

Briefing Paper

BREEAM UK Strategic Ecology Framework

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This document sets out the aims and detail of BREEAM UK's Strategic Ecology Framework (SEF), which has been developed to help inform and guide the future direction of ecological and related assessment criteria in BREEAM schemes.

It has been published to enable those working in the built environment to better understand the basis of BREEAM evaluations, and to take account of this in their future planning.

The SEF will be applied to all relevant future BREEAM scheme updates, but will not be applied retrospectively to currently operational schemes. It should be noted that some parts of the SEF will not be appropriate for all schemes and this will be reflected in the scheme criteria when these are developed.

Ecology in BREEAM

Ecology is one of a series of key sections included across the BREEAM family of schemes, which relate to master planning, infrastructure and buildings (see Figure 1). The Ecology Section encourages project teams to identify ecologically valuable features and opportunities to protect and enhance habitats, and to mitigate unavoidable impacts. It also seeks to improve long term biodiversity management practices and strategies for assessed sites and associated areas.

Whilst the coverage of ecology in BREEAM has evolved since it was added to the scheme in 1993 the aims of the issues and assessment criteria that form the basis of BREEAM's reward mechanism (awarding credits) have remained broadly consistent since 1998.

Responding to Developments in Ecological Best Practice

All BREEAM schemes are periodically reviewed to ensure they continue to be relevant, applicable and represent best practice, whilst maintaining practicality, cost effectiveness and value. They must continue to challenge masterplanners, designers, constructors, asset owners and managers to raise standards of performance and sustainability.

BRE Global's BREEAM team recognises that there have been significant developments in best practice for evaluating, protecting and enhancing ecological features over the last decade. These are ongoing, with a number of key policy areas under development, including work on ecosystem services and natural capital.

To ensure a clear understanding of these developments, BRE Global has worked with a wide range of stakeholders, including the UK Green Building Council, professional bodies such as Chartered Institute of Ecology and Environmental Management (CIEEM) and the Landscape Institute, and a range of consultants, developers, designers, constructors, managers and policy makers (for more information see Appendix B). The overall objective was to identify a consistent strategic framework for evaluating ecology related issues across BREEAM.

This stakeholder consultation fed into the development of the SEF, which aims to ensure a fair and balanced framework for evaluating ecological impact, mitigation and enhancement issues across the BREEAM family of schemes, whilst reflecting current best practice and future direction.

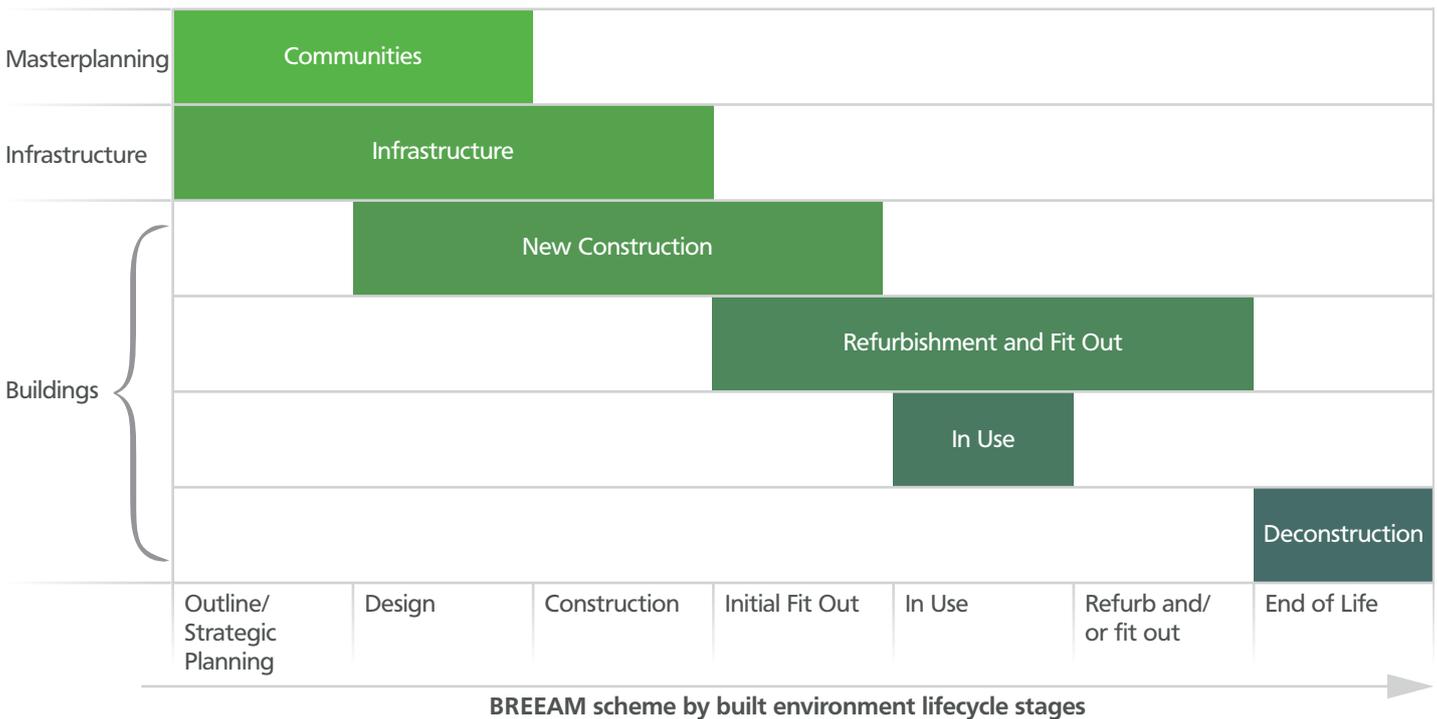


Figure 1 The BREEAM family of schemes comprises a number of schemes focused on differing sectors and lifecycle stages.

The BREEAM UK Strategic Ecology Framework

The SEF promotes a wider understanding of the objectives of BREEAM and sets out a common basis on which appropriate ecology related assessment criteria will be developed. It does not set out specific methodologies/assessment criteria, as these must relate to the particular focus of each BREEAM scheme. However the SEF sets the direction for criteria development and must be considered as part of the BREEAM UK scheme update and development process.

The SEF is broken down into six discrete 'Tasks' (see [Table 1](#)) which complement ecology practices and give clarity to the key objectives of all BREEAM schemes. There will inevitably be some overlap and feedback loops between these tasks when applied to projects.

SEF Aims

The SEF will guide and inform BREEAM criteria development, with the aim of achieving the following:

- Understand the existing ecological value and condition of a site and its associated areas, in order to identify appropriate objectives.
- Identify, protect and enhance key existing ecological features.
- Remove or limit as far as possible, existing features identified as having negative impacts on the ecological value of the site.
- Mitigate unavoidable impacts and compensate against residual impacts.
- Enhance the broader ecological value of the site and its links to associated areas through the creation and/or management of ecological features on or near the site.
- Secure ongoing management and maintenance to ensure intended outcomes are realised over the life of the site.

Integrating with wider sustainability

The SEF aims to promote and maximise opportunities to align or integrate with wider sustainability activities (see Task 2 on page 7) relating to other BREEAM sections. For example, it will highlight the opportunities for ecology to link with related disciplines such as landscape and amenity. This supports the overarching aim of BREEAM to encourage and recognise holistic approaches that maximise value to all stakeholders whilst minimising impact (see Figure 2).

Stakeholder collaboration and knowledge transfer is key to successfully realising this aim. The SEF is centred on a collaborative approach, promoting liaison and communication with a development's stakeholders where this will result in clear benefits. The stakeholders will vary according to the development and lifecycle stage being assessed, but are likely to include ecological professionals, landscape architects, planners, designers, contactors, facilities managers, bodies such as wildlife trusts and, in some cases, local communities.

The SEF requires consideration of both the range of stakeholders involved and their level of engagement in order to ensure that the aims above are met. This will be reflected in BREEAM credit allocations within specific schemes. This approach supports the development of assessment criteria that recognise meaningful actions taken with levels of expertise appropriate to the project/asset and life cycle stage under assessment. BRE Global will also look to support the timely involvement of relevant stakeholders in order to maximise the benefits of their inputs whilst maintaining practicality and cost effectiveness.



Figure 2 The SEF is centred on the high level principles detailed in this diagram and seeks to encourage opportunities for enhancement wherever possible

The SEF in the Context of UK Policy, Regulatory Framework, Sector Tools and Guidance

BREEAM focusses on recognising and promoting best practice over and above statutory requirements, including environmental protection and planning. This is reflected in parts of the SEF that may appear to have some overlap with regulations or standard industry practices.

Wherever possible BREEAM aims to build on existing processes and procedures rather than creating additional requirements that may cause unnecessary duplication, or burden the project with complexities and costs that could create barriers to adopting more ecologically friendly outcomes. The SEF was developed to align with a range of standard industry guidance and tools such as the Digital Plan of Work and the Royal Institute of British Architects (RIBA) Plan of Work 2013.

BREEAM scheme assessment criteria will take full account of the opportunities for linking with current and future regulatory and policy requirements. The detailed objectives in the SEF may need to evolve further to take account of future developments and harmonisation in areas such as ecosystems services, natural capital and biodiversity offsetting, but the current framework provides a sound basis for this.

The SEF's Relationship with UK BREEAM Assessment Schemes

The SEF sits above the UK BREEAM schemes, acting as a common reference for the development of ecology and associated criteria (landscape etc.) – see Figure 3.

While not all parts of the SEF are relevant to all schemes, they will all use the framework to help align their ecological criteria – thereby maximising synergies between schemes, and efficiencies in assessment through the transfer of assessment results where appropriate.

SEF implementation will be part of scheme development consultations to ensure that it is applied in a fair and balanced way that reflects the specific needs, limitations and opportunities in each lifecycle stage and sector, whilst avoiding unwarranted burdens and achieving real benefits.

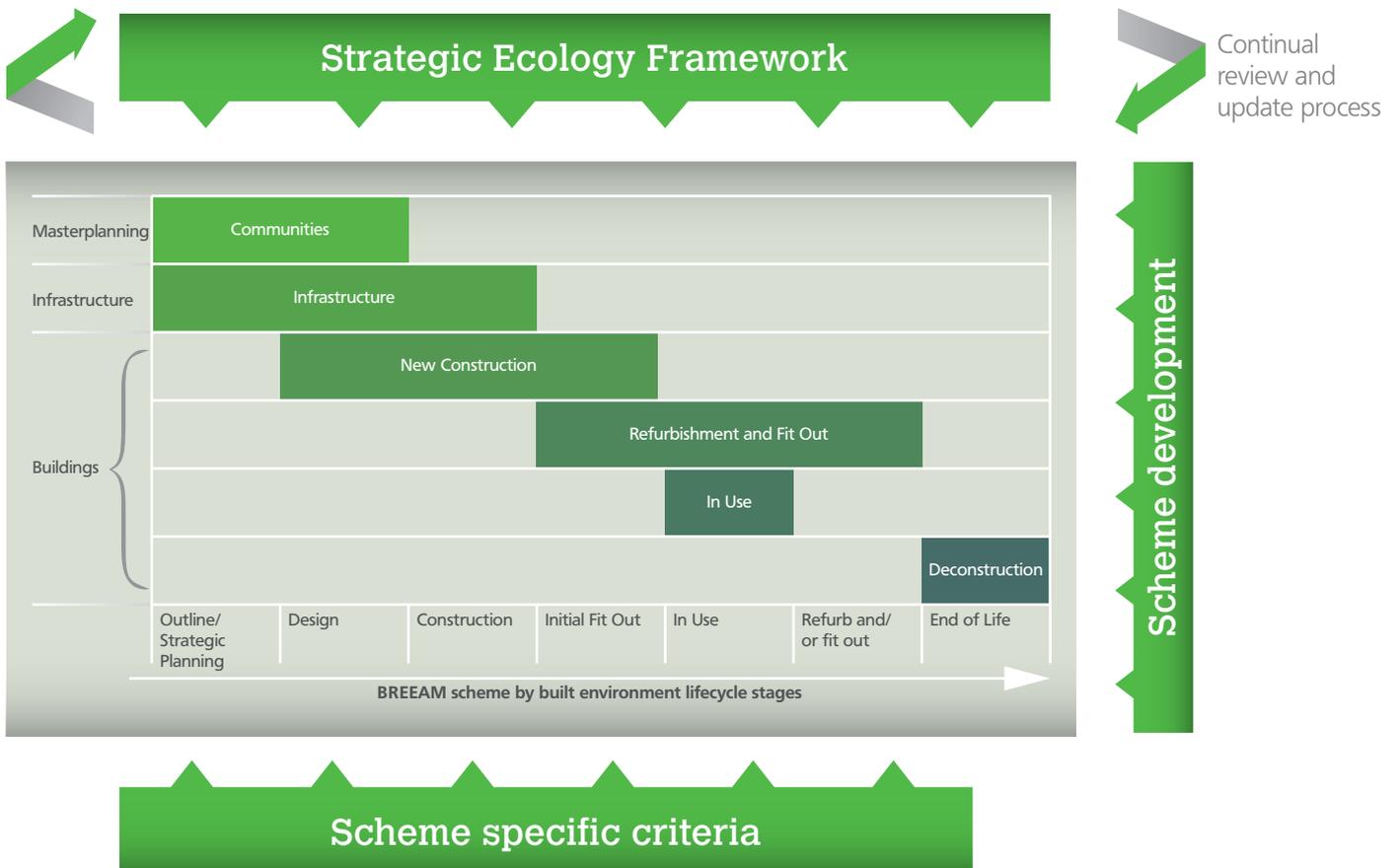


Figure 3 The relationship between the SEF and the UK BREEAM Schemes

SEF Structure

The SEF is organised into six Tasks, each with distinct objectives and supporting detail to demonstrate how the objectives can be met. The tasks are presented in detail in [Table 1](#), which include the following elements:

Task: The tasks are set out in sequential steps from 1-6. However, it is recognised that applying the SEF is not likely to be a linear process. It will be iterative in many aspects and there are likely to be feedback loops between the Tasks (see [Figure 4](#)). It is envisaged that all tasks will be relevant to every sector and built environment life cycle stage in some way, although the level of consideration will vary considerably.

Objectives: This column in the tables describes the principal goals of the tasks.

Detail of the objective: This column provides a breakdown of how the objective should be interpreted and sets out the content to be considered as part of the BREEAM scheme assessment criteria development. Not all elements will be relevant to every sector and built environment life cycle stage.

The terms used in the SEF are defined within Appendix A which can be found on [page 10](#) of this document. Wherever possible these terms align with industry best practice but in some cases have been adapted, in view of feedback from external groups, from existing sector recognised definitions to better align with the BREEAM context.



Figure 4 Iterative application of the SEF – each task is explained in full from page 6 onwards.

The Importance of handover and monitoring and review

A number of factors contribute to successfully meeting the aims and maximising the benefits of the SEF. In particular, the 'Handover' and 'Monitoring and Review' of activities are vital to achieving the ecological objectives. Feedback from industry indicated that on projects where these activities have not been adequately carried out, they have experienced reduced ecological benefits for the project.

Handover

When implementing the ecological aspects of a BREEAM project, there will be various points throughout the project that will require the handover of responsibilities and information. This may occur as part of a normal process within a design and development project, or as a result of changing circumstances in either procurement or management. It is common for time, effort or emphasis to be limited in such instances resulting in poorer outcomes for the site. This can negatively affect the site over the longer term.

The SEF not only recognises the points at which specific emphasis should be placed on Handover between Tasks, but also encourages consideration of Handover and coordination within Tasks.

Monitoring and review

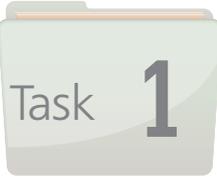
Ecological aspects of a project take time to establish and mature. Throughout the design, construction and management of ecological features it is necessary to monitor and review progress against the objectives and targets set. However, this is often not given sufficient prominence in implementation plans and project programmes. As with Handover, this can mean that opportunities are missed and expected benefits are not realised, potentially leading to the failure of the initiative.

The SEF outlines the key points at which specific emphasis should be placed on Monitoring and Review both between and within Tasks.

SEF Tasks

The SEF is organised into six Tasks, each with distinct objectives and supporting detail to demonstrate how the objectives can be met, as detailed in [Table 1](#). Please note that there are likely to be feedback loops between the Tasks (see [Figure 4](#))

Table 1 SEF Tasks

Framework Tasks	Objectives	Detail of the objective
<div data-bbox="156 674 373 853">  </div> <p data-bbox="140 920 363 1039">Assessment and evaluation of existing ecological value and condition</p> <p data-bbox="140 1084 368 1256"><i>Note: Task content applied as appropriate to the assessment scheme, sector and built environment lifecycle stage)</i></p> <div data-bbox="86 1151 118 1301" style="writing-mode: vertical-rl; transform: rotate(180deg);">Handover</div>	<p data-bbox="405 685 587 860">To collate and assess baseline ecological information about the site and associated areas.</p> <p data-bbox="405 904 592 1106">To evaluate and gain an understanding of the existing ecological value (including benefits / risks).</p>	<ol style="list-style-type: none"> <li data-bbox="651 685 1430 1211">1) Collate and assess information about the site and associated areas to identify the existing ecological value and condition. This should consider the following: <ol style="list-style-type: none"> <li data-bbox="687 786 1166 815">a. Determining the zone of influence for the site <li data-bbox="687 831 1422 920">b. Current flora, fauna (including permanent and transient species) and habitat characteristics (including but not limited to ecological features in or on built structures) <li data-bbox="687 936 1110 965">c. Habitat connectivity and fragmentation <li data-bbox="687 981 991 1010">d. Neighbouring land/habitat <li data-bbox="687 1025 1046 1055">e. Recent and historic site condition <li data-bbox="687 1070 1318 1099">f. Existing management and maintenance levels/arrangements <li data-bbox="687 1115 1214 1144">g. Existing ecological initiatives in the associated area <li data-bbox="687 1160 1422 1211">h. Identification of, and consultation with, relevant stakeholders impacted/affected by the site. <li data-bbox="651 1227 1406 1339"><i>Note: Any statutory protection/requirements particularly protected or designated areas relating to the site, local Biodiversity Action Plans or equivalent and local guidance should be reviewed and considered as part of this Task.</i> <li data-bbox="651 1357 1414 1760">2) Conduct an evaluation to establish the: <ol style="list-style-type: none"> <li data-bbox="687 1402 1390 1503">a. Value of the site and, where relevant, the associated area in terms of: <ol style="list-style-type: none"> <li data-bbox="724 1435 951 1464">i. Ecological benefits <li data-bbox="724 1473 1198 1503">ii. Biodiversity and ecosystem services benefits <li data-bbox="687 1518 1414 1671">b. Direct and indirect risks to ecological value: <ol style="list-style-type: none"> <li data-bbox="724 1552 1382 1641">i. Direct risks include those from, human activity (e.g. construction work), habitat fragmentation, diseased species or those which may be harmful <li data-bbox="724 1650 1278 1680">ii. In-direct risks include water, noise, light pollution, etc. <li data-bbox="687 1688 1043 1718">c. Qualitative ecological thresholds <li data-bbox="687 1733 1270 1762">d. Impact of the proposed design/works/operation on site. <div data-bbox="1458 1055 1490 1406" style="writing-mode: vertical-rl; transform: rotate(180deg);">Monitoring and review</div>

Framework Tasks	Objectives	Detail of the objective
<div data-bbox="167 407 389 584">  <p>Task 2</p> </div> <p data-bbox="156 656 392 741">Strategic outcome identification and preliminary selection</p> <p data-bbox="156 920 384 1093"><i>Note: Task content applied as appropriate to the assessment scheme, sector and built environment lifecycle stage)</i></p> <p data-bbox="100 1137 132 1290">Handover</p>	<p data-bbox="421 421 612 651">To consider a range of potential strategic ecological and, where relevant, wider sustainability outcomes for the site.</p> <p data-bbox="421 667 612 840">To understand and align outcomes with aspects of function, amenity and value, relating to the site.</p> <p data-bbox="421 855 612 972">To identify and select the optimal strategic outcome for the site.</p>	<p data-bbox="667 421 1417 506">1) Drawing on the outputs of Task 1, consider a range of realistic, ecology-focused and, where relevant, sustainability strategic outcomes for the site and associated areas – taking into consideration the:</p> <ul style="list-style-type: none"> <li data-bbox="703 521 1358 580">a. Ecological value and benefit offered (pre, during and post asset maintenance / project completion) <li data-bbox="703 595 1406 654">b. Biodiversity and ecosystem services benefits offered pre, during and post asset maintenance / project completion <li data-bbox="703 669 1034 696">c. Local microclimatic conditions <li data-bbox="703 712 1126 739">d. Habitat connectivity and fragmentation <li data-bbox="703 754 1437 781">e. Opportunities to enhance the value of existing habitats and ecosystems <li data-bbox="703 797 1406 855">f. Opportunities to align and integrate with existing ecological features and initiatives in the associated area. <li data-bbox="703 871 1082 898">g. Alignment with the aims of the SEF. <p data-bbox="667 913 1422 1066">2) Liaise with stakeholders to identify opportunities for integrating ecology with wider sustainability activities. This can be achieved through closer alignment or multifunctional approaches with landscape and other site activities to maximise cross benefits and minimise conflicts. Opportunities for integration with the following areas should be considered:</p> <ul style="list-style-type: none"> <li data-bbox="703 1081 852 1108">a. Landscape: <ul style="list-style-type: none"> <li data-bbox="740 1124 959 1151">i. Landscape design <li data-bbox="740 1158 1054 1184">ii. Heritage and local character <li data-bbox="740 1191 979 1218">iii. Green Infrastructure <li data-bbox="703 1234 959 1261">b. Health and wellbeing: <ul style="list-style-type: none"> <li data-bbox="740 1267 1442 1326">i. Recreational space (including growing space, community agriculture or horticultural and allotment activities) <li data-bbox="740 1332 1010 1359">ii. Water quality measures <li data-bbox="740 1366 1042 1393">iii. Noise mitigation measures <li data-bbox="740 1400 1051 1426">iv. Air quality control measures <li data-bbox="740 1433 1094 1460">v. Light pollution control measures <li data-bbox="703 1476 842 1503">c. Resilience: <ul style="list-style-type: none"> <li data-bbox="740 1509 1038 1536">i. Climate change mitigation <li data-bbox="740 1543 1150 1570">ii. Management of surface water run off <li data-bbox="740 1576 1011 1603">iii. Flood risk management <li data-bbox="740 1610 1406 1668">iv. Climate-sensitive urban design (heat island effect, thermal mass, shading, biotic cooling etc.) <li data-bbox="703 1684 879 1711">d. Infrastructure: <ul style="list-style-type: none"> <li data-bbox="740 1718 1401 1812">i. Maximising the benefits of green infrastructure and optimising alignment with existing infrastructure on the site and associated areas. <li data-bbox="703 1827 810 1854">e. Others <ul style="list-style-type: none"> <li data-bbox="740 1861 1158 1888">i. Community and end-user involvement <li data-bbox="740 1895 895 1921">ii. Pest control <li data-bbox="740 1928 1187 1955">iii. Life cycle costing and service life planning. <p data-bbox="667 1971 1171 1998">3) Select the desired strategic outcome for the site.</p> <p data-bbox="1477 1037 1509 1386">Monitoring and review</p>

Framework Tasks	Objectives	Detail of the objective
 <p>Task 3</p> <p>Option identification and selection.</p> <p><i>Note: Task content applied as appropriate to the assessment scheme, sector and built environment lifecycle stage)</i></p>	<p>To identify and appraise options for delivering the selected outcome.</p> <p>To finalise the outcome and options for the site.</p>	<ol style="list-style-type: none"> 1) Drawing on the outputs of Task 2, identify the options for delivering the desired strategic outcome selected for the site and, where viable, the associated areas. Consider: <ol style="list-style-type: none"> a. Alignment with the aims of the BREEAM UK SEF b. Ecological, biodiversity and ecosystem services benefits accounting for: <ol style="list-style-type: none"> i. Local priorities. ii. Long term viability of the outcome/option. iii. Alignment with the sites function, amenity and value. c. Practicality, including consideration of : <ol style="list-style-type: none"> i. Timing and duration of implementing and realising the outcome and associated options. ii. Outline up-front and ongoing maintenance costs. iii. Long term management and maintenance implications. iv. Opportunities and barriers arising from management/procurement structures. v. Availability of appropriate skills and other resources. 2) Revisit Task 2 as necessary, to refine the selected strategic outcome in line with needs identified during Task 3 to maximise benefits. 3) In line with the strategic outcome selected, liaise with relevant stakeholders as per point 2 in Task 2, to support optimal option identification and selection. 4) Select the finalised outcome and options for the site.
 <p>Task 4</p> <p>Develop the Action Plan</p> <p><i>Note: Task content applied as appropriate to the assessment scheme, sector and built environment lifecycle stage)</i></p>	<p>To set out and agree a detailed Action Plan covering ecology and, where relevant, wider sustainability benefits, based on the strategic outcome and associated options selected.</p>	<ol style="list-style-type: none"> 1) Liaise with stakeholders to develop and finalise an Action Plan for the delivery of the strategic outcome and associated options identified in Tasks 2 and 3. This should cover both the ecology and wider sustainability benefits in a focused, practical, feasible and cost efficient way, including: <ol style="list-style-type: none"> a. Responsibilities, relationships and management required to implement the Action Plan including clear strategic ownership of each task of the Action Plan to fully support implementation. b. Timescales for implementing the Action Plan, taking into consideration: <ol style="list-style-type: none"> i. When identified roles and responsibilities apply ii. Ecological seasonality iii. Alignment with existing/planned activities and processes iv. Project phasing. c. Collaboration opportunities between relevant stakeholders at appropriate times to support implementation. d. Reducing and / or managing potential knock-on impacts (e.g. pollution, disturbance, etc.) of works. e. Contractual and other handover points. f. Long term management/maintenance requirements and outline costs. <p><i>Note: Any implications related to statutory controls/approvals should be considered in line with the above points.</i></p> 2) Formal adoption of final Action Plan by the client and all key stakeholders.

Framework Tasks	Objectives	Detail of the objective
<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; margin-right: 10px;">Handover</div> <div style="text-align: center;">  <p>Task 5</p> <p>Implement the Action Plan</p> <p><i>Note: Task content applied as appropriate to the assessment scheme, sector and built environment lifecycle stage)</i></p> </div> </div>	<p>To implement the Action Plan in line with the aims of the SEF.</p>	<ol style="list-style-type: none"> 1) Implement the Action Plan incorporating: <ol style="list-style-type: none"> a. Allocation of roles and responsibilities to deliver the plan. b. Allocation of adequate resources (including financial, time, technical and skills). c. Procedures to promote effective implementation, and monitoring and feedback for continual improvement. d. Alignment with related activities and processes. e. Measures for effective Handover and collaborative activities where responsibility is transferred and / or shared, including transition to long term management and maintenance arrangements.
<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; margin-right: 10px;">Monitoring and review</div> <div style="text-align: center;">  <p>Task 6</p> <p>Periodic Monitoring and Review of Action plan implementation</p> <p><i>Note: Task content applied as appropriate to the assessment scheme, sector and built environment lifecycle stage)</i></p> </div> </div>	<p>To monitor and review Action Plan implementation to ensure intended outcomes continue to be realised over the life of the development.</p>	<ol style="list-style-type: none"> 1) Monitor and review the on-going implementation and effectiveness of the Action Plan. <p><i>Note: this may require reallocating roles and resources and / or updating the content of the Action Plan as appropriate to the current situation (by revisiting tasks 4 and 5).</i></p> 2) Identify opportunities for ongoing alignment with activities external to the asset / development project which support the aims of the SEF. 3) Identify and trigger appropriate remedial actions to address previously unforeseen impacts. 4) Develop and evolve the Action Plan to help ensure its applicability to the ecological value and condition of the site over the development life.

Appendix A

Terms and definitions

Table 2 below details the definitions of certain terms used in the Strategic Ecology Framework.

Factor	Definitions	Factor	Definitions
Associated areas	For the purposes of BREEAM, associated areas are considered to be areas of land or water bodies directly impacted by the site undergoing assessment. These areas can be adjacent to the site or can be areas that are dependent on the site but not physically linked. These associated areas can be negatively affected by changes on an assessment site but they also provide further opportunity to maximise enhancement activities as part of a project.	Enhancement	Improved management of ecological features or provision of new ecological features, resulting in a net benefit to biodiversity, which is unrelated to a negative impact or is 'over and above' that required to mitigate/compensate for an impact.
Biodiversity offsetting	Biodiversity offsetting is an approach to compensate for habitats and species lost to development in one area, with the creation, enhancement or restoration of habitat in another location.	Fragmentation	The breaking up of a habitat, ecosystem or land-use type into smaller parcels with a consequent impairment of ecological function, connectivity and long-term viability.
Compensation	Measures taken to make up for the loss of, or permanent damage to, ecological features despite mitigation e.g. replacement habitat or improvements to existing habitats similar in terms of biological features and ecological functions to that lost or damaged. Compensation can be provided either within or outside the project site, in line with the following hierarchy: within site, adjacent to site and off-site (offsetting) as a last resort.	Green infrastructure	Multi-functional space, urban and rural, that can form a network or be self-contained, which is capable of delivering a wide range of environmental and quality of life benefits for local communities. It covers both 'green' and 'blue' (water environment) features of the natural and built environments. Examples include parks, open spaces, playing fields, woodlands, wetlands, grasslands, river and canal corridors, allotments, private gardens and living (green) roofs and facades.
Connectivity	The degree to which the landscape facilitates or impedes movement between and across resource patches.	Habitat	A place in which a particular plant or animal lives. Often used in the wider sense referring to major assemblages of plants and animals found together.
Ecological thresholds	An ecological threshold is the point at which there is an abrupt change in an ecosystem quality, property or phenomenon, or where small changes in an environmental driver produce large responses in the ecosystem.	Handover	For the purposes of the SEF, Handover refers to any point in a sites / developments lifecycle where ecological or landscape related responsibilities, information or documentation, deemed to be crucial to the successful attainment of ecological aims and objectives, is passed from one organisation, group or individual to another. Handover strategies should be designed to support effective communication, monitoring and transition throughout the projects lifecycle. Handover can apply both between and within Tasks in the SEF.
Ecological value	The importance, worth, or usefulness of a species, habitat or ecosystem in terms of its impact on other species and/or habitats, as well as the other environmental, social and economic value that can be delivered from species and habitats and their interactions (ecosystem services) specific to a geographical frame of reference.	Landscape	An area, as perceived by people, whose visual features and character is of environmental, social and /or economic value usually as a result of the action and interaction of natural and/or human factors e.g. aesthetic, heritage, scenic, cultural and leisure benefits.
Ecosystem	An ecosystem is a dynamic complex of plant, animal, and micro-organism communities and the non-living environment interacting as a functional unit. Ecosystems vary enormously in size; a temporary pond in a tree hollow and an ocean basin can both be ecosystems.	Mitigation	Adverse effects that cannot be avoided should be adequately mitigated. Mitigation measures minimize the negative impact of a plan or project, during or after its completion.
Ecosystem services	Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; economic value such as tourism and cultural/social services such as health and wellbeing, recreational, spiritual, religious and other non-material benefits.	Site	For the purposes of BREEAM the site is considered to be the land enclosed by the boundary of the BREEAM assessment.
		Zone of influence	The area(s) over which ecological features may be affected by the biophysical changes caused by the proposed project and associated activities both on and off site.

Appendix B

Acknowledgements

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