quantifying and evaluating potential impacts of development-related or other proposed actions on habitats, species and ecosystems [N3]. Mitigation recommendations arising from an EcIA based on specialist input need to be followed.

This British Standard was written at a time when BNG policies and practice across the UK were emerging and evolving rapidly. It was also written at a time of policy change, with widespread reforms at national and local policy levels being discussed as the UK emerges from COVID-19 restrictions. This British Standard is independent of legislation and policy, and based on the UK's BNG Good Practice Principles [N1].

1 Scope

This British Standard specifies a process to design, implement, maintain and monitor BNG outcomes from a development project.

It does not cover the actual delivery of BNG. It provides a framework to demonstrate that a project has followed a process that is based on the UK's BNG Good Practice Principles [N1]. Complying with the requirements within this British Standard is to follow a process to achieve BNG that is based on good practice.

This British Standard is for any sector of industry, including residential, mixed-use, energy, water, transport, communications and infrastructure across the UK. It is for any scale of project from individual house-builds to larger developments, as well as estate management, whether they are subject to consent through the planning system, or another consenting process (e.g. Development Consent Orders) or are classified as permitted development. It can also be used by land managers aiming to generate BNG through management of an estate. Hereafter the term "project" refers to both development projects and land management activities.

This British Standard covers terrestrial and freshwater habitats, and intertidal habitats down to the mean low water mark. It is applicable across the UK and for projects that affect biodiversity and those with limited or no impact on biodiversity, as well as projects aiming to achieve BNG on- and/or off-site.

It first sets out requirements that apply throughout the BNG process; these requirements are in [Clause 4](#).

[Clause 5](#) to [Clause 8](#) contain requirements for each of these stages of the BNG process:

- a) [Clause 5](#): Preparation
- b) [Clause 6](#): Design
- c) [Clause 7](#): Implementation
- d) [Clause 8](#): Maintenance and management

A project might involve requirements to achieve BNG from, for example, a planning condition or compliance with legislation. This British Standard covers a process to achieve BNG, notwithstanding any such requirements. It does not infer compliance with any planning condition, legislation or statutory requirement, and is independent from any mandatory or legislative requirement for BNG.

Furthermore, following the BNG process in this British Standard does not substitute the requirements to assess ecological impacts and report them, e.g. as part of an EcIA. Rather, this British Standard builds on, and is not intended to repeat, existing good practice for biodiversity surveys, impact assessments, mitigation and compensation for projects.

Projects with impacts on irreplaceable habitats cannot achieve BNG. These projects can follow the process in this British Standard for habitats that are not irreplaceable but cannot claim project-wide achievement of BNG. These projects need to transparently and comprehensively refer to the impacts on irreplaceable habitats in communications and reports.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions of this document¹⁾. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[N1] CIEEM, CIRIA, IEMA. *Biodiversity net gain. Good practice principles for development*. Available at: <https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf>

[N2] CIEEM, CIRIA, IEMA. *Biodiversity net gain. Good practice principles for development. A practical guide*. CIRIA C776a. London, 2019. Available at: <https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain-Good-practice-principles-for-development-A-practical-guide-web.pdf>

[N3] CIEEM. *Guidelines for ecological impact assessment in the UK and Ireland*. 2018. Available at: <https://cieem.net/wp-content/uploads/2019/02/Combined-EcIA-guidelines-2018-compressed.pdf>

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in *Biodiversity net gain – Good practice principles for development – A practical guide* [N2], the *Guidelines for ecological impact assessment in the UK and Ireland* [N3] and the following apply.

3.1.1 adaptive management

decision process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood

NOTE Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process.

[SOURCE: CIEEM, CIRIA, IEMA, 2019 [N2]]

3.1.2 additionality

property of measures to achieve biodiversity net gain, where the conservation outcomes it delivers are demonstrably new and additional and would not have resulted without it

3.1.3 biodiversity

variability among living organisms, including terrestrial, marine and other aquatic ecosystems and ecological complexes of which they are a part

NOTE This includes diversity within species, between species and of ecosystems

[SOURCE: [BS 42020:2013](#), 3.2]

¹⁾ Documents that are referred to solely in an informative manner are listed in the Bibliography.

3.1.4 biodiversity baseline

description of pre-project biodiversity (type, extent and condition) against which to assess impacts and outcomes

NOTE This is assessed prior to any habitat conversion connected with the project including enhancements or deliberate degradation of habitat in anticipation of a project to confirm whether a static or dynamic baseline is required.

3.1.5 biodiversity metric

way to measure biodiversity loss and gain in a consistent and robust way by using surrogate or proxy measures, which represent biodiversity

NOTE 1 The outputs of the metric are not absolute values but provide a proxy for the relative biodiversity worth of a site pre- and post-intervention. The quality and reliability of outputs depend on the quality of the input.

NOTE 2 An example of a biodiversity metric is Biodiversity Metric 3 [1], which is described as a way to measure biodiversity loss and gain in a consistent and robust way by predicting the likely effectiveness of creating new or enhancing existing habitats.

3.1.6 biodiversity net gain (BNG)

specific, quantifiable outcome of project activities that deliver demonstrable benefits for biodiversity compared to the baseline situation

NOTE 1 In order to achieve BNG, a project has to follow the mitigation hierarchy and be able to demonstrate that it has followed the BNG Good Practice Principles for development [N1].

NOTE 2 Examples of BNG approaches across the UK include the following:

Scotland's statutory requirement for the National Planning Framework that refers to "Securing positive effects for biodiversity from new developments" [2].

In Wales, planning authorities and the NRW have an enhanced biodiversity duty that requires them to maintain and enhance biodiversity and the resilience of ecosystems across their functions. This translates as Net Benefit for Biodiversity in PPW. It is noted that the duty requires specific consideration of the ecosystems affected in terms of how their health and resilience (their ability to adapt to pressures such as climate change and their ability to provide benefits for people) can be maintained and enhanced by consideration of their diversity, extent, condition, connectivity and adaptability [3].

In England, the approach in [4] is to deliver measurable improvements through habitat creation or enhancement.

3.1.7 competent person

person who can demonstrate they have acquired through training, qualifications or experience, or a combination of these, the knowledge and skills enabling that person to perform a specified task

3.1.8 irreplaceable habitat

habitat that cannot be recreated within a specified time frame because it would be technically very difficult or impossible to recreate taking into account their age, uniqueness, species diversity, rarity and environmental or historical context

NOTE 1 These habitats are also likely to be particularly vulnerable to threats such as degradation, fragmentation or loss.

NOTE 2 In the UK, there is no definitive list of irreplaceable habitats at the time of publication and the full range of factors affecting irreplaceability should be taken into account when determining the status of a particular habitat.

[SOURCE: CIEEM, CIRIA, IEMA, Technical Note T3 [N2]; National Planning Policy Framework, 2019 [4]]

3.1.9 mitigation hierarchy

hierarchical sequence of actions to anticipate and avoid impacts on biodiversity or ecosystem services; and, where avoidance is not possible, minimize; where impacts occur, restore; and finally where significant residual impacts remain, offset

NOTE 1 Its application requires taking each step in turn, focusing on all possibilities before moving on the next step. See [N2], Table 1.2.

NOTE 2 The term “compensation” is sometimes used interchangeably with “offset”.

[SOURCE: CSBI, 2015 [5]]

3.1.10 like-for-like or better

after the avoidance and minimization stages of the mitigation hierarchy, biodiversity net gain is achieved by restoring affected biodiversity or offsetting residual biodiversity loss with the same type of biodiversity (like-for-like) or with a type that is of a higher conservation value (better)

NOTE “Like-for-like” is sometimes also referred to as “in-kind”. Whereas “out of kind” is when losses of biodiversity are offset by gains in a different type of biodiversity. “Trading down”, where lower conservation habitats are provided in replacement is not allowed in projects seeking BNG. Several BNG policies are based on this principle either of “like-for-like” or “like-for-like or better”.

[SOURCE: BBOP, 2018 [6], note modified]

3.1.11 master plan

plan to set the vision and implementation strategy for a development

NOTE Master plans are distinct from local design guides by focusing on site specific proposals such as the scale and layout of development, mix of uses, transport and green/blue infrastructure. Depending on the level of detail, the masterplan may indicate the intended arrangement of buildings, streets and the public realm.

[SOURCE: <https://www.gov.uk/guidance/design#para006>]

3.1.12 residual impact

impact remaining after or despite avoidance, minimization and restoration measures have been accounted for

3.1.13 social value of biodiversity

aesthetic, spiritual, educational and recreational significance that people associate with biodiversity

NOTE These can be intimately connected with people’s morals, traditions, customs and way of life, as well as people’s wellbeing.

[SOURCE: BBOP, 2018 [6]]

3.2 Abbreviations

ASSI	Areas of Special Scientific Interest ²⁾
BNG	Biodiversity Net Gain
EcIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
LEMP	Landscape and Ecological Management Plan
MMP	Management and Monitoring Plan
PEA	Preliminary Ecological Appraisal
SAC	Special Area of Conservation
SANGS	Suitable Alternative Natural Green Space
SPA	Special Protection Areas
SSSI	Sites of Special Scientific Interest

4 Requirements for all stages of the BNG process

This clause sets out requirements that apply throughout the BNG process. Firstly, these relate to a project's impact assessment and mitigation, as follows:

- a) projects shall document evidence on undertaking and reporting:
 - 1) ecological, social and environmental surveys;
 - 2) impact assessments; and
 - 3) mitigation design;
- b) surveys, impact assessments and mitigation design shall be undertaken in accordance with published best practice guidelines and standards and/or by competent persons (see [3.1.7](#)) taking into account the importance of seasonality; and

NOTE 1 Attention is drawn to national legislation and policy requirements.

NOTE 2 Published guidelines and standards for undertaking and reporting environmental impact assessments, ecological impact assessments and preliminary ecological impact assessments include those published by IEMA [7] and CIEEM [8], as well as [BS 42020](#) and [BS 8583](#).

- c) implementation of ecological management by competent persons during a project's implementation and maintenance and monitoring stages shall be in accordance with published guidelines and standards.

NOTE 3 For example, CIRIA's Working with wildlife guidance (C691) [9] and species-specific guidance such as the Guidelines for the treatment of bats during the construction of national road schemes [10].

NOTE 4 [BS 8583](#) provides specific guidance on biodiversity issues that helps organizations to incorporate biodiversity considerations into their management systems, so that they protect and enhance biodiversity through everyday operations.

Requirements that apply throughout the BNG process also specifically relate to BNG, as follows:

- 1) projects shall follow the *BNG Good Practice Principles* for development [N1];
- 2) projects shall avoid impacts on irreplaceable habitats;

²⁾ Northern Ireland and Isle of Man