St David's Church in Wales Primary School

Preliminary Ecological Appraisal (PEA) and BREEAM Assessment Report

Vale of Glamorgan Council

Project number: 60607805
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Quality information

Prepared by	Checked by	Approved by
LF	LN	KW
ACIEEM Ecologist	Principal Ecologist ClEEM	Associate Director CEcol

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1 – Version2	25 Feb 2020	No off-Site works in adjacent field. Report updated	LN	LN	Principal Ecologist

Prepared for:

Vale of Glamorgan Council

Prepared by:

AECOM Limited
1 Callaghan Square
Cardiff CF10 5BT
United Kingdom

T: +44 29 2067 4600
aecom.com

Table of Contents

Figures

Tables

1. Executive Summary

AECOM was instructed by Vale of Glamorgan Council to carry out a Preliminary Ecological Appraisal (PEA) and BREEAM Landuse and Ecology assessment of St David's Church in Wales Primary School, Cowlinston hereafter referred to as 'the Site'. The central grid reference for the Site is SS 94107 75691 and the boundary of the Site is shown on Figure 1.

The assessment is focussed towards specific BREEAM Land use and Ecology Issues LE02, LE03, LE04 and LE05. The assessment includes a desk study and an Extended Phase 1 Habitat Survey. The assessment has been undertaken using BREEAM 2018 criteria for Wales (BREEAM, 2018a).

The proposed development is for the demolition of the existing school building and construction of a new two storey school building on the existing playing field. A new playing field and games court (MUGA) will be instated on the site of the old building once demolition and construction are complete. The existing parking area and vehicle entrance routes will be retained. Detailed landscaping designs are not yet available. A lighting design is not yet available. The proposed site plan layout HLM Architects: Drawing Number: 15-1062-01-SK-007 (12.08.2019) has been used for this assessment. This PEA and BREEAM Report will be used to inform the initial and final detailed design of the proposed development.

The pre-development habitats at the Site are buildings, hardstanding, amenity grassland, ornamental shrubs, broadleaved plantation woodland, pond (Figure 1 , TN 9), scattered trees, rows of trees, hedgerows, fences and walls. Within the Site boundary there is potential for common invertebrates, common amphibians, breeding birds, foraging, commuting and roosting bats and hedgehog.

The proposed Site plan layout drawing number HLM Architects: Drawing Number: 15-1062-01-SK-007 (12.08.2019) shows that the ornamental shrub, broadleaved plantation woodland, pond, scattered trees, rows of trees and hedgerow habitats will be retained. There will be complete removal of all buildings and partial removal of amenity grassland and hardstanding during construction. During construction there is potential for damage of retained habitat through root compaction caused by tracking of vehicles or storage of material over the root zone of retained trees/hedgerows. Habitats suitable for supporting roosting bats and breeding birds are being removed. The removal of habitats will reduce suitable foraging habitat hedgehog. There is potential for pollution of the retained pond which could impact on common amphibians. All boundary features including hedgerows and rows of trees will be retained however, without mitigation new external lighting during construction and operation has the potential to reduce the suitability of these features for foraging and commuting bats and hedgehog.

Recommendations have been made with regards to further surveys and mitigation. Bat surveys have been undertaken at the Site. A bat roost has been confirmed in Building 2. An EPSL will be required prior to demolition. To avoid impacts on breeding birds, demolition of buildings must be undertaken outside of the breeding bird season. Further recommendations have been made to enhance ecological value of the Site and achieve BREEAM credits.

The 'before development' BREEAM LE04 calculations are based on the Phase 1 Habitat Survey. 'Post development' calculations are based on the proposed site plan layout HLM Architects: Drawing Number: 15-1062-01-SK-007 (12.08.2019). This Report can be used to guide Site design to achieve credits under BREEAM Issues LE03, LE04 and LE05.

Summary of Potential BREEAM Issues and Credits

Issue	Total available	Credits likely achievable under current landscaping proposals*
LE02	3	3
LE03	3	3
LE04	5	3
LE05	2	2
LE Total	**13**	**11**

* Achieving credits is dependent on recommendations being implemented by the client/contractor. Achieving these may be dependent on meeting the prerequisite credits.

Credits will be confirmed once a detailed site plan including final landscape design has been issued.

The Executive Summary is not a substitute for the full report. Refer to the full text for further detail.

2. Introduction

2.1 Introduction

AECOM was instructed by Vale of Glamorgan Council to carry out a Preliminary Ecological Appraisal (PEA) and BREEAM Landuse and Ecology assessment of land at St David's Church in Wales Primary School, Vale of Glamorgan, hereafter referred to as 'the Site'.

This PEA was commissioned to identify whether there are known or potential ecological receptors (nature conservation designations, and protected and notable habitats and species) that may constrain or influence the design and implementation of the proposed development. The approach applied when undertaking this PEA pays due regard to the Guidelines for Preliminary Ecological Appraisal published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017a). The PEA addresses relevant wildlife legislation and planning policy as summarised in this report.

The BREEAM assessment is focussed towards specific BREEAM Land use and Ecology Issues LE02, LE03, LE04 and LE05. The assessment includes a desk study and an Extended Phase 1 Habitat Survey. The assessment has been undertaken using BREEAM 2018 criteria for Wales (BREEAM, 2018a).

2.2 Site Location and Description

The Site is St David's Church in Wales Primary School, Colwinston, Cowbridge, CF71 7NL. The Site is located in Colwinston village within a rural area of the Vale of Glamorgan.

The central grid reference for the Site is SS 94107 75691 and the boundary of the Site is shown on Figure 1. The Site is approximately 5,750 m^2.

The Site is an existing active school, dominated by amenity grassland, hardstanding and buildings with other habitats comprising broadleaved plantation woodland, intact species poor hedgerows, ornamental shrubs, rows of trees, scattered trees, standing water, walls and fences (Figure 1).

2.3 Proposed Development

The proposed development is for the demolition of the existing school building and construction of a new two storey school building on the existing playing field. A new playing field and games court (MUGA) will be instated on the site of the old building once demolition and construction are complete. The existing parking area and vehicle entrance routes will be retained. Detailed landscaping designs are not yet available. A lighting design is not yet available.

The construction programme is currently unconfirmed, and the commencement and completion dates are unknown at the time of writing.

The proposed site plan layout drawing number HLM Architects: Drawing Number: 15-1062-01-SK-007 has been used for this assessment. This PEA and BREEAM Report will be used to inform the final detailed design of the proposed development.

2.4 Objectives

This report is based on the findings of a Phase 1 Habitat Survey and ecological desk study. The objectives of the report are:

- To identify any designated nature conservation sites on or in the vicinity of the Site;
- To identify any known records of protected, notable or scarce species in the vicinity of the Site;
- To record and map the main habitats and features of ecological interest;
- To assess the ecological value of the Site and the surrounding area;

- To assess ecological impacts including potential change in diversity;
- To outline requirements for further surveys, if required;
- To make suggestions for mitigation, compensation and enhancement of the natural features identified on the Site; and,
- To help inform the design of the proposed development to minimise ecological impacts and ecological constraints.

The purpose of this report is to inform the design of the proposed development to support the submission of a planning application. The report identifies the scope of further work (where necessary) that would be required to support a planning application. High level recommendations are made on potential options for the avoidance, mitigation or compensation of the potential impacts of the proposed development (where known) on the identified ecological receptors, and of potential enhancements to the biodiversity and ecosystem services.

2.5 Wildlife Legislation and Planning Policy

2.5.1 Wildlife Legislation

There are several different acts of legislation and regulations which refer to the protection of wildlife. These are summarised in Appendix B. In particular, the legislation relating to possible Protected Species on Site is outlined. This is a brief summary of the legislation and is not to be regarded as a definitive legal opinion. When dealing with individual cases, the client is advised to consult the full texts of the relevant legislation and obtain further legal advice.

The following wildlife legislation is potentially relevant to the proposed development:

- The Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Countryside and Rights of Way (CRoW) Act 2000;
- The Conservation of Habitats and Species and Planning (Various Amendments) (England and Wales) Regulations 2018;
- Environment (Wales) Act 2016; and,
- The Hedgerow Regulations 1997.

The above legislation has been considered when planning and undertaking this PEA, when identifying potential constraints to the proposed development, and when making recommendations for further survey, design options and mitigation. Compliance with legislation may require the attainment of relevant protected species licences prior to the implementation of the proposed development.

2.5.2 National Planning Policy

2.5.2.1 Planning Policy Wales (9th Ed. November 2016)

Planning Policy Wales (PPW) sets out the land use planning policies of Welsh Government.

Chapter 5, Conserving and Improving the Natural Heritage and the Coast, outlines Welsh Government's objectives for the conservation and improvement of natural heritage. The relevant measures in place to conserve landscape and biodiversity include:

- Statutory designations;
- Non-statutory designations;
- LANDMAP Information System (LANDMAP describes and evaluates
- aspects of the landscape and provides the basis of a consistent Wales-wide approach to landscape assessment);
- Development plans and the conservation and improvement of the natural heritage;
- Development management and the conservation and improvement of the natural heritage;

- Development management and statutory designations;
- Trees and woods; and,
- Protected Species.

Paragraph 5.3.10 states that "potential SPAs and candidate SACs (included in the list sent to the European Commission) should be treated in the same way as classified SPAs and designated SACs. Sites which the UK and the European Commission have agreed as Sites of Community Importance and which are to be designated as SACs attract the same legal protection as if they had already been designated. The same considerations should, as a matter of policy, be applied to listed Ramsar sites".

Paragraph 5.2.9 states that "Local planning authorities should seek to protect trees, groups of trees and areas of woodland where they have natural heritage value or contribute to the character or amenity of a particular locality. Ancient and semi-natural woodlands are irreplaceable habitats of high biodiversity value which should be protected from development that would result in significant damage."

Paragraph 5.5.4 states that "For all planning applications likely to result in disturbance or harm to a protected species or likely to have a significant adverse effect on sites of more than local importance, or on a designated area, local planning authorities should seek the advice of Natural Resources Wales and should always consult them before granting permission".

2.5.2.2 Technical Advice Note 5 (TAN5) Nature Conservation and Planning (September 2009)

The Planning Policy Wales (PPW) is supplemented by a series of Technical Advice Notes. TAN 5 provides guidance on how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. It provides advice on areas including the key principles of positive planning for nature conservation, nature conservation in Local Development Plans and development management procedures. It also provides advice on development affecting designated sites and habitats, in addition to Protected or Priority Habitats and species.

Key Principles include that the town and country planning system in Wales should integrate nature conservation into all planning decisions; that the town and country planning system should look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally and that they should ensure that the UK's international and national obligations for site, species and habitat protection are fully met in all planning decisions.

2.5.3 Local Planning Policy

A Local Development Plan (LDP) must be produced by every Local Planning Authority in Wales. Any development proposal will be tested against the policies within the LDP. The LDP follow the planning guidance provide in Planning Policy Wales (PPW), including biodiversity and natural heritage policies. These include protecting designated sites and other areas of importance for biodiversity conservation; safeguarding protected species and priority species, including those listed in local biodiversity action plans and retaining, creating and enhancing features of importance for biodiversity conservation where appropriate.

Relevant local planning policies for Vale of Glamorgan Council are detailed in the following document:

- Vale of Glamorgan Local Development Plan 2011-2026, Local Development Plan Written Statement. June 2017.

Appendix C provides a summary of relevant local planning policies. For the precise wording of each specific policy please refer back to the source document. This planning policy has been considered when assessing potential ecological constraints and opportunities identified by the desk study and field surveys; and, when assessing requirements for further survey, design options and ecological mitigation.

2.5.4 Quality Assurance

This survey and subsequent report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the

international standards BS EN ISO 9001:2015 and 14001:2004 and BS OHSAS 18001:2007. In addition our IMS requires careful selection and monitoring of the performance of all sub consultants and contractors.

All AECOM Ecologists who worked on this project are members of (at the appropriate level) the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct (CIEEM, 2017b) when undertaking ecological work.

3. Methodology

3.1 Preliminary Ecological Appraisal

3.1.1 Desk Study

A desk study was undertaken in May 2019. The objectives of the desk study were to review the existing information available in the public domain concerning species and habitats to identify the following:

- Internationally, nationally and locally designated sites, up to 2 km from the Site boundary using the Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk);
- Locally designated sites, up to 2 km from the Site boundary using South East Wales Biodiversity Record Centre (SEWBReC);
- Protected and Priority Species records and records of locally designated sites up to 2 km from the Site, boundary using SEWBReC;
- Special Areas of Conservation (SAC) and Sites of Special Scientific Interest (SSSI) designated for bats within a 10 km radius of the Site boundary in accordance with Bat Conservation Trust (Collins, 2016) recommendations;
- Section 7 list of Species and Habitats of Principal Importance for Conservation in Wales;
- Ancient Semi-Natural Woodland (ASNW), Plantation on Ancient Woodland Site (PAWS), Restored Ancient Woodland Site (RAWS) or Ancient Woodland Site of Unknown category (AWSU) within or adjacent to the Site boundary using Forestry Commission Wales 2011 Ancient Woodland Inventory data set downloaded from the Lle website (NRW, 2018);
- Trees with a Tree Protection Orders (TPO) within or adjacent to the Site, from Vale of Glamorgan Council interactive map tool;
- The County Ecologist, Glamorgan Bat Group and South and West Wales Amphibian and Reptile Group (SWWARG) were contacted for local records or knowledge about the project area; and,
- Aerial photographs and Ordnance Survey (OS) maps were reviewed to identify features of ecological interest surrounding the Site including ponds within 500 m, nearby areas of ecological interest and features connecting these habitats (hedgerows, watercourses, railway lines).

3.1.2 Extended Phase 1 Habitat Survey

A Phase 1 Habitat Survey (JNCC, 2010) of the Site was undertaken by experienced AECOM ecologists (BSc, CIEEM and BSc ACIEEM) on 03 May 2019.

The survey involved a site walkover and preliminary assessment of habitats, land use and ecological features. The main habitats present were recorded using standard Phase 1 Habitat Survey methodology as described in the Handbook for Phase 1 Habitat Survey: A technique for Environmental Audit (JNCC, 2010). The plant species defining the habitat types on Site were recorded. Evidence of any Invasive Non-Native Species (INNS) of plant subject to legal controls was recorded.

The Phase 1 Habitat Survey was 'Extended' by including a desk study, as described above, and an assessment of the potential for the site to support Protected or Priority Species in order to identify potential ecological constraints and to guide recommendations for further surveys.

Habitat outside of but adjacent to the Site boundary was noted to aid in the determination of the zone of influence.

3.1.3 Assessment of Bat Habitat Suitability

During the Phase 1 Habitat Survey, where access allowed, trees and buildings throughout the Site were classified into categories dependent on the presence of features suitable as bat roost habitat. This was conducted via an

external appraisal from the ground using binoculars where necessary. Collins, (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines provides descriptions of the categories for buildings and trees.

Habitats on Site were classified into categories dependent on the presence of features suitable for bats to commute and forage. Collins (2016) provides descriptions for commuting and foraging habitats.

Table 3.1: Tree and Building Bat Roost Suitability Categories

Roost Suitability	Descriptions for Buildings	Descriptions for Trees
Known or Confirmed	Confirmed signs of bat presence/ occupation (droppings, oily staining around entry points, insect remains, odour, scratching) and actual bat presence.	Confirmed signs of bat presence/ occupation (droppings, oily staining around entry points, insect remains, odour, scratching) and actual bat presence.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potential for longer periods of time due to their size, shelter, protection, conditions (e.g. temperature, humidity, height above ground level, light levels or levels of disturbance) and surrounding habitat. Can include structures with points of access to the interior of the building and poorly maintained fabric providing ready access points for bats into structures, but at the same time not draughty. Structures of traditional stone, brick or timber construction. Structures with large (>20cm) roof timbers with mortice joints, cracks and holes. Structures of pre or early 20th century construction. Structures with large complicated and/or uncluttered roof spaces providing unobstructed flying spaces. Structures with weather boarding and/or hanging tiles with gaps. Structures with accessible south facing roofs. Structures with proximity to good foraging habitat such as woodland, wetland, water and /or good hedgerows.	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potential for longer periods of time due to their size, shelter, protection, conditions (e.g. temperature, humidity, height above ground level, light levels or levels of disturbance) and surrounding habitat.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions (e.g. temperature, humidity, height above ground level, light levels or levels of disturbance) and surrounding habitat but unlikely to support a roost of high conservation status. Can include structures with some potential to support roosting bats, but fewer features than a high risk building. Features may include areas suitable for crevice dwelling and/or access points into structures. Some proximity to foraging habitat.	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However these potential roost sites do not provide enough space, shelter protection, appropriate conditions and/or suitable habitat to be used on a regular basis or by large numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).	Tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen have only very limited roosting potential.
Negligible	No features suitable for roosting bats. Can include structures constructed from unsuitable materials e.g. prefabricated with steel and sheet material. Structure is draughty, light and cool buildings with no roosting opportunities. High levels of regular disturbance	Trees with no potential to support bats.

Roost Suitability	Descriptions for Buildings	Descriptions for Trees
	including external and/or internal lighting. Building is isolated from areas of foraging habitat.	

Source: Category descriptions drawn from Collins, 2016 and Mitchell-Jones, 2004 to be applied using professional judgement

Table 3.2: Commuting and Foraging Habitat Suitability Categories

Commuting and Foraging Suitability	Descriptions
High	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small number of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Negligible	Negligible habitat features on site likely to be used by commuting or forging bats.

Source: Category descriptions drawn from Collins, 2016 to be applied using professional judgement

3.2 BREEAM Assessment

The Technical Guidance from Land Use and Ecology -BREEAM New Construction 2018 (Wales) (BREEAM, 2018a) was used for this report.

Assessment Route 2 (for sites where complex ecological systems are likely to be present) has been used for Issues LE02 to LE05 for this Site.

There are two options within Assessment Route 2:

1. Full methodology - This must be used where the pre-development habitats are above the set size threshold of 0.05 hectares in total or include habitats that are assigned as high distinctiveness.
2. Simplified methodology - This can be used where the pre-development habitats are below the set size threshold and no habitats present that are assigned a high level of distinctiveness. Route 2 may be used where desired.

The 'full methodology' has been used for Issues LE02 – LE05 for this assessment as the pre-development habitats within the Site total more than 0.05 hectares.

The assessment of Issues LE02 – LE05 has been informed by the results of the Extended Phase 1 Habitat Survey. During the Site visit target notes were made of features of ecological value or with the potential to support legally protected species. Recommendations for Site protection and mitigation were based on these observations. In addition, conditions on Site were used to provide recommendations for enhancing site ecology.

3.3 BREEAM Issues LE02 – LE05 Land Use and Ecology Criteria.

The Land Use and Ecology Issues are summarised in Table 2.3 below and more detail is provided in Appendix A.

Table 3.3: Summary of Land Use and Ecology BREEAM Issues

BREEAM Issue	Description of Criteria	Number of Credits Available (Route 2)	Comments
LE02: Identifying and Understanding the Risks and Opportunities for the Project	Survey and evaluation	1	Total available credits: 3 The second and third credits under LE02 are only achievable once the previous credits have been achieved.
	Determining the ecological outcomes for the site	1	
	Exemplary criteria	1	
LE03*: Managing Negative Impacts on Ecology	Planning, liaison and implementation	1	Total available credits: 3 Credits within LE03 can only be achieved if LE02 has been achieved. The second and third credits under LE03 are only achievable once the first credit has been achieved.
	Managing negative impacts of the project (limitation or compensation)	Up to 2	
LE04*: Change and Enhancement of Ecological Value	Liaison, implementation and data	1	Total available credits: 4 Credits within LE04 can only be achieved if Criteria 2 and 3 under LE03 have been achieved.
	Change and enhancement of ecology	Up to 3	
	Exemplary criteria	1	
LE05*: Long Term Ecology Management and Maintenance	Planning, liaison, data, monitoring and review management and maintenance	1	Total available credits: 2 Credits within LE05 can only be achieved if Criteria 2 and 3 under LE03 have been achieved, and at least one credit under LE 04 for 'Change and Enhancement of Ecology' has been awarded.
	Landscape and ecology management plan (or similar) development	1	

***Credits available cannot be achieved for Issues LE03 – to LE05, unless credits from the previous criteria have been achieved.**

3.4 Limitations

3.4.1 Desk Study and Phase 1 Habitat Survey

Biological records can be received from a wide variety of sources and may or may not be comprehensive and accurate. However, if assessed in conjunction with a Phase 1 Habitat survey, they can contribute to a robust ecological assessment of a site.

Where any conclusions and recommendations contained in this Report are based upon information provided by others, it has been assumed that all relevant information provided by those parties is accurate. Any such information obtained by AECOM has not been independently verified by AECOM, unless otherwise stated in the Report. AECOM accepts no liability for any inaccurate conclusions, assumptions or actions taken resulting from any inaccurate information supplied to AECOM from others.

The methodology adopted and the sources of information used by AECOM in providing its services are outlined in this Report. The work described in this Report was conducted between 03 May 2019 and 31 July 2019 and is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances. AECOM disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to AECOM's attention after the date of the Report.

There are deemed to be no significant limitations to this PEA.

3.4.2 BREEAM Land Use and Ecology Issues LE02 – LE05

The BREEAM Land use and Ecology assessment outlined in this report is based on the information provided by the client available at the time of writing. Any changes to the Site design could significantly affect the conclusions of this assessment.

Achievement of the credits will require a commitment by the client and/or contractors to implement the recommendations outlined in this report, and post-construction verification that implementation of the recommendations has been completed by the SQE.

Calculations for 'after development' have been provisionally calculated using the Preliminary design, HLM Architects: Drawing Number: 15-1062-01-SK-007 (12.08.2019) at this stage to inform the detailed design of the Site. A further calculation will need to be undertaken once a detailed development and landscaping plan for the Site has been produced. This report can be used to guide Site design and to help achieve credits under LE04.

4. Baseline Conditions

4.1 Desk Study Results

The designated habitats, sites and features within proximity to the Site are listed in Table 4.1 below.

Table 4.1: Desk Study Results

Designation / Feature	Description
Internationally and Nationally Designated Sites Within 2 km	There are no designated nature conservation sites within 2 km of the Site boundary.
Locally Designated Sites Within 2 km	Descriptions have been derived from Vale of Glamorgan LDP 2011-2026- Identification of SINCs and Priority Habitats. **Ty-Draw South of Colwinston SINC** **Distance and Direction**: 0.5 km south **Description:** Several small blocks of semi-natural broadleaved woodland on an Ancient Woodland site. **Land South of Parcau Farm SINC** **Distance and Direction**: 1 km south west **Description:** Two fields supporting species-rich purple moorgrass and rush pasture. **Pwllywrach Farm SINC** **Distance and Direction**: 1.1 km east **Description:** Semi-natural broadleaved woodland. **Land North West of Stembridge Farm SINC** **Distance and Direction**: 1.3 km south west **Description:** Semi-natural broadleaved woodland. **Hilton Plantations SINC** **Distance and Direction**: 1.3 km south east **Description:** Semi-natural broadleaved woodland on an Ancient Woodland site. **Land North East of Newland SINC** **Distance and Direction**: 2 km north east **Description:** Marshy grassland with areas of rush pasture.
Designated Sites Within 10 km Designated for Bats	**Coed y Mwstwr Woodland SSSI** **Distance and Direction**: 5.0 km north east **Description:** Mixed deciduous woodland on limestone with a rich, ungrazed ground flora. Bats recorded as inhabiting the main cave system - a rare occurrence in Mid Glamorgan (Countryside Council for Wales, 1983). The Citation for the SSSI does not specify the bat species using the SSSI.
Protected and Priority Species Records from the last 10 years within 2 km	**Plants:** Bluebell Hyacinthoides non-scripta **Birds** : Linnet Linaria cannabina, house sparrow Passer domesticus, dunnock, bullfinch Pyrrhula pyrrhula, starling Sturnus vulgaris, redwing Turdus iliacus, song thrush Turdus philomelos, kestrel Falco tinnunculus, skylark Alauda arvensis, yellowhammer Emberiza citrinella, reed bunting Emberiza schoeniclus, red kite Milvus milvus, barn owl Tyto alba, lapwing Vanellus vanellus, peregrine Falco peregrinus, spotted flycatcher Muscicapa striata, golden plover Pluvialis apricaria.

Designation / Feature	Description
	Bats: Common pipistrelle Pipistrellus pipistrellus (0.3 km northeast), Myotis species. (0.3 km northeast), noctule Nyctalus noctule (0.3 km northeast), soprano pipistrelle Pipistrellus pygmaeus (0.3 km northeast). **Other Mammals**: Brown hare Lepus europaeus (1.3 km southwest).
Priority Habitats and Species – Section 7 List	The full list of Section 7 Habitats and Species of Principle Importance in Wales has been reviewed. Those priority habitats present on site and priority species with potential to be on site are listed in Table 4.2 and Table 4.3 respectively.
Surrounding Land Use	The residential areas of Colwinston and Maes y Bryn are adjacent to the south, east and north of the Site boundary. Immediately west of the Site is an unnamed road which runs adjacent to the western Site boundary. On the other side of the road, approximately 15 m west of the Site is arable land and approximately 100 m west of the Site is a farm building. There is a linear hedgerow feature connected to the south-eastern corner of the Site boundary. Approximately 260 m south, 100 m east and 130 m north is further arable land which surrounds the villages of Colwinston and Maes y Bryn.
Ancient Woodland	There are no Ancient Woodland designations within or adjacent to the Site boundary.
Tree Protection Orders (TPO)	There are no trees with a TPO within or immediately adjacent to the Site boundary.
Ponds within 500 m	There are three ponds within 500 m of the Site boundary: • Pond 1: Approximately 170 m^2 and 270 m south west from the nearest Site boundary. The pond is located in an agricultural field adjacent to a hedgerow. An unnamed road is situated between the Site and the pond. • Pond 2: Approximately 340 m^2 and 335 m north west from the nearest Site boundary. The pond is surrounded by trees which are connected to hedgerows. • Pond 3: Approximately 130 m^2 and 350 m north west from the nearest Site boundary. The pond is located next to the residential area of Hen-felin. An unnamed road is situated between the Site and the pond.
Council Ecologist and Local Specialist Recorders	County Council: Vale of Glamorgan Records were requested off the County Ecologist. The County Ecologist responded stating 'No records are held by the council, all records are sent directly to SEWBReC'. The County Ecologist provided further detail regarding the distribution of great crested newts across the Vale of Glamorgan. She stated that there are extensive meta-populations across the county and they are often present in ponds which are sub-optimal (Erica Dixon, County Ecologist). No response was received from SWWARG or Glamorgan Bat Group.

4.2 Extended Phase 1 Habitat Survey

4.3 Habitats

The habitats present within the Site boundary and their descriptions are shown in Table 4.2. A plan of the Site showing the location and distribution of these habitats is shown in Figure 1.

Table 4.2: Phase 1 Habitats and Descriptions

Habitat	Description	Section 7 Habitat
Broadleaved Plantation Woodland	Pocket of woodland in the southeast corner of the Site. Species include: field maple, hornbeam Carpinus betulus, elder Sambucus nigra, hazel Corylus avellana, with a ground flora of bramble Rubus fruticosus, nettle Urtica diocia, cow parsley Anthriscus sylverstris, bluebell Hyacinthoides non-scripta, oak Quercus sp. wood avens Geum urbanum and dock Rumex sp.. This area is the schools 'Forest Schools nature area' (Figure 1: Target Note 9; Appendix D: Photograph 6) and includes a bug hotel, log pile and pond.	No
Standalone Trees	There are six standalone trees located in the north, west and middle of the Site . • Tree 1: Sycamore Acer pseudoplatanus approximately 4 m in height with a Diameter at Breast Height (DBH) of 0.3 m (Appendix D: Photograph 14). • Tree 2: Sycamore Acer pseudoplatanus approximately 6 m in height with a DBH of 0.3 m (Appendix D: Photograph 15). • Tree 3: Field maple Acer campestre approximately 4 m in height with a DBH of 0.2 m (Appendix D: Photograph 16). • Tree 4: Lime Tilia approximately 8 m in height, multi-stemmed. • Tree 5: Hawthorn Crataegus monogyna approximately 3 m in height with DBH of 0.2 m (Appendix D: Photograph 17). • Tree 6: Willow Salix sp approximately 6 m in height with a DBH of 0.4 m. • Tree 7: Olive Olea europaea approximately 3 m in height with a DBH of 0.2 m. Next to a 'Peace Pole' within the School yard (Figure 1: Target Note 2).	No
Standing Water (Pond)	A pond is located on Site within the 'Forest Schools nature area' (Figure 1: Target Note 9 (Appendix D: Photograph 11). This was dry at the time of survey and inundated with vegetation.	
Amenity Grassland	Areas of amenity grassland are present across the Site. Species include: ribwort plantain Plantago lanceolata, great plantain Plantago major, daisy Bellis perennis, dandelion Taraxacum ag., perennial rye grass Lolium perenne, and white clover Trifolium repens (Appendix D: Photograph 2, 4, 5 and 7). An area of amenity grassland which is used as a play area and playing field is located in the south of the Site (Figure 1: Target Note 3). An amenity grassland strip is located adjacent to the western boundary of the Site, there are some raised beds present in this area (Figure 1: Target Note 1). Scattered amenity grassland is present around the carpark in the north of the Site. Daffodils are planted within this area of amenity grassland.	No
Buildings	There are five buildings within the Site. These buildings were assessed for their suitability to support roosting bats. A detailed description of bat roost suitability for the buildings is provided in Table 4.5.	No

Habitat	Description	Section 7 Habitat
Bare Ground (Hardstanding)	Hardstanding is present across the Site and includes play areas, car parking and walkways. (Appendix D: Photograph 1, 2 and 8). A Courtyard is present adjacent to Buildings 3 and 4. This includes gravelled areas and raised beds (Figure 1: Target Note 4). Hardstanding has no ecological value.	No
Introduced Shrub	There are some areas planted with ornamental shrubs (Appendix D: Photograph 8 and 10).	No
Row of Trees	There are two rows of trees at the Site (Appendix D: Photograph 5 and 7). One row of trees is located along the southern boundary of the Site, trees are between 3-10 m in height. Species include elder, hawthorn, ash Fraxinus excelsior, hazel and field maple, The other row of trees is located along the south eastern edge of the Site; trees are between 2-3 m in height. Species include elder, field maple and willow.	No
Species Poor Intact Hedgerow	Species poor intact hedgerow located along the western boundary of the Site. Species include hazel, hawthorn, elder, honeysuckle Lonicera periclymenum, garlic mustard Alliaria petiolata, common ivy Hedera helix, cow parsley, herb Robert Geranium roberta, bramble, and nettle (Appendix D: Photograph 3).	Yes
Fence	Chain linked fence along north and east of Site boundary. Wooden panel board fence along southeast corner of Site boundary. There is a wooden fence which demarks the Forest Schools nature area in southeast corner of Site. These fences have no ecological value.	No
Wall	Low brick walls surround areas of ornamental planting. These have no ecological value.	No

4.4 Protected or Priority Species

The potential for Protected and Priority Species in habitats on Site is discussed in Table 4.3.

A plan of the Site showing the location and distribution of features with potential for Protected or Priority Species is shown in Figure 1. Target notes of Protected Species evidence or features that have potential to support Protected Species are shown in Figure 1 and Appendix E.

Table 4.3: Protected and Priority Species Potential

Species/ Species Group	Associated habitat	Description	Section 7 Species
Invertebrates	Broadleaved plantation woodland, standalone trees, standing water, amenity grassland, introduced shrub, row of trees, species poor intact hedgerow.	The mosaic of habitats on Site provide habitats for a range of generalist invertebrate species. A bug hotel and log pile in the Forest Schools nature area provide potential habitat for invertebrates (Figure 1: Target Note 9). Protected and Priority Species are unlikely at this Site. Invertebrates are not discussed further.	No
Amphibians	Broadleaved plantation woodland, standing water.	No amphibian records were returned in the LERC data within 2 km. The pond (Figure 1, TN 9) is not suitable to support great crested newts. The pond (although dry at the time of survey) could provide suitable habitat for breeding common amphibians (e.g. common toad Bufo bufo a Priority Species) if water is present during spring. The woodland surrounding the pond provides suitable shelter for amphibians and terrestrial habitat. The log/brash pile provides a suitable area to shelter and hibernate. This area is connected to adjoining gardens to the south which may provide further opportunities for common amphibians.	Yes
Breeding Birds	Broadleaved plantation woodland, standalone trees, row of trees, species poor intact hedgerow, buildings.	Habitats on Site provide potential nesting opportunities for a range of common passerine species. During the survey goldfinch Carduelis carduelis, house sparrow, robin Erithacus rubecula, wren Troglodytes troglodytes and dunnock Prunella modularis were recorded. House sparrows were recorded nesting behind the gable end facia board of Building 2. Bird boxes are present on trees in the 'Forest Schools nature area '; these are currently in a poor state of repair with some missing roofs. There is no potential for ground nesting species. Annex 1 and Schedule 1 species are unlikely at this Site, because habitats are unsuitable.	Yes
Bats	Broadleaved plantation woodland, standalone trees, standing water, introduced shrub, row of trees, species poor intact hedgerow, buildings.	The range of habitats on Site provide suitable foraging and commuting habitat for bats. The Site has been assessed as having Low suitability for foraging and commuting bats. Hedgerows and rows of trees are connected to adjacent habitats which connect the Site to the wider landscape which provides a range of foraging, commuting and roosting opportunities. The suitability of buildings to support roosting bats is	Yes

Species/ Species Group	Associated habitat	Description	Section 7 Species
		discussed in Table 4.4.	
Badger	N/A	Building 5, a prefabricated classroom building has anecdotal evidence from School staff of a badger sett underneath the Building. Since the housing estate to the east was built there has been less/no badger activity seen on Site. No badger activity was evident at the time of the Phase 1 Habitat survey. Building 5 had been boarded at the base to prevent badger access. It is considered that badgers are likely absent from the Site.	No
Hedgehog	Broadleaved plantation woodland, edges of the amenity grassland, species poor intact hedgerow.	Habitats on Site provide a range of foraging, sheltering and breeding habitats for hedgehog. The Site is well connected to adjacent gardens which provide further opportunities for hedgehog in the local area.	Yes

4.5 Invasive Non-Native Species Subject to Legal Controls

No INNS were recorded within the Site Boundary.

4.6 Bat Roost Assessment

Features suitable for supporting roosting bats were assessed during the site visit and are listed in Table 4.4. The locations of suitable roost features are shown on Figure 1.

Table 4.4 Features Assessed as Having Suitability to Support Roosting Bats

Feature	Description	Bat Roost Suitability Category
Building 1	Single storey building clad in metal with metal facias. Roof is a mix of flat or slightly sloping metal corrugated roof (Appendix D: Photograph 22-23). Features identified suitable to support roosting bats comprise: • Some slots in soffits between corrugated ridges. Some of these are blocked however some are clear with no cobwebs providing a suitable entrance. These features are not thought to open out into a large void. • Gaps where buildings join. Creates a bat suitable cavity. Lights close by but could be suitable between cladding and wall. • Gap/cutting into facia with possible access into soffit. These features are suitable to support occasional bats roosting opportunistically but unlikely to support large numbers on a regular basis or a roost of conservation concern.	Low
Building 2	Prefabricated building with a slightly pitched corrugated metal roof (Appendix D: Photograph 18-19). There are gaps under the facia boards. Majority are not blocked. Metal is likely not to offer much thermal value. Features identified suitable to support roosting bats comprise: • Gap under facia at gable end into void behind facia board – house sparrow nesting. • Gap next to down pipe, suitable bat or bird access features, no evidence of droppings.	Confirmed roost (AECOM, 2019a) Non-breeding common pipistrelle summer roost – 2 bats.

Feature	Description	Bat Roost Suitability Category
	• Small section of facia board missing. Suitable access to feature behind soffit and cladding. These features are suitable to support occasional bats roosting opportunistically but unlikely to support large numbers on a regular basis or a roost of conservation concern.	
Building 3	Prefabricated nursery building with corrugated felt roof. No soffit, plastic facias and slightly pitched roof. This building has no features suitable to support roosting bats (Appendix D: Photograph 21-22).	Negligible
Building 4	Conservatory. This building has no features suitable to support roosting bats.	Negligible
Building 5	Prefabricated building (anecdotal evidence from School staff of badger sett underneath). Flat roofed with metal cladding and metal facias. No obvious features for bats. Raised section on roof which appears sealed and has no visible gaps. This building has no features suitable to support roosting bats.	Negligible

4.7 Zone of Influence

BREEAM defines the zone of influence as 'Areas of land or water bodies 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, including areas downstream from a site. Areas within the zone of influence can be negatively affected by changes on an assessment site but they also provide further opportunity to maximise enhancement activities.'

The habitats surrounding the Site were noted when undertaking the Phase 1 Survey and as part of the desk study (see Table 4.1).

There are no watercourse connections from the Site connecting to areas of habitat outside of the Site. There are adjoining houses to the south and east which could be impacted by light spill, however houses to the east are part of a modern estate so unlikely to have features suitable to support roosting bats.

For this BREEAM Assessment the zone of influence has been defined as all areas within the Site boundary only.

5. Ecological Constraints and Potential Impacts

At present, the final design and landscaping plan for the Site is not confirmed. The proposed site plan layout HLM Architects: Drawing Number: 15-1062-01-SK-007 has been used for this assessment. A lighting plan has not yet been provided.

If the proposed design changes, the assessment of potential impacts will need to be reassessed.

The constraints and potential impacts listed here do not include consideration of further surveys which have been recommended in Section 6. The results of further surveys may change the likely potential impacts.

5.1 Development Proposal

The proposed development is for the demolition of the existing school buildings and construction of a new two storey school building on the existing playing field. A new playing field and games court (MUGA) will be constructed on the site of the old buildings once demolition and new school construction are complete. The existing parking area and vehicle entrance routes will be retained. Detailed landscaping designs are not yet available. A lighting design is not yet available.

The development will require the complete removal of existing buildings and partial removal of amenity grassland and hardstanding. All existing trees and hedgerows will be retained. The 'Forest Schools nature area' will be retained.

The construction programme is currently unconfirmed, and the commencement and completion dates are unknown at the time of writing.

5.2 Designated Nation Conservation Sites

5.2.1 International Nature Conservation Sites

There are no internationally designated sites within 2 km or within 10 km designated for bats. The proposed development will have no impact on internationally designated sites.

5.2.2 National Nature Conservation Sites

There are no nationally designated sites within 2 km of the Site.

The Site is 5.0 km from Coed y Mwstwr Woodland SSSI. The Citation for the SSSI does not specify the bat species using the SSSI. The Core Sustenance Zones (CSZ) of most UK bat species is between 4 km and 1 km (excluding barbastelle Barbastella barbastellus at 6 km).

A CSZ refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost. Therefore, the CSZ can be used to indicate: The area surrounding a communal roost (such as a site designated for roosting bats) within which development work may impact the commuting and foraging habitat of bats using that roost; and, the area within which it may be necessary to ensure no net reduction on the quality and availability of forging habitat for the colony (Collins, 2016). T

The St David's School Site does not have habitat suitable for barbastelle, and the Site is outside the CSZ for all other bat species which could be present at the SSSI, which is 5 km from the Site. The proposed development will not impact on the SSSI due to the distance of the SSSI from the Site and the CSZs of the bat species likely present.

5.2.3 Local Nature Conservation Sites

There are six SINCs within 2 km, the nearest SINC is 0.5 km from the Site and designated for habitats. The proposed development is unlikely to have an impact on these SINCs, due to the distance from the Site and nature

of the proposed development (i.e. no chemicals or gases being released). There are no hydrological links and no pollution pathways between the Site and any of the SINCs.

5.3 Habitats

5.3.1 Broadleaved Plantation Woodland

The broadleaved plantation woodland will be retained. Without mitigation, there is potential for damage of retained trees due to root compaction caused by building and/or storage of materials over the root zone, tracking of vehicles and machinery over the root zone or knocking off or damaging overhanging limbs of retained trees.

5.3.2 Standalone Trees

All standalone trees will be retained. Without mitigation, there is potential for damage of retained trees due to root compaction caused by building and/or storage of materials over the root zone, tracking of vehicles and machinery over the root zone or knocking off or damaging overhanging limbs of retained trees.

5.3.3 Standing Water

The standing water will be retained. Without mitigation, there is potential for pollution of the pond caused by run-off of sediment and pollutants including fuels and chemicals during construction.

5.3.4 Amenity Grassland

There will be permanent loss of approximately 1781 m^2 of existing amenity grassland. These areas will be replaced with buildings and hardstanding. Further areas of amenity grassland may be damaged during construction by tracking of vehicles and storage of material; these areas will be re-instated as amenity grassland following completion of construction. Amenity grassland will be created on the Site of the existing building once demolition and construction are complete.

Amenity grassland is of Low ecological value. Grassland of equal or greater ecological value is available in the surrounding area and wider landscape. Loss of amenity grassland will have an impact at Site level only, and negligible Local impact.

5.3.5 Buildings

All existing buildings will be demolished following completion of construction of the new school building. This will have a negative impact on bats using the buildings for roosting and birds using the buildings for nesting.

5.3.6 Bare Ground (Hardstanding)

There will be partial removal of hardstanding. Hardstanding has no ecological value.

5.3.7 Introduced Shrub

All introduced shrub will be retained.

5.3.8 Row of Trees

All rows of trees will be retained. A 5 m no build zone has been created adjacent to all existing boundaries. This will prevent root damage to any retained trees through root compaction caused by buildings. Without mitigation there is potential for damage to retained trees by tracking of vehicles/machinery over the root zone and/or knocking off overhanging branches.

5.3.9 Species Poor Intact Hedgerow

All hedgerows will be retained. A 5 m no build zone has been created adjacent to all existing boundaries. This will prevent root damage to any existing hedgerows through root compaction caused by buildings.

Without mitigation, there is potential for damage to retained hedgerows by tracking of vehicles/machinery over the root zone and/or knocking off overhanging branches.

5.3.10 Fence

There will be partial removal of fences. Fences have no ecological value.

5.3.11 Wall

All walls will be retained.

5.4 Protected or Notable Species

5.4.1 Common Amphibians

All suitable common amphibian habitat will be retained. During construction, without mitigation, there is potential for pollution of the pond caused by run-off of sediment, fuel and chemicals. This will have a negative impact on any common amphibians using the pond. There will be an impact on common amphibians at Site level only. There will be no impact on great crested newt as they are considered absent at the Site.

5.4.2 Breeding Birds

Demolition of the existing buildings (Building 2) will result in the loss of breeding bird habitat for house sparrow. All other habitats suitable to support breeding birds will be retained.

If buildings are removed during the breeding bird season (beginning of March until end of August) there is potential for damage/destruction to active nests and killing/injury of breeding birds.

External lighting has not yet been confirmed, if rows of trees, woodland, hedgerows or standalone trees are illuminated, this will have a negative impact on birds nesting in these areas during the breeding season due to disturbance and increased risk of predation. In the long-term there is potential for birds to stop using lit areas to nest, resulting in nesting habitat loss.

5.4.3 Bats

5.4.3.1 Roosting

Demolition of Building 2 will result in the loss of a non-breeding common pipistrelle summer roost used by up to two bats. Without mitigation, during demolition there is potential to disturb, kill/injure roosting common pipistrelle bats.

5.4.3.2 Commuting and Foraging

All boundary features will be retained. There will be no loss or direct severance of commuting features.

The lighting plan is not confirmed. Any lighting or light spill onto boundary features suitable for use by commuting and foraging bats will have a negative impact on bats at the Site, and could cause avoidance and severance of commuting routes.

5.4.4 Hedgehog

All hedgerows and woodland will be retained. There will be no loss of connectivity for hedgehog and no loss of potential breeding, resting and sheltering sites.

During construction there will be loss of amenity grassland. Amenity grassland provides some suitable foraging habitat for hedgehog. Alternative foraging habitat is available within the Site boundary and in the surrounding landscape.

The lighting plan is not confirmed. Any lighting or light spill onto boundary features suitable for use by hedgehog or onto new/retained habitat will have a negative impact on hedgehog.

During construction there is potential for killing/injury of hedgehog by collision with vehicles or entrapment in excavations if left open overnight.

6. Further Surveys and Recommendations for Mitigation

6.1 Further Surveys

Following the PEA recommendations were made to Vale of Glamorgan Council to undertake additional surveys. These were undertaken in summer 2019 to avoid any delay to the program caused by ecological constraints.

6.1.1 Bat Roost Surveys

6.1.1.1 Emergence/ Re-entry Surveys

The PEA identified suitable features to support roosting bats in the buildings on Site. The demolition works have the potential to damage, destroy or obstruct a roost and kill or injure a bat. Bat emergence/ re-entry surveys have been undertaken on Building 1 and 2 in 2019 by AECOM to assess the current use of the buildings by bats and identify the requirement for mitigation and a European Protected Species License (EPSL). Surveys followed guidelines provided in Bat Surveys for Professional Ecologists – Good Practice Guidelines (Collins 2016). Full details are provided the St David's Primary School Bat Roost Report, AECOM, 2019.

Emergence/ re-entry results summary (AECOM, 2019a):

- No bats were recorded emerging from Building 1.
- A roost has been confirmed in Building 2 - a non-breeding common pipistrelle summer roost used by up to two bats.
- An EPSL will be required prior to demolition of Building 2.

6.1.1.2 Further Pre-Demolition Surveys

If demolition is completed prior to December 2020, no further surveys would be required prior to applying for a EPSL. If the schedule is delayed, additional bat emergence and activity surveys may be required in accordance with Bat Conservation Trust (BCT) guidance to inform the application for an EPSL.

Further surveys may be required prior to demolition as part of the mitigation which will be outlined in detail in a bat licence application method statement. If demolition is due in summer (April - October) surveys will be required immediately prior to demolition, to establish if and where the bats are roosting within Building 2. If demolition is due in winter (November to March), it is unlikely that further surveys will be required prior to demolition as this would be outside of the season of peak bat activity and unlikely to result in any useful information.

6.1.1.3 European Protected Species Licensing

A EPSL will be required from Natural Resources Wales (NRW) to proceed with the demolition of Building 2. A licence must be in place before demolition works commence to ensure that the works precede in line with UK and EU legislation.

A licence application can take up to six weeks to process, so it is advised that an application is submitted at least two months before the proposed demolition start date to avoid any delays to the programme. Once an application is approved, works can then proceed with mitigation in place for bats.

6.1.1.4 Post Construction Roost Monitoring Surveys

It is likely that the EPSL would include post-construction monitoring surveys of the compensatory roosts.

6.1.2 Bat Activity Surveys

The Site has been assessed as having Low suitability to support commuting and foraging bats

It is recommended that external lighting is designed to avoid light spill onto boundary features including rows of trees, hedgerows and woodland edges. If light spill can be avoided, no surveys for bat activity will be required. Removal/severance of boundary features is not proposed in the development design.

If external lighting will not be designed to avoid impacts in the first instance, then activity surveys will be required. The Site has been assessed as having Low suitability to support foraging and commuting bats. A walked transect

around the Site will be undertaken once per season (three surveys in total) between April and October and static detectors deployed for 5 days per season (three surveys in total) between April and October. If the surveys find that bats are using these features, which is highly likely, then mitigation will be required. This will include the need to avoid light spill onto the linear features used by bats. Thereby, coming full circle back to the original recommendation. It is recommended that external lighting is designed to avoid light spill in the first instance, to avoid the requirement of bat activity surveys.

6.2 Recommendations for Mitigation and Enhancements

The mitigation hierarchy has been considered and implemented when designing the new development. The ecological constraints at the Site have been considered at an early stage and much of the mitigation has been included by design. Recommendations for mitigation are discussed in combination with BREEAM LE04. A summary is provided below.

Mitigation Hierarchy:

1. Enhance positive impacts and opportunities;
2. Avoidance – Alternative site or technology, or timing to eliminate impact;
3. Minimise – Actions during design construction and operation to minimise or eliminate impacts; and,
4. Compensation – Used as last resort to offset impacts.

6.2.1 Designated Sites

No mitigation is required for designated sites.

6.2.2 Habitats

Retain areas of existing natural/semi-natural habitat where possible. At this Site, retaining and enhancing current habitats will be of greater value to wildlife than creating new areas of green space.

The 'No-Build' zone should be extended to include a 5 m buffer around the broadleaved plantation woodland.

All retained habitats should be protected during construction to avoid damage to these features. Hedgerows, woodland and trees should be fenced off to avoid and reduce the impacts of direct damage or trampling and root compaction during construction by vehicles and people. Tracking of vehicles over retained habitats should be avoided. Where possible, vehicles and storage areas should be kept on existing hardstanding.

Landscaping at the Site should be designed to include locally native species suitable for the local conditions (i.e. shade, sun, soil type). Recommendations to enhance habitats on Site are provided in BREEAM Section LE04.

The planting scheme should be of locally sourced native species of benefit to wildlife. Gunnell et al. (2013) 'Landscape and Urban Design' (free to download) has suggested planting lists which are of benefit to invertebrates and foraging bats.

A Landscape Habitat Management Plan (LHMP) will be produced as part of BREEAM LE05 which will help reduce any impacts from habitat loss or management during operation.

6.2.3 Pollution Control During Construction

Pollution control measures as required Guidance for Pollution Prevention (GPPs) and where these have not been replaced the Environment Agencies Pollution Prevention Guidelines (PPGs) will be implemented in order to avoid and minimise adverse effects of pollution and runoff on the pond and surrounding environment. This will be implemented via the Site Construction Management Plan (CMP).

As of the 17 December 2015 all Pollution Prevention Guidance Documents published by the UK environment agencies were withdrawn. Although they provide useful advice on the management of construction to avoid, minimise and reduce environmental impacts, they should not be relied upon to provide accurate details of the current legal and regulatory requirements and processes. They are referred to in this document alongside other current guidance and in the context of scheme and site specific mitigation measures.

Measures will be employed to ensure that dust is minimised during the construction works. Measures will be in place in order to deal with pollution incidents efficiently.

In order to avoid potential pollution effects to the site and surrounding habitats during construction, all refuelling and servicing of vehicles will be carried out within a designated area with an impermeable base. To prevent spillages, refuelling will be carried out by pumping through a trigger delivery nozzle. Fuel, oil and other potential

contaminants will be stored within bunded tanks to 110% of the volume stored and only the minimum quantity required will be stored on site. The designated area will be maintained in a secure and clean manner. An adequate quantity of oil absorbent material will be stored on site and spillages cleared up immediately. All construction equipment will be maintained in good working order and checked regularly for spillages/leaks.

Concrete will either be imported from a local batching plant or a concrete batching plant will be established on site. The final choice will depend on the chosen contractor, the availability of local supply and the time of year. If concrete is to be batched on site, appropriate containment and clean-up measures and procedures will be put in place that are in accordance with industry standards. Particular care will be taken when pouring concrete at foundations, following specific method statements to ensure there is no spillage risk or contamination of soils and vegetation.

During construction the pond should be fenced off to protect it from potential pollution risk.

6.2.4 Breeding Birds

The current plans include demolition of Building 2 which supports nesting birds. To protect breeding birds all demolition works on all buildings should be undertaken outside of the breeding bird season (works completed between 1 September and end February). (Note - Building 2 also supports a bat roost – an EPSL will be required prior to demolition, which will inform the required timings and methods for demolition.)

If works must be undertaken during the breeding bird season an ecologist must be consulted, a nesting bird check must be undertaken a maximum of 48 hrs prior to works commencing. If breeding birds are present then a buffer must be applied around the nest site and left undisturbed until chicks have fledged. This can take up to 8 weeks.

Disturbance close to vegetated areas suitable to support breeding birds must be avoided during the breeding bird season. A buffer must be applied adjacent to these areas to avoid damage or disturbance of nests during the breeding bird season (1 March-1 September). Lighting of these areas should be avoided.

The mitigation for breeding birds is covered as a 'mandatory requirement' in BREEAM issue LE03.

6.2.5 Roosting Bats

An EPSL is required to allow the demolition of Building 2. Detailed mitigation for demolition under EPSL would be outlined in a bat licence application method statement, and would be subject to approval by NRW. This is likely to include:

- A methodology to avoid injury to any roosting bats during demolition. This is likely to involve the roof tiles/panels, soffit and facia boards in high risk areas and in the vicinity of confirmed roosts to be removed by hand under supervision by a licensed bat ecologist or authorised agent. The soft stripping process would be included within the EPSL. Any bats found during the soft strip process would then legally be removed from the building by a licensed ecologist.
- Demolition during winter (when bats not present) is preferred;
- Inclusion of compensatory roosts within the proposed development design. At least one common pipistrelle roost locations will be destroyed as a result of Building 2 demolition. Therefore, two (loss + one) compensatory roost crevices/ bat boxes will be installed to mitigate for the loss of the existing roost(s). All new roost provision will be situated away from light spill, with clear flight paths towards corridors and foraging areas known to be used by bats. Further information about bat box provision and location will be provided in an EPSL and Bat Roost Report;
- Products such as cavity bat boxes, bat bricks and bat tiles could also be utilised to match external fabrics Compensatory roost space could be provided by: fitting bat boxes and/or bat roof tiles within the external fabric of new building and/ or by fitting external pre-made bat boxes to the external face of the new buildings; or through the inclusion of a crevice within the structure of the new building. Biodiversity for Low and Zero Carbon Buildings: A Technical Guide for New Builds (Williams, 2010) suggests various ways of including a roost void compliant with Building Regulations within a variety of modern structures;
- Mitigate external lighting (as outlined below); and,

- The planting scheme should be of locally sourced native species of benefit to wildlife. Gunnell et al. (2013) 'Landscape and Urban Design' (free to download) has suggested planting lists which are of benefit to invertebrates and foraging bats.

The mitigation for roosting is covered as a 'mandatory requirement' in BREEAM issue LE03.

6.2.6 Foraging and Commuting Bats

6.2.6.1 Boundary Features

Vegetated site boundary features should be retained, wherever possible, to maintain bat commuting corridors across the Site and avoid the risk of severing local flight paths.

New vegetated corridors (treelines, hedgerows) should be designed into the proposed development, wherever possible, to create new opportunities for foraging and commuting bats. The planting scheme of new features should be of locally sourced native species of benefit to wildlife. Gunnell et al. (2013) 'Landscape and Urban Design' (free to download) has suggested planting lists which are of benefit to invertebrates and foraging bats.

6.2.6.2 External Lighting

The external lighting plan has not been confirmed.

There is no legislation requiring an area or road to be lit (ILP, 2018). There are British Standards that relate to various components of lighting and there are also guidelines that relate to crime prevention, prevention of vehicular accidents and amenity use (ILP, 2018). There is legislation requiring bats are protected against disturbance, which includes light disturbance.

The following recommendations in line with best practice guidance should be incorporated into any new lighting scheme at the Site:

- Light spill onto any new bat roost boxes must be avoided;
- In the first instance, external lighting must be designed to avoid light spill onto boundary features including rows of trees, hedgerows and woodland edges; and,
- Light spill onto sensitive areas such as the Site boundaries and retained woodland is predicted, this should be limited to levels of 3 Lux or less.

Suggestions for mitigating external lighting and achieving the lighting recommendations above are outlined in the ILP Bats and Lighting Guidance Note (ILP, 2018) and best practice guidance (BCT, 2009, BCT 2014 and Gunnell et. al., 2012). These include:

- Only light areas which need to be lit, and use the minimal level of lighting required to comply with guidance such as Institute of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light (2005);
- Avoid aesthetic lighting which has no other function, and up lighting of trees and buildings;
- Use the lowest level of illumination required for purpose;
- Where lighting is proposed, use lighting modelling programs to indicate where the light spill will occur;
- LED luminaires should be used where possible due to their sharp cut off, low intensity, good colour rendition and dimming capability.;
- A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component; Avoid neutral white, cool white and blue spectrums of light;
- All luminaires should lack or have negligible UV elements. Avoid white and blue spectrums of light;
- Eliminate bare lamps and any upward pointing light;
- Luminaires should be mounted on the horizontal, i.e. no upward tilt. The spread of light should be at or near the horizontal. Flat cut off lanterns are best. Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light;
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012);

- Where lighting columns are in proximity (adjacent to) the wildlife corridors/boundary features and where light spill onto these features is predicted by the lighting models, the luminaries must be moved or fitted with back light control systems to reduce light spill onto the adjacent wildlife corridors/boundary features. This additional feature minimises light spill from the back of the luminaire to avoid intrusive light spill behind the column.
- Any external security lighting should be set to motion sensors and short (1 min) timers;
- Limit the times that the lights are on, to provide some dark periods; Limit the times that the lights are on to provide some dark periods; and/or dimming of lights during certain periods; the proposed new lighting could be dimmed or turned by 75% from 22:00 until 06:00 daily;
- Avoid using reflective surfaces under lights; and/or,
- Do not use a lamp greater than 150W for security lighting.

This will increase the value of the Site for a number of other nocturnal species, as well as for bats.

The mitigation for bats is covered as a 'mandatory requirement' in BREEAM issue LE03.

6.2.7 Hedgehog

Lighting should be controlled along the woodland edge, hedgerows and rows of trees as detailed above in relation to bats.

Excavations should be covered over night or ramps installed so trapped hedgehogs can escape.

The mitigation for hedgehog is a requirement in BREEAM issue LE03.

6.3 Recommendations for Enhancements

The National Planning Policy Framework (February, 2019) and the Environment (Wales) Act 2016, requires that developments enhance biodiversity, as well as just mitigating impacts.

Recommendations have been made to make the most of proposed landscape planting on Site to benefit biodiversity.

6.3.1.1 Enhance Existing Pond

The existing pond should be enhanced by clearing out overgrown vegetation, and digging out silt. The pond could be increased in area to increase its benefit to wildlife. The pond should be planted with a diverse mix of native aquatic vegetation within the pond and around the margins.

At least three log piles should be provided, mixed throughout the woodland and adjacent to the pond, to provide shelter and hibernating sites for amphibians.

6.3.1.2 Enhance Existing 'Forest Schools nature area'

Enhance existing 'Forest Schools nature area' by thinning out the self-setting trees to reduce over-shading. Any additional planting should be with native species suitable to the area. All existing bird boxes should be removed and replaced with new boxes. Interpretation boards could be provided to increase the educational value of the area.

6.3.1.3 Enhance Existing Hedgerows and Rows of Trees

Existing hedgerows and rows of trees should be enhanced by planting any gaps with native species to increase diversity. Hedgerows should be managed sympathetically to benefit wildlife. This will include an infrequent cutting regime and cutting after fruiting/flowering and outside of the breeding bird season. A 1 m margin adjacent to at least 50% of hedgerows should be seeded with a species rich wildflower mix and managed sympathetically to benefit wildlife.

This could be calculated as part of the change in ecological value to the Site as part of LE04 and will provide habitat for invertebrates, birds, foraging bats and hedgehogs.

6.3.1.4 Improving Grassland Diversity

A less intensive management regime will be completed for areas of grassland which are not used for sports and play areas.

New areas of grassland or retained areas of grassland could be planted and managed to enhance species diversity. These areas should be mown three times a year (April, August and once during winter). http://wildseed.co.uk/page/management-of-meadows-and-grassland has more details on how to manage species-rich grasslands

It has been assumed that the top soil will be derived from on Site. The seed mixes used should be appropriate for the subsoil type used and need to be approved by the SQE prior to use. Areas should be sown with a diverse lawn mix such as:

- Emorsgate General Purpose Meadow Mixture EM2 (18 species) (www.wildseed.co.uk); or,
- Germinal (formally British Seed Houses) WFG20 Eco Species Rich Lawn (34 species) (https://www.germinal.com).

For more information including flower colour, benefits to wildlife and soil type for various species see Wildflower Meadows: How to Create One in Your Garden (Natural England, 2007), available online.

This could be calculated as part of the change in ecological value to the Site as part of LE04 and will provide habitat for invertebrates, birds, foraging bats and hedgehogs.

6.3.1.5 Insect Habitats

An insect wall, insect boxes or bee banks could be included in the landscape design to provide shelter and hibernating habitat for a range of insects. These should be installed in areas adjacent to species rich habitats. Aspect will depend on which species are to be targeted.

The insect wall must be carefully designed and maintained, since poorly designed and maintained insect houses or walls can kill off the insects designed to inhabit them through parasites and mould (Carlton, 2015; Macivor & Packer, 2015).

It is recommended that properly designed insect houses are used, such as those available from Nurturing Nature (http://nurturing-nature.co.uk/wild-bee-nest-boxes/ rather than those available from garden centres which often are not suitable for insect species found in the UK. There are two designs to choose from for bumblebees and solitary bees, each suitable for supporting the requirements of their intended hosts.

Alternatively a bee bank could be built using excess spoil created during the works. The bee bank provides warm, sheltered patches of bare ground where solitary bees can nest. The bee bank should be in a sunny location sheltered from the weather and be orientated to face south or south east. A crescent shape allows bees to make use of varying microclimates. The surrounding areas of habitat should provide a rich nectar and pollen source so should be planted with wildflowers or native shrub planting. Advice on creating and maintaining a bee bank is provided here: https://www.buglife.org.uk/creating-a-bee-bank

Dead wood piles are of benefit to beetles, spiders, woodlice, centipedes, ants and earthworms. Logs can be stacked in the Forest Schools nature area. Burying some logs will create a range of suitable habitats. Advice on creating a dead wood pile is provided here: https://www.buglife.org.uk/sites/default/files/Deadwood%20for%20beetles_0.pdf

The success of the invertebrate habitats could be monitored by a local invertebrate group and/or by students as part of an outdoor-based learning session, observing invertebrates leaving or returning to the habitats; or during yearly cleanout operations. The results of the surveys should be held on file and submitted to local records centre.

Full instructions for the management of the boxes will be provided by the manufacturer and will require cleaning out by identifying at the end of the summer any cells that remain in a walled-up condition from the previous year because no young bees emerged. The contents of these cells will be dead and should be removed and destroyed.

The planting scheme of new features should be of locally sourced native species of benefit to wildlife. Gunnell et al. (2013) 'Landscape and Urban Design' (free to download) has suggested planting lists which are of benefit to invertebrates.

6.3.1.6 Bird and Bat Boxes

Bird Nest Boxes

In addition to replacing existing nest boxes, at least five bird boxes should be installed on trees along the boundaries or included within the new building design. Boxes suitable for swifts and house sparrows would be suitable for use on buildings as habitat suitable for these species is often lost in modern building design.

Swift Conservation provides advice on design and location of swift boxes, available at http://www.swift-conservation.org/Nestboxes%26Attraction.htm. The RSPB provides advice on sparrow nest box design and fitting available from https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/createasparrowstreet/ . Sparrows are communal nesters so benefit from having several boxes in close proximity or adjoining boxes.

A range of boxes for passerine species would be suitable to use on trees including small boxes, large boxes, boxes with holes entrances or open fronted boxes Advise on box design and locating boxes is provided by the British Trust of Ornithology https://www.bto.org/about-birds/nnbw/make-a-nest-box

Bird boxes should be appropriately located at least 4 m above ground level, and out of reach of predators. Bird boxes should not be positioned to face south in order to avoid hot sun.

In addition, it is possible to install bird box cameras with links to computers within the school. This allows pupils to track the development of chicks from egg to fledgling without disturbing the resident birds.

Bat Roost Boxes

At least two Compensatory bat boxes will be included in the development design. These will be required as part of the EPSL. Detailed recommendations will be provided in the Bat Survey Report and EPSL Method Statement.

It is recommended that at least two enhancement bat boxes are also include in the in the development design.

Biodiversity for Low and Zero Carbon Buildings: A Technical Guide for New Builds (Williams, 2010) suggests various ways of including a roost void compliant with Building Regulations within a variety of modern structures. Products such as cavity bat boxes, bat bricks and bat tiles could also be utilised to match external fabrics. Alternatively, roost space could be provided by fitting pre-made bat boxes to the external face of the new buildings or on trees. The choice of bat box should be suitable for crevice dwelling species.

All new roost provision should be situated away from light spill, with clear flight paths towards corridors and foraging suitable to be used by bats. Advice from a suitable qualified ecologist should be sought when drawing up the specifications for bat roosts and locations. Bat boxes should be positioned at least 4 m above ground level to protect any resident bats from disturbance or predation by domestic pets. Each box can be positioned with a different orientation between south east and south west to provide a range of microclimate options.

6.3.1.7 Kitchen Garden

An area within the school grounds should be designed to be used as a kitchen garden. The garden would include a mix of vegetables, herbs, fruit trees and other flowering plants which will attract insects to the area. The practicalities of maintaining the garden could be undertaken by an 'Eco Club' or by a rotation of PSHE classes. The concept of producing locally sourced healthy food could be used in many lessons from health to sustainable development and the produce could be used in home economics and even the school canteen.

Species could include aromatic herbs such as thyme, rosemary, mint, sage and chives; fruit trees such as native apple and plum trees; vegetables such as squashes, lettuces, peas, beans, carrots and parsnips; and flowering plants such as marigold, geranium and lavender.

This could be calculated as part of the change in ecological value to the Site as part of BREEAM LE04 and will provide habitat for invertebrates, foraging birds and foraging bats.

6.3.1.8 Sensory Garden

An area designated for seating could incorporate a range of native scented plants to stimulate and soothe the senses whilst also providing habitat for wildlife, most notably pollinating invertebrates such as butterflies, bees and hoverflies using plants such as lavender, honeysuckle, rosemary, mint, thyme and wild garlic.

The emphasis should be on plant species native to the UK to be beneficial for pollinating insects. Butterflies and moths are both aesthetically interesting and useful, often being brightly coloured and important pollinators. Butterflies and moths need plants both for food and as host plants to complete their lifecycle. They are often particularly attracted to brightly coloured or highly scented flowers, making planting that is good for butterflies attractive to humans too.

Gunnell et.al. 2012, Landscaping and urban design for bats and biodiversity (free to download online) has planting lists which are beneficial for invertebrates and are often scented with attractive flowers or forms. Using such species in planting, especially in proximal or linked areas, is likely to increase the value of a Site for butterflies and moths. Note that not all of the plant will be suitable for all soil types. Planting should be chosen based on the ability of the species to thrive in the local conditions.

This could be calculated as part of the change in ecological value to the Site as part of LE04 and will provide habitat for invertebrates, foraging birds and foraging bats.

6.3.1.9 Hedgehog Habitat

Habitats on Site currently have potential to support hedgehog. Habitats could be enhanced and new provisions provided for hedgehogs to shelter. This would include provision of at least three log piles, leaf piles and a purpose built or ready-made purchased hedgehog houses. Guidance on building hedgehog houses is provided by the Wildlife Trust, this could be incorporated into a design technology project https://www.wildlifetrusts.org/sites/default/files/2018-05/Hedgehogsml.jpg .
Log piles, leaf piles and hedgehog houses should be placed adjacent to suitable hedgehog habitats including hedgerows and woodland which can be advised by an ecologist.

Habitats for hedgehogs could be enhanced by leaving strips of grassland unmown around the edges and adjacent to suitable areas of habitat including hedgerows and woodland.

Hedgehog highways can be created by making holes in chain-link or close boarded fences to allow hedgehogs to move between habitats. This would require agreement with adjacent land owners.

6.3.1.10 Green Corridors

Any landscape planting proposed, should seek to create green corridors which provide new connectivity across or around the Site for species such as birds, bats, invertebrates and species such as hedgehogs.

New planting which provides connectivity from any new bat or bird boxes to the boundary features will be important.

This could be calculated as part of the change in ecological value to the Site as part of LE04.

6.3.2 Ecosystem Resilience (Section 2 Environment (Wales) Act 2016)

Small, isolated populations of species are far more vulnerable to extinction than populations that can disperse and interbreed with other populations. The effects of climate change are likely to increase local extinctions among small isolated populations. It is important to maintain and enhance ecological networks of semi-natural habitats that have a high degree of connectivity.

The landscaping at the Site should be designed to promote local landscape connectivity and create a mosaic of habitats on Site.

Green corridors should be retained and enhanced where possible and external light spill onto these corridors should be avoided.

Any planting should be of native species suitable to the local context and in relation to climate change; they are likely to remain to be locally suitable within the next 25 to 50 years.

7. BREEAM Landscape and Ecology Assessment

Opportunities for BREEAM Credits and Ecological Enhancement are discussed within Sections 8, 9, 10, and 11 along with recommendations for the mitigation and protection of legally protected species within the Site.

The BREEAM Issues covered by these sections are LE02, LE03, LE04 and LE05. The potential for gaining credits under each Issue is discussed.

The BREEAM methodology is provided in Appendix A.

7.1.1 Summary of BREEAM Credits

The following table summarise the potential credits considered to be achievable. Achieving these credits will require the client and contractors to implement the report's recommendations. Liaison between ecologists and the architects will also be required.

Table 7.1 Ecological Credits Available Based on the Current Development Plan

Issue	Total available	Credits likely achievable under current landscaping proposals
LE02	3	3*
LE03	3	3**
LE04	5	3***
LE05	2	2****
LE Total	**13**	**11**

* LE02 Achieving the first and second credits is dependent on recommendations being implemented by the client/contractor. Achieving the third credit is dependent on the determination of the criteria under HE 07, Pol 03 and Pol 05.

** LE03 Achieving the first credit is dependent on recommendations being implemented by the client/contractor. The second and third credits are achievable based on the current landscaping plans.

*** LE04 Achieving the first credit is dependent on recommendations being implemented by the client/contractor. The second and third credits are achievable under current plans.

**** LE05 Commitment is required from the client/contractor to meet the prerequisites under LE05. It is likely that the two credits under LE05 will be achievable.

Credits will be confirmed once a detailed site plan including final landscape design has been issued.

8. BREEAM LE02: Identifying and Understanding the Risks and Opportunities for the Project

8.1 Survey and Evaluation (1 Credit)

- Criteria 4 - An ecologist was appointed in May, 2019 to undertake a Phase 1 Habitat Survey and prepare a PEA report. A SQE has written, reviewed and approved the Phase 1 Habitat Survey and PEA report. The information in the PEA report will be used to help inform the detailed design of the proposed development.
- Criteria 5 – An ecologist has undertaken a Phase 1 survey and has produced a PEA report which includes the baseline data and considers the zone of influence. This has been written, reviewed and approved by an SQE.
- Criteria 5a, 5b and 5c - The PEA includes an assessment of the potential impacts of a proposed development on ecological receptors within the Site and zone of influence (if applicable); and makes recommendations for ecological enhancement of the Site post-development. This is detailed in Sections 4, 5 and 6 of this Report.
- Criteria 6 - The PEA will be shared with the project team and will be used to inform Site preparation design and construction works.

This credit can be awarded.

8.2 Determining the Ecological Outcomes for the Site (1 Credit)

- Criteria 7 - Criteria 4 – 6 under Survey and Evaluation have been achieved.
- Criteria 8 - The SQE has and will continue to liaise and collaborate with the Design Team and County Ecologist to identify the optimal ecological outcome for the Site. These actions are detailed in Section 4 of this Report.
- Criteria 9 - The SQE has identified measures early on in the project process to influence the ecological outcome of the site as part of the PEA and paid due regard to the Mitigation Hierarchy in the CIEEM guidelines for Preliminary Ecology Appraisal (CIEEM, 2018). This is detailed in Section 6 of this Report.
- Criteria 10 – The optimal outcome for the Site must be selected after liaising with stakeholders and project team. Boundary features and the 'Forest Schools nature area' will be retained, as discussed in Section 5 and 6 of this Report. The final landscaping design has not yet been determined, so the selection of the optimal ecological outcome has not yet been confirmed.

This credit cannot currently be awarded. However, it is likely that by following the ecological recommendations for mitigation, the optimal ecological outcome of the Site can be achieved, and the Credit can be awarded**.** This will be confirmed once the design is finalised.

8.3 Exemplary Level Criteria (1 Credit)

To achieve this credit the following must be achieved:

- Criteria 8 – 10 must be achieved to enable this Exemplary Level Criteria Credit to be available.
- Criteria 12 – Wider site sustainability-related activities and the potential for ecosystem related benefits should be considered, including as a minimum landscape, health and wellbeing, resilience, infrastructure, and community and end user involvement (further detail in Appendix A).
- Criteria 13 - Achievement of the credits of the following assessment issues:
  - HE 07 Safe and Healthy Surroundings (both credits);
  - Pol 03 Flood and Surface Water Management: achieve credits for 'Surface water run-off', and, 'Minimising watercourse pollution'; and,
  - Pol 05 Reduction of Noise Pollution.

The achievement of the Exemplary Level Criteria Credit will require input from the SQE into the detailed design. It will be determined once the detailed design has been confirmed and on the determination of the credits achieved under HE 07, Pol 03 and Pol 05.

This credit not currently available.

9. BREEAM LE03 Managing Negative Impacts on Ecology

9.1 Prerequisite – Identification and Understanding the Risks and Opportunities for the site

To make the credits under LE03 available the following prerequisite criteria must be achieved:

- Criteria 1: LE02 must be achieved.

One credit under LE02 can be achieved; therefore, credits under LE03 are available.

9.2 Planning, Liaison, Implementation and Data (1 Credit)

- Criteria 2 - The SQE has the role and responsibility of defining the potential negative impacts on ecology. This is provided in Section 5 of this report. Recommendations for further surveys, enhancement and mitigation have been made by the SQE. This is provided in Section 5 of this Report. The Project Manager is responsible for informing the design team of ecological constraints at an early enough stage to influence the Preparation and Brief of Concept Design. This will be determined by the Project Manager and the BREEAM assessor.
- Criteria 3 - Potential impacts with respect to the proposed development, including construction works have been assessed and Recommendations and Mitigation have been made with regard to Protected and Priority Species on Site. This is detailed in Section 5 and 6 of this Report.
- Criteria 4 - The SQE has proposed solutions and measures (avoidance and mitigation) to be implemented during Site preparation and construction works as part of the PEA. These solutions will be passed on to the project team via submission of this report. These are detailed in Section 6 of this Report.

This credit is achievable, once Criteria 2 and 4 are met.

9.3 Managing Negative Impacts of the Project (up to 2 Credits)

- Criteria 7 - Criteria 2 – 4 must be achieved to enable these two credits to be available
- Criteria 8: Negative impacts from Site preparation and construction works will be managed according to the hierarchy and either:
  - Criteria 8a: No net loss of ecological value has occurred under LE04 (2 credits),
  - OR
  - Criteria 8b: The loss of ecological value has been minimised under LE04 (1 Credit).

Recommendations to avoid and minimise ecological impacts have been made in Sections 5 and 6 of this Report.

The credits under Criteria 8a can be achieved. There will be no net loss in ecological value under LE04.

10. BREEAM LE04: Change and Enhancement of Ecological Value

10.1 Prerequisite – Managing Negative Impacts on Ecology

To make the credits under LE04 available the following prerequisite criteria must be achieved:

- Criteria 1: Under LE03 Criteria 2 – 3 must have been achieved.

Criteria 2 and 3 under LE03 can be achieved in regard to the SQE. This credit under LE03 can be available when the client has committed to achieving Criteria 2 under LE03.

It is considered likely that this prerequisite can be achieved; therefore, credits under LE04 are discussed below.

10.2 Liaison, Implementation and Data Collation (1 Credit)

This credit can be achieved when the client has committed to achieving the following:

- Criteria 4: The project team, liaising and collaborating with representative stakeholders and taking into consideration data collated and shared, have implemented the solutions and measures selected in a way that enhances ecological value in the following order:
  - On site, and where this is not feasible,
  - Off site within the zone of influence.

A list of suggested enhancements to be made on Site is provided in Section 6.

Habitats of ecological value including boundary features and the Forest Schools nature area are to be retained, as discussed in Section 5 and 6 of this Report.

- Criteria 5: The data collected as part of the ecological surveys will be submitted to the Local Environmental Records Centre SEWBReC by the SQE at the end of the Project. Data submitted will be limited to records of Protected or Priority species only.

This credit is achievable, once the client commits to implement selected biodiversity enhancements.

10.3 Change and Enhancement of Ecology (up to 3 Credits)

- Criteria 6: Up to three credits can be awarded based on the calculation of the change in ecological Biodiversity Units as result of the development.

Credits are awarded as follows:

  - Criteria 6.a Minimising loss of ecological value (one credit - percentage score of 75-94);
  - Criteria 6.b No net loss of ecological value (two credits - percentage score of 95-104); and,
  - Criteria 6.c Net gain of ecological value (three credits - percentage score of 105-109).

Tables 10.1 – 10.6, below show the Biodiversity Unit calculations for 'habitat areas' using the site plan layout HLM Architects drawing number 15-1062-01-SK-007 (12.08.2019).

Tables 10.7– 10.11 below show the Biodiversity Unit calculations for 'linear (foliage) habitats' using the site plan HLM Architects drawing number 15-1062-01-SK-007 (12.08.2019).

The Percentage Change in Area Biodiversity Units = **128%**

The Percentage Change in Linear Biodiversity Units = **100%**

The linear percentage change must be assessed in conjunction with the area percentage change and the lowest percentage change from the two used to inform the BREEAM credits available.

The Percentage Change in Biodiversity Units is between 94% and 104% which equates to No Net Loss in ecological value. Therefore, **two credits can be awarded.**

To achieve net gain in ecological value at the Site the following landscaping and enhancements could be considered.

- If 1 m strip of grassland adjacent to 50% of hedgerows was seeded with a species rich grass mix and managed sympathetically the Percentage Change in Area Biodiversity Units would be 142%.
- If a 25 m^2 kitchen garden and a 25 m^2 sensory garden were included in the design the Percentage Change in Area Biodiversity Units would be 137%.
- If 20% of hedgerows and rows of trees were enhanced by planting native species the Percentage Change in Linear Biodiversity Units would be 109%.

The achievement of this credit will require collaboration between the SQE, stakeholders, project managers, and the design team (including architects and landscape architects.

The credit under Criteria 6a can be achieved based on the current plan.

The credits under Criteria 6b can be achieved based on the current plan.

The credits under 6c cannot be achieved based on the current plan but could be achieved if the enhancements above are implemented.

10.4 Exemplary Level Criteria

- Criteria 7. The change in ecological value occurring is calculated in accordance with the process set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2. The credit is awarded as follows:
  - Criteria 7.a: Significant net gain of ecological value (percentage score of 110 or above).

To achieve one Exemplary Level Criteria credit there must be a Significant net gain of ecological value (percentage score of 110 or above).

This credit cannot be achieved based on the current plan

Table 10.1: Total Post Development Area Biodiversity Units Calculation Formula

Calculation	Values
Total Post-Dev Area Biodiversity Units for the Development (G) **G = (B - D) + (E + F)** Where:	7491.6
B = Total Pre-Dev Area Biodiversity Units	5847.2
D = Total Post-Dev Area Biodiversity Units Lost Due To Development	1234.0
E = Post-Dev Area Biodiversity Units Created Due To Development	1893.8
F =Post-Dev Area Biodiversity Units Enhanced Due To Development	948.61
Percentage Change in Area Biodiversity Units = (G ÷ B) x 100	**128%**

Table 10.2: Area -Based Biodiversity Units Pre Development (B)

Parcel Number	Habitat Type	Distinctiveness	Condition	Area (ha or m2)	Biodiversity Units
1	Broadleaved Plantation Woodland	Medium	Moderate	177.6	1420.8
2	Amenity Grassland	Low	Poor	2058.1	2058.1
3	Introduced Shrub	Low	Poor	54.3	108.6
4	Buildings	Hard Standing or Building	Hard Standing or Building	848.8	0
5	Hardstanding	Hard Standing or Building	Hard Standing or Building	2587.3	0
6	Standalone Trees	Medium	Moderate	25.2	201.6
TOTAL				**5751.3**	**5847.2**

Table 10.3: Area-Based Habitat Loss (D)

Parcel Number	Habitat Type	Distinctiveness	Condition	Area (ha or m2)	Biodiversity Units
1	Broadleaved Plantation Woodland	Medium	Moderate	0	0
2	Amenity Grassland	Low	Poor	617.0	1234.0
3	Introduced Shrub	Low	Poor	0	0
4	Buildings	Hard Standing or Building	Hard Standing or Building	0	0
5	Hardstanding	Hard Standing or Building	Hard Standing or Building	2592.1	0
6	Standalone Trees	Medium	Moderate	0	0
TOTAL				**617**	**1234.0**

Table 10.4: Area-Based Habitat Created (E)

Parcel Number	Habitat Type	Distinctiveness	Condition	Area (ha or m2)	Delivery Risk	Temporal Risk	Spatial Risk	Biodiversity Units
1	Broadleaved Plantation Woodland	Medium	Moderate	427	Medium	5	Within 500m of the area of loss or in same ecological network	1893.8
Total				**648**				**1893.8**

Table 10.5: Area Biodiversity Units – Habitat Enhanced (F)

Pre Dev Parcel Number	Pre Dev Biodiversity Units	Distinctiveness	Condition	Area Enhanced (ha or m2)	Delivery Risk	Temporal Risk	Spatial Risk	Biodiversity Units due to Enhancement
1	1420.8	High	Good	177.6	Medium	5	Within 500m of the area of loss or in same ecological network	984.6
TOTAL				**177.6**				**984.6**

Table 10.6: Total Post Development Area Biodiversity Units

Pre Development Area Biodiversity Units	Area Based Units Lost	Area Based Units (Creation)	Area Based Units (Enhancement)	Total Post Development Area Biodiversity Units	Biodiversity Unit Score
5847.2	**1234.0**	**1893.8**	**984.6**	**7491.6**	**128%**

Table 10.7: Linear Habitats - Percentage Change in Biodiversity Units

Calculation	Values
Total Post-D Linear Biodiversity Units for the Development (G) **G = (B - D) + F** Where:	471.3
B = Total Pre-D Linear Biodiversity Units	471.3
D = Total Post-D Linear Biodiversity Units Lost Due To Development	0
F = Total Post-D Linear Biodiversity Units Created and/or Enhanced Due to Development	0
Percentage Change in Linear Biodiversity Units = (G ÷ B)	**100%**

Table 10.8: Linear-Based (Foliage) Biodiversity Units Pre-Development (B)

Parcel Number	Habitat Type	Length (m)	Condition	Biodiversity Units
1	Row of Trees	82.6	Good	247.8
2	Intact Species Poor Hedgerow	74.5	Good	223.5
TOTAL		**157.1**		**471.3**

Table 10.9: Linear-Based (Foliage) Habitat Loss (D)

Parcel Number	Habitat Type	Length (m)	Condition	Biodiversity Units
1	Row of Trees	82.6	Good	247.8
2	Intact Species Poor Hedgerow	74.5	Good	223.5
TOTAL		**157.1**		**471.3**

Table 10.10: Linear-Based (Foliage) Habitat Created or Enhanced (F)

Parcel Number	Habitat Type	Length	Biodiversity Units
N/A	0	0	0
TOTAL		**0**	**0**

Table 10.11: Total Post Development Linear (Foliage) Biodiversity Units

Pre Development Linear (Foliage) Biodiversity Units	Linear (Foliage) Units Lost	Linear (Foliage) Based Units Created and/or Enhanced	Total Post Development Linear (Foliage) Biodiversity Units	Biodiversity Unit Score
471.3	**0**	**0**	**471.3**	**100%**

11. BREEAM LE05: Long Term Ecology Management and Maintenance

11.1 Prerequisite – Roles and Responsibilities, implementation, Statutory Obligations

To make the credits under LE05 available the following prerequisite criteria must be achieved:

- The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site.
- Criteria 2-3 in LE03 have been achieved and at least one credit under LE04 for 'Change and Enhancement of Ecology' has been awarded.

Criteria 2 and 3 under LE03 will likely be achieved in regard to the SQE. The credits under LE05 can be available when the client has committed to achieving Criteria 2 under LE03. The two credits under LE04 'Change and Enhancement of Ecology' can be achieved.

It is possible that these prerequisites can be achieved and therefore the credits under LE05 can be made available. These are discussed below.

11.2 Planning, Liaison, Data, Monitoring and Review Management and Maintenance (1 Credit)

This credit can be achieved when the client has committed to achieving the following:

- Criteria 3: The project team liaise and collaborate with representative stakeholders, taking into consideration data collated and shared, on solutions and measures implemented to:
  - 3.a Monitor and review the effectiveness with which the plans for LE 03 & LE 04 are implemented.
  - 3.b Develop and review management and maintenance solutions, actions or measures.
- Criteria 4: In support of the above and to help ensure their continued relevance over the period of the project the following should be considered:
  - 4.a Monitoring and reporting of the ecological outcomes for site implemented at the design and construction stage.
  - 4.b Monitoring and reporting of outcomes and successes from the project.
  - 4.c Arrangements for the ongoing management of landscape and habitat connected to the project (on and, where relevant, off site).
  - 4.d Maintaining the ecological value of the site and its relationship or connection to its zone of influence.
  - 4.e Maintaining the site in line with the any sustainability linked activities, e.g. ecosystems benefits (LE 02).
  - 4.f Remedial or other management actions are carried out which relate to those identified in LE 02, LE 03 and LE 04.
- Criteria 5: As part of the tenant or building owner information supplied, include a section on Ecology and Biodiversity to inform the owner or occupant of local ecological features, value and biodiversity on or near the site.

- Criteria 6: The landscape and management plan or similar is updated as appropriate to support maintenance of the ecological value of the site.

It is possible that this credit will be achievable, once the client commits to implementing the Criteria above and meets the requirements for the prerequisites in relation to LE03.

It is **important the Client maintains good record keeping** throughout the project such as file notes, photos, Site diary, documents, email etc. to be able to be able to demonstrate that the measures have been completed.

11.3 Landscape and Ecology Management Plan Development (1 Credit)

Criteria 7: Landscape and ecology management plan (LEMP), or equivalent, is developed in accordance with BS 42020:2013 Section 11.1, covering as a minimum the first five years after project completion and includes:

7.a Actions and responsibilities, prior to handover, to give to relevant individuals.

7.b The ecological value and condition of the site over the development life.

7.c Identification of opportunities for ongoing alignment with activities external to the development project and which supports the aims of BREEAM's Strategic Ecology Framework.

7.d Identification and guidance to trigger appropriate remedial actions to address previously unforeseen impacts.

7.e Clearly defined and allocated roles and responsibilities.

Although it is possible to produce a full 5-year LEMP at the Design Stage, the document may need substantial revision by the Post Construction Stage (when it is handed over to the occupier). A more efficient method that is possible under the BREEAM process is to provide 'a copy of the specification requiring the development of the plan and outlining the scope of its content' at the Design Stage, followed by the full 5-year LEMP once the landscaping plan has been finalised. The LEMP will be produced in accordance with BS 42020:2013 Section 11.1 and a suggested format is included in Appendix G.

It is possible that this credit will be achievable, once the client commits to having a LEMP and meets the requirements for the prerequisites in relation to LE03.

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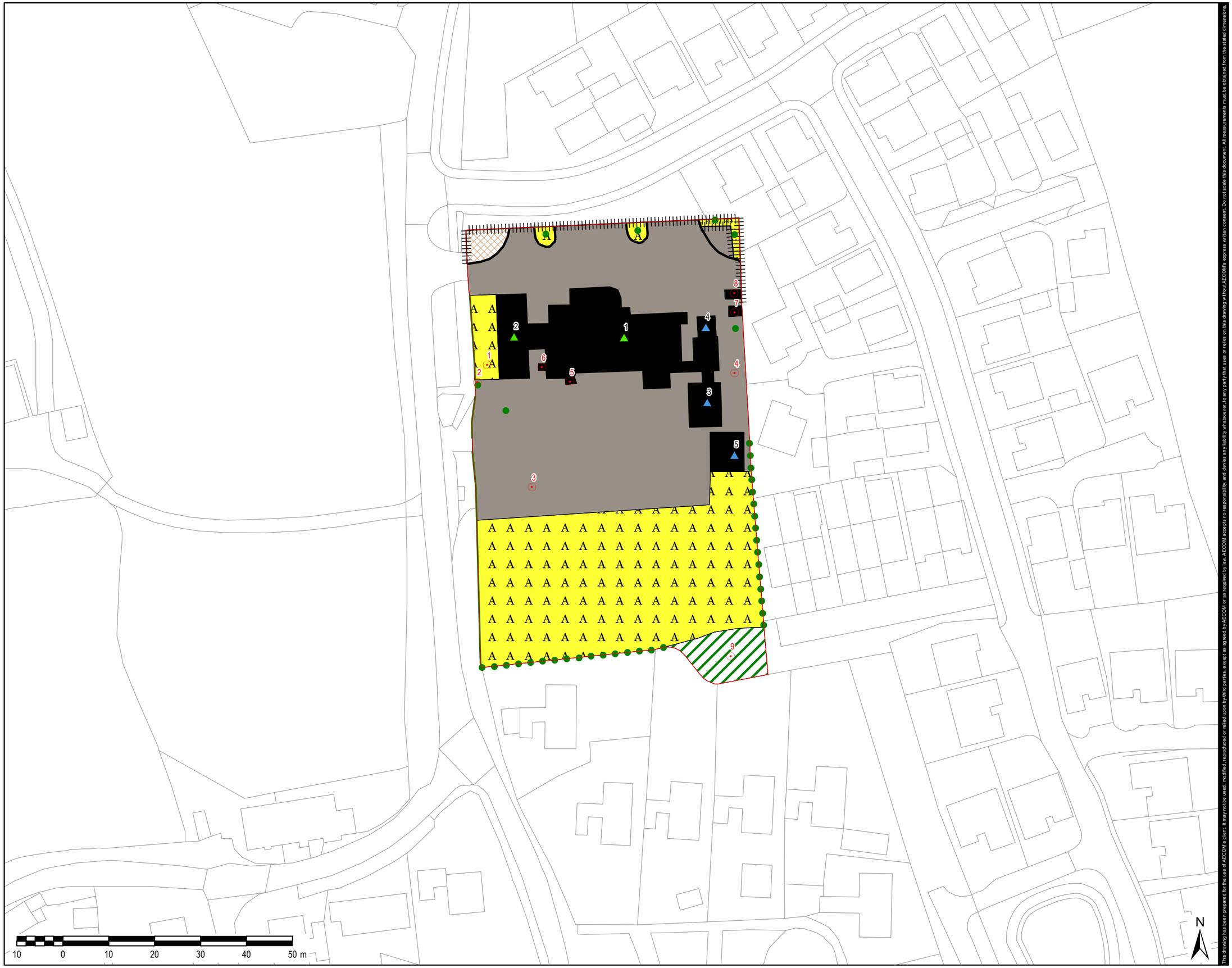
Figure 1: Phase 1 Habitat Map



AECOM Limited
1 Callaghan Square
Cardiff, CF10 5BT
+44 (0)29 2067 4600 tel
www.aecom.com

Project Title:

ST DAVID'S CHURCH IN WALES PRIMARY SCHOOL

Client:

VALE OF GALMORGAN COUNCIL

LEGEND

- Site Boundary
- Target Note
- Trees

Bat Suitability Buildings

- Low Potential
- Negligible

Phase 1 Linear Habitats

- Broadleaved parkland/scattered trees
- Fence
- Intact hedge - species-poor
- Wall

Phase 1 Habitat Areas

- Broadleaved Woodland - Plantation
- Cultivated/Disturbed Land - Amenity Grassland
- Introduced Shrub
- Buildings
- Hardstanding

AECOM Internal Project No:

60571313

Drawing Title:

PHASE 1 HABITAT PLAN

Scale at A3: 1:750

Drawing No:			Rev:
FIGURE 1			001
Drawn:	**Chk'd:**	**App'd:**	**Date:**
GM	JM	LN	16/08/19

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Appendix A : BREEAM Land Use and Ecology Criteria

The BREEAM Land Use and Ecology Category (Assessment Route 2) for LE02 to LE05 is described below. The numbering directly relates to the Criteria numbers in the technical manual. The full detail and methodology is available within the technical manual (BREEAM, 2018a).

LE02: Identifying and Understanding the Risks and Opportunities for the Project

Prerequisite – Assessment Route Selection

5. An assessment route for the project has been determined using BREEAM Guidance Note GN34 BREEAM Ecological Risk Evaluation Checklist.
6. The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.

Survey and Evaluation

4. A Suitably Qualified Ecologist (SQE) is appointed at a project stage that ensures early involvement in site configuration and, where necessary, can influence strategic planning decisions.
5. Prior to the completion of the Preparation and Brief project stage, an appropriate level of survey and evaluation has been carried out to determine the ecological baseline of the site, taking account of the zone of influence to establish:
    a. Current and potential ecological value and condition of the site, and related areas within the zone of influence;
    b. Direct and indirect risks to current ecological value; and,
    c. Capacity and feasibility for enhancement of the ecological value of the site and, where relevant, areas within the zone of influence.
6. Data are collated and shared with project team to inform the site preparation, design and construction works.

Determining the Ecological Outcomes for the Site

7. Survey and evaluation criteria have been achieved.
8. During Concept Design, the project team liaise and collaborate with representative stakeholders to identify the optimal ecological outcome for the site.
9. The ecological outcome for the site is determined by identifying, appraising and selecting specific solutions and measures. The solutions and measures must be identified sufficiently early in the project to influence key project planning decisions and must be done in accordance with the following hierarchy of action, which is dependent on the route being used :
    a. Route 2:
        i. Avoidance
        ii. Protection
        iii. Reduction or limitation of negative impacts
        iv. On site compensation and
        v. Enhancement, considering the capacity and feasibility within the site, or where viable, off-site.
10. The optimal ecological outcome for the site is selected after liaising with representative stakeholders and the project team.

Exemplary Level Criteria

To achieve one exemplary performance credit:

Determine the ecological outcomes for the site (sustainability-related activities)

11. Achieve criteria 7 to 9 above
12. When determining the optimal ecological outcome for the site consider, in addition to those outlined in criteria 7 to 9 above, the wider site sustainability-related activities and the potential for ecosystem service related benefits. Refer to the Methodology on Page 299 of the technical manual for full details (BREEAM, 2018a)
13. Achieve the credits of the assessment issues outlined below:
    a. Assessment scope on Page 121 of the technical manual - Both credits
    b. Assessment scope on Page 331 of the technical manual - Achieve credits for 'Surface water run-off' and 'Minimising watercourse pollution'
    c. Assessment scope on page 348 of the technical manual.

LE03: Managing Negative Impacts on Ecology

Prerequisite – Identification and Understanding the Risks and Opportunities for the Site:

14. LE 02 has been achieved.

Planning, Liaison, Implementation and Data (One Credit)

15. Roles and responsibilities for managing negative impacts on the ecology are clearly defined and allocated to support successful delivery of project outcomes at an early enough stage to influence the Preparation and Brief or Concept Design.
16. The potential impact of site preparation and construction works on ecology are identified at an early project stage to optimise benefits and outputs.
17. The project team, liaising and collaborating with representative stakeholders and, taking into consideration data collated and shared, have proposed solutions and selected measures to be implemented during site preparation and construction works.

Managing Negative Impacts of the Project (up to Two Credits)

7. Criteria 2-4 have been achieved
8. Negative impacts from site preparation and construction works have been managed according to the hierarchy and, either:
    a. No net loss of ecological value has occurred (2 credits)

    OR

    b. The loss of ecological value has been minimised (Minimising Loss) (1 credit)

LE04: Change and Enhancement of Ecological Value

Prerequisite - Managing Negative Impacts on Ecology:

9. Criteria 2-3 in LE 03 have been achieved.
10. The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site.

Liaison, Implementation and Data collation (One Credit)

11. The project team, liaising and collaborating with representative stakeholders and taking into consideration data collated and shared, have implemented the solutions and measures selected in a way that enhances ecological value in the following order:
    a. On site, and where this is not feasible,
    b. Off site within the zone of influence.
12. Data collated are provided to the local environmental records centres nearest to, or relevant for, the site.

Change and Enhancement of Ecology (up to Three Credits)

13. Up to three credits are awarded based on the calculation of the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2. Credits are awarded as follows:
    a. Minimising loss of ecological value (one credit - percentage score of 75-94)
    b. No net loss of ecological value (two credits - percentage score of 95-104)
    c. Net gain of ecological value (three credits - percentage score of 105-109)

Exemplary Level Criteria

To achieve one exemplary performance credit:

14. The change in ecological value occurring is calculated in accordance with the process set out in GN36 – BREEAM CEEQUAL and HQM Ecology Calculation Methodology – Route 2. The credit is awarded as follows:
    a. Significant net gain of ecological value (percentage score of 110 or above)

Calculation of Biodiversity Units Methodology

The methodology requires the calculation of Biodiversity Units for both Linear and Area Based Habitats impacted by a project and is carried out Pre and Post Development.

The methodology is based on three main attributes:

i. the area or length of habitats (dependent on their type),
ii. their condition and,
iii. their distinctiveness.

These attributes are assigned numerical values to allow Biodiversity Units to be calculated for each habitat type. The number of Biodiversity Units can then be compared before and after the development to determine a change and so give an indication of the change in overall ecological value.

The methodology is split into a full approach and a simplified approach. The simplified approach can only be used for developments with low level risks to ecological value and biodiversity.

There are two options as follows:

15. Full methodology - This must be used where the pre-development habitats are above the set size threshold of 0.05 hectares in total or include habitats that are assigned as high distinctiveness.
16. Simplified methodology - This can be used where the pre-development habitats are below the set size threshold and no habitats present that are assigned a high level of distinctiveness. Route 2 may be used where desired

Calculation of Biodiversity Units

Condition

Condition is calculated by using the BREEAM guidance GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology (BREEAM, 2018b) and Natural England's' Higher Level Stewardship Farm Environment Plan (FEP) Manual (NE, 2010).

Table A1 defines the condition levels.

Table A1: Habitat Condition Bands and Scores

Condition Band	Condition Score	Criteria for Assigning Condition
Good	3	Any habitat which passes all the FEP criteria
Moderate	2	Any habitat which fails one FEP criterion
Poor	1	Any habitat which fails two or more FEP criteria

Where an FEP condition assessment is not possible and the condition cannot be based on local relevant data (such as surveys on other similar habitats within the Development Footprint) the condition of the habitats should be assumed to be moderate, giving a condition score of 2, unless there is other evidence that the habitat is of good condition, such as the presence of species of principal importance. If a different methodology is used the SQE should set out why it has been used and provide evidence to demonstrate why that methodology is more appropriate.

When the habitat present is not covered by the Farm Environment Plan (FEP) condition assessment methodology (NE,2010) the Default Condition Assessment should be used (see Table A2 below). If some of the criteria are not relevant for the habitat being assessed the SQE should use their expert judgement to select the appropriate criteria.

Table A2: Default Condition Assessment

Criterion	Commonly Used Habitat Condition Assessment Criteria in the FEP
1	A diverse age range
2	A diverse species mix
3	Diverse structure variety/diverse form
4	Presence of protected species
5	None or a limited presence of invasive species
6	No or limited damage for example by machinery

Distinctiveness

Distinctiveness is calculated using Appendix C of the BREEAM guidance GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology (BREEAM, 2018b)

In line with the guidance, the following steps are required to calculate Pre Development Biodiversity Units:

Score each habitat for distinctiveness

- Score each habitat for distinctiveness as high (6), medium (4) or low (2) (see Table A3). For hedgerows and watercourses assume distinctiveness is high,
- Assess the condition of the habitat using the methodology described in Natural England's Farm Environment Plan (FEP) Manual (NE, 2010). Score each habitat for condition as good (3), moderate (2) or poor (1). Please note that if a different methodology is used its use needs to be justified within the report,
- Measure the area (in hectares or square metres) or length (in metres) of the habitat (ensuring the same unit is used throughout the assessment).

Table A3: Habitat Distinctiveness Bands and Scores

Distinctiveness Band	Distinctiveness Score	Habitat Types Included
High	6	Habitats of Principal Importance i.e. those which meet the criteria to qualify as Habitats of Principal Importance (JNCC 2011) as they are not included in the assessment. This excludes ancient woodland and other habitats which are irreplaceable.
Medium	4	Other semi-natural habitats that do not fall within the scope of Habitats of Principal Importance definitions, i.e. all other areas of woodland (e.g. mixed woodland), other grassland (e.g. semi-improved grasslands), uncultivated field margins, road verge and railway embankments (excluding those that are intensively managed).
Low	2	Improved grassland, arable fields (excluding any uncultivated margins), built up areas, domestic gardens, regularly disturbed bare ground (e.g. quarry floor, landfill sites etc.), verges associated with transport corridors.

Habitat distinctiveness is a measure of biodiversity that has regard for the number and variety of species found there (richness and diversity), how rare the species are, and how many species the habitat supports that are not common elsewhere.

For the purpose of the BREEAM family assessments habitat distinctiveness is scored against a three category scale (high, medium and low) as detailed in Table A3. Broadly, all Habitats of Principal Importance will be assigned high distinctiveness, other habitats which are not Habitats of Principal Importance will be assigned medium distinctiveness and any habitats which have been intensively managed such as improved grassland or arable pasture will be assigned low distinctiveness.

LE05: Long Term Ecology Management and Maintenance

Prerequisite - Roles and Responsibilities, Implementation and Statutory Obligations

17. The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site.
18. Criteria 2-3 in LE 03 have been achieved, and at least one credit under LE 04 for 'Change and Enhancement of Ecology' has been awarded.

Planning, Liaison, Data, Monitoring and Review Management and Maintenance (One Credit

19. The project team liaise and collaborate with representative stakeholders, taking into consideration data collated and shared, on solutions and measures implemented to:
    a. Monitor and review the effectiveness with which the plans for LE 03 & LE 04 are implemented
    b. develop and review management and maintenance solutions, actions or measures.
20. In support of the above and to help ensure their continued relevance over the period of the project the following should be considered:
    a. Monitoring and reporting of the ecological outcomes for site implemented at the design and construction stage
    b. Monitoring and reporting of outcomes and successes from the project
    c. Arrangements for the ongoing management of landscape and habitat connected to the project (on and, where relevant, off site)
    d. Maintaining the ecological value of the site and its relationship or connection to its zone of influence
    e. Maintaining the site in line with the any sustainability linked activities, e.g. ecosystems benefits (LE 02).
    f. Remedial or other management actions are carried out which relate to those identified in LE 02, LE 03 and LE 04.
21. As part of the tenant or building owner information supplied, include a section on Ecology and Biodiversity to inform the owner or occupant of local ecological features, value and biodiversity on or near the site.
22. The landscape and management plan or similar is updated as appropriate to support maintenance of the ecological value of the site.

Landscape and Ecology Management Plan (or similar) Development (One Credit)

23. Landscape and ecology management plan, or equivalent, is developed in accordance with BS 42020:2013 Section 11.1(BSI, 2013) covering as a minimum the first five years after project completion and includes:
    a. Actions and responsibilities, prior to handover, to give to relevant individuals
    b. The ecological value and condition of the site over the development life.
    c. Identification of opportunities for ongoing alignment with activities external to the development project and which supports the aims of BREEAM's Strategic Ecology Framework
    d. Identification and guidance to trigger appropriate remedial actions to address previously unforeseen impacts
    e. Clearly defined and allocated roles and responsibilities.

Methodology

Tenant/occupier/building manager

This information pack should include the following content, as appropriate:

a) Details of the ecological value within the property boundary (e.g. public and private gardens, green roofs), common areas (e.g. communal garden), and the surrounding area (e.g. public recreational space).

b) The benefits of the ecological value to the occupants and the broader community.

c) Guidance on how the occupants can make the most of the local ecology and contribute to its management, (e.g. planting ecologically appropriate species in their property), as well as things that should be avoided doing (e.g. disrupting wildlife corridors);

d) Highlight relevant actions that can be taken to enhance value within the property that is owned or occupied to help ensure its ongoing management and maintenance.

e) Contact details for those responsible for the management and maintenance of the local ecology and sources of local information on biodiversity and ecological management including management companies and local wildlife trusts.

Data collation and application in throughout the project lifecycle

In addition to the data collated during LE 02, data collated during assessment of this issue should be shared with the project team to inform decisions relating to the site preparation, design or construction works.

Appendix B : Wildlife Legislation

Legislation – Habitats

A variety of sites are designated in the UK, under Conventions, Directives and Regulations for their nature conservation importance and interest. The general aim of these designations is to conserve and protect ecological resources, as well as raising awareness and understanding. Other non-statutory sites are afforded some protection through local plans. The following outlines the most common statutory and non-statutory designations:

Designation	Brief Description
Special Areas of Conservation (SAC)	SACs are sites selected to conserve the natural habitat types and species of wild flora and fauna listed in the Annexes of the Habitats Directive (further information regarding the Habitats Directive is set out in more detail in the table below). They are the best areas to represent the range and variety of habitats and species within the European Union (EU).
Special Protection Area (SPA)	SPAs are strictly protected sites for the most important habitats for rare and migratory birds within the EU classified in accordance with Article 4 of the Birds Directive information regarding the Birds Directive is set out in more detail in the table below).
Ramsar Sites	Ramsar Sites are wetlands of international importance. Ramsar Sites are protected, through the planning system, under the Wildlife and Countryside Act 1981 (as amended), and the Countryside and Rights of Way Act 2000 through their notification as SSSIs and through other regulatory systems addressing water, soil and air quality.
National Nature Reserve (NNR)	NNRs are nationally important areas of wildlife habitat and geological formations in Britain. NNRs are designated and protected under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 (as amended). They receive additional protection under the Countryside and Rights of Way Act 2000. They are managed for the benefit of nature conservation.
Site of Special Scientific Interest (SSSI)	A SSSI is a site of at least national importance for nature conservation designated under the Wildlife and Countryside Act 1981 (as amended) due to its special interest in terms of flora, fauna or geological or physiographical features. Protection afforded to SSSI's was strengthened by the Countryside and Rights of Way Act 2000. It should be noted that under the Countryside and Rights of Way Act 2000 owners of SSSIs must give Natural Resources Wales (NRW) written notice before they begin any of the operations listed in the notification as likely to damage the special interest features, or if they allow others to carry out these activities. None of the listed operations can be carried out without NRW's consent.
County Wildlife Site (Local site)	A County Wildlife Site is a non-statutory site designated by a local authority as being of local nature conservation value.
Ancient Woodland Inventory	Ancient Woodland is a term applied to woodlands which have existed from at least Medieval times to the present without ever having been cleared for uses other than wood or timber production. A convenient date used to separate ancient and secondary

Designation	Brief Description
	woodland is about the year 1600. In special circumstances semi-natural woods of post-1600 but pre-1900 origin are also included.
Wildlife Trust Reserve	These non-statutory sites are managed by the Wildlife Trusts with the purpose of conserving wildlife.

Legislation – Protected Species

In addition to habitats, a number of species have been afforded protection through international/European and national law. Other species are considered to contribute to our 'quality of life'. Although these species do not benefit from legal protection, they can be material considerations in the planning process. The table below outlines the key forms of protection afforded to species. The Countryside and Rights of Way Act, the Wildlife and Countryside Act 1981 (as amended), The Protection of Badgers Act 1992 and the Conservation of Habitats and Species Regulations 2018 are the main legislative framework for protection of wild animals in the UK. Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) covers birds, Schedule 5 covers other animals and Schedule 8 covers plants.

Species including bats, otters and great crested newts are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2018. Badgers are protected under their own Act: The Protection of Badgers Act 1992. Activities affecting protected species must usually be conducted under licence obtained from the appropriate body (in Wales, this is Natural Resources Wales).

Developers must be able to show that all reasonable measures have been taken to ensure that protected species are not subject to disturbance. The habitats which regularly support the Conservation of Habitats and Species Regulations 2018 Schedule 2 species, the Wildlife and Countryside Act 1981 (as amended) Schedule 1 species and some Wildlife and Countryside Act 1981 (as amended) Schedule 5 species are also protected from disturbance and destruction. Again, all reasonable precautions should be taken to ensure that this does not happen. The Countryside and Rights of Way Act 2000 has strengthened enforcement powers and introduced a new offence of "reckless disturbance" that applies to both protected sites and species. The table below provides a summary of the relevant legislation with regards to protected and priority species.

Designation	Brief Description
The Habitats Directive	The Habitats Directive 1992 (Directive 92/43/EEC sets out the legal framework requiring EU member states to protect habitat sites supporting vulnerable and protected species, as listed within the Directive. The need for an assessment of impacts on Natura 2000 sites (the collective name for European designated sites, including SPAs and SACs) is set out within Article 6 of the Directive. The Directive is transposed into UK law through the Conservation of Habitats and Species Regulations 2018) (the "Habitats Regulations") and the Wildlife & Countryside Act 1981 (as amended).
The Birds Directive	The Directive on the Conservation of Wild Birds (Directive 2009/147/EC (the codified version of Council Directive 79/409/EEC as amended)) provides a framework for the protection, management and control of all species of naturally occurring wild birds in the European territory of Member States, including the UK. The provisions of the Birds Directive are transposed into UK law by the Conservation of Habitats and Species Regulations, 2018 and the Wildlife & Countryside Act 1981 (as amended).
Wildlife and Countryside Act (1981) (as amended)	The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in Great Britain. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and (partially) the Birds Directive and the Habitats Directive are implemented in the UK. The Countryside and Rights of Way Act

Designation	Brief Description
	2000 has strengthened this legal protection (see below). A small number of plant species are listed under Schedule 9 of the Wildlife and Countryside Act 1981, as amended, which includes species such as Japanese knotweed (Reynoutria japonica), Himalayan balsam (Impatiens glandulifera), montbretia (Crocosmia x crocosmiiflora), giant hogweed (Heracleum mantegazzianum) and some cotoneaster species (Cotoneaster sp.). It is illegal to plant or to cause these plants to grow in the wild, and legal disposal methods for vegetation and soil subject to disturbance or clearance from a site must be used.
Convention on Biological Diversity and the Countryside and Rights of Way Act 2000	The Countryside and Rights of Way Act 2000 provides a statutory framework for biodiversity conservation. The Act places a duty on Government Departments and the National Assembly for Wales to have regard for the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity. Schedule 9 of the Act amends SSSI provisions of the Wildlife and Countryside Act 1981, including provisions to change SSSIs and providing increased powers for their protection and management. The provisions extend powers for entering into management agreements; place a duty on public bodies to further the conservation and enhancement of SSSIs; increases penalties on conviction where the provisions are breached; and introduce a new offence whereby third parties can be convicted for damaging SSSIs. Schedule 12 of the Act amends the species provisions of the Wildlife and Countryside Act 1981, strengthening the legal protection for threatened species. The provisions make certain offences 'arrestable' and create a new offence of reckless disturbance. The UK Biodiversity Action Plan (BAP) was published in 1994, and was the UK Government's response to the Convention on Biological Diversity (CBD), which the UK signed up to in 1992. It provides the framework for fulfilling the UK's responsibilities towards the Convention on Biological Diversity. Conservation of biodiversity (the variety of life on earth) is an essential element of sustainable development.
Environment (Wales) Act 2016	The Environment (Wales) Act puts in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and joined-up way. Part 1 relates to the sustainable management of natural resources. This ensures that the way in which the use of and the impacts on natural resources do not result in long term decline. The aim is to sustainably manage natural resources in a way and rate that meets the needs of present and current generations without compromising the needs of future generations. The Act also contains at section 7, a duty for the Welsh Ministers prepare and publish a list of the living organisms and types of habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales. This section replaces the duty in section 42 of the NERC Act 2006.
Protection of Badgers Act 1992	The Protection of Badgers Act 1992 makes it an offence to wilfully take, kill, injure or ill-treat a badger, possess a dead badger or any part of a badger. Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England takes this definition to include seasonally used setts. Work that may disturb badgers or their setts is illegal without a development

Designation	Brief Description
	licence from the relevant statutory body (in this case Natural Resources Wales).
The Hedgerow Regulations 1997	The Hedgerow Regulations (1997) make provision for the protection of important hedgerows in England and Wales. The regulations affect hedgerows which are 20m or more in length, or connected at both ends to another hedgerow of any length. They relate to hedgerows which are on, or adjoining land used for the following purposes: agriculture or forestry; the breeding or keeping of horses, ponies or donkeys; common land; village greens; and SSSIs (They do not include hedges that are attached to, or marking the boundaries of a private house. It is an offence to intentionally or recklessly remove or cause or permit another person to remove a hedgerow or intentionally or recklessly remove, or cause or permit another person to remove, a hedgerow which is the subject of a hedgerow retention notice.

Appendix C : Local Planning Policy

Local Planning Policy

The Vale of Glamorgan Local Development Plan (LDP) 2011-2026 provides the local planning policy framework for the Vale of Glamorgan and was adopted by the Council on 28th June 2017.

The Plan sets out the vision, objectives, strategy and policies for managing development in the Vale of Glamorgan, and contains a number of local planning policies and makes provision for the use of land for the purposes of housing, employment, retailing, recreation, transport, tourism, minerals, waste, and community uses. It also seeks to identify the infrastructure that will be required to meet the growth anticipated in the Vale of Glamorgan up to 2026, and provides a monitoring framework for assessing the effectiveness of the Plan.

Policies referring to nature conservation are outlined below. Full details can be found in Vale of Glamorgan Local Development Plan 2011-2026, Local Development Plan-Written Statement June 2017.

Policy	Details
Policy SP10 – Built and Natural Environment	Development proposals must preserve and where appropriate enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan including: 1. The architectural and / or historic qualities of buildings or Forest Schools nature area s, including locally listed buildings; 2. Historic landscapes, parks and gardens; 3. Special landscape areas; 4. The Glamorgan Heritage Coast; 5. Sites designated for their local, national and European nature conservation importance; and 6. Important archaeological and geological features. The Vale of Glamorgan's natural and built environmental qualities significantly contribute to its identity and also provide valuable local recreation and tourism opportunities. These assets include areas recognised as being of European, national and local importance, including the Vale of Glamorgan's coastline which includes the Glamorgan Heritage Coast designation and the Severn Estuary Special Protection Area. Policy SP10 emphasises the need to protect the Vale of Glamorgan's natural and built environmental assets and reinforces that sensitive design and choice of location of new development can have a positive effect on the Vale of Glamorgan's built and natural heritage. Similarly, new development will be required to minimise its impact on natural systems, landscapes, species and habitats and, where appropriate, provide opportunities for the creation of new habitats or the sensitive enhancement of existing habitats. The LDP provides a policy framework that seeks to preserve and enhance the Vale of Glamorgan's important historic built environment particularly in relation to the numerous listed buildings (both statutory and local), Forest Schools nature area s, scheduled monuments and historic landscapes, parks and gardens that exist. It should be noted that statutory listed buildings are also covered under Policy MD8 and are subject to separate legislation. In addition, it recognises the importance of preserving and enhancing the natural environment, principally the countryside and the coast, which have significant landscape and nature conservation value.
Policy MG17 – Special Landscape Areas	The following areas are designated as special landscape areas: 1. Castle Upon Alun; 2. Upper & Lower Thaw Valley; 3. Ely Valley & ridge slopes; 4. Nant Llancarfan; 5. Dyffryn basin & ridge slopes; 6. Cwrt-yr-Ala basin. Within the special landscape areas identified above, development proposals will be permitted where it is demonstrated they would cause no unacceptable harm to the important landscape character of

Policy	Details
	the area. Special Landscape Areas (SLA) have been designated to protect areas of the Vale of Glamorgan that are considered to be important for their geological, natural, visual, historic or cultural significance. These areas have been identified through the utilisation of a methodology devised by the former Countryside Council for Wales (now Natural Resources Wales) in collaboration with a consortium of local authorities in South East Wales, which uses LANDMAP data. The process allows information about the landscape to be gathered, organised and evaluated into a nationally consistent, quality assured data set. Details of the identified SLAs are contained within the Vale of Glamorgan Designation of Special Landscape Areas Background Paper (2013). The designation of SLAs is not intended to prevent development but to ensure that where development is acceptable careful consideration is given to the design elements of the proposal such as the siting, orientation, layout and landscaping, to ensure that the special qualities and characteristics for which the SLAs have been designated are protected. Development proposals within SLAs will be required to fully consider the impact of the proposal on the SLA through the submission of a Landscape and Visual Impact Assessment (LVIA). A LVIA will be required for any development that is likely to have a significant impact upon landscape character, or have a significant visual effect within the wider landscape (by virtue of its size or prominence or degree of impact on the locality) and will be prepared in accordance with the latest Landscape Institute and the Institute of Environmental Management and Assessment guidelines. Where applicable, this should form a key element of a planning application's design and access statement and should demonstrate that the proposal has been designed to remove or reduce any unacceptable impacts on the qualities for which the SLA has been designated. Any cumulative impacts that the proposal may have in relation to existing or planned proposals in the locality should also be considered. This is particularly the case for wind turbines or large structures and large-scale proposals such as solar farms. The level of detail required in each landscape impact assessment should be commensurate with the scale of the proposal.
Policy MG18 – Green Wedges	Green wedges have been identified to prevent the coalescence of settlements and to retain the openness of land at the following locations: 1. Between Dinas Powys, Penarth and Llandough; 2. North West of Sully; 3. North of Wenvoe; 4. South of Bridgend; 5. Between Barry and Rhoose; 6. South Penarth to Sully; and 7. Between Rhoose and Aberthaw. Within these areas development which prejudices the open nature of the land will not be permitted. Land on the urban fringe particularly around the key, service and primary settlements within the South East Zone is vulnerable to speculative development that can blur the boundaries between settlement edges and the open countryside. Unchecked this development would result in the incremental loss of open land and ultimately lead to the coalescence of settlements with a resultant detrimental impact upon agriculture, the landscape and the amenity value of land. While other policies of the LDP seek to prevent inappropriate development within the open countryside it is considered that the areas defined by the green wedges are more vulnerable and susceptible to change and require additional protection. Therefore, within the areas defined by the green wedges there will be a presumption against inappropriate development20 which would contribute to urban coalescence, prejudice the open nature of the land, or have an adverse impact upon the setting of an urban area. In applying this protection, however, it is recognised that individual or small groups of dwellings exist within the designations and that activities such as agriculture, forestry and recreation, occur. Consequently, development associated with existing uses will be limited to minor structures which are strictly ancillary to existing uses. Details of each of the designations are contained within the Green Wedge Background Paper (2013).

Policy	Details
Policy MG19 – Site and Species of European Importance	Development proposals likely to have a significant effect on a European site, when considered alone or in combination with other projects or plans will only be permitted where: 1. The proposal is directly connected with or necessary for the protection, enhancement and positive management of the site for conservation purpose; or 2. The proposal will not adversely affect the integrity of the site; 3. There is no alternative solution; 4. There are reasons of overriding public interest; and 5. Appropriate compensatory measures are secured. Development proposals likely to have an adverse effect on a European protected species will only be permitted where: 1. There are reasons of overriding public interest; 2. There is no satisfactory alternative; and 3. The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range. Internationally designated sites comprise Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites. The Vale of Glamorgan has 2 international sites: - Dunraven Bay (SAC) and Severn Estuary (SAC, SPA, Ramsar) and is directly adjacent to the Kenfig SAC in the County Borough of Bridgend. The locations of the European sites are shown on the Constraints Map. Any development proposals that are likely to affect European designated sites or European Protected Species (EPS) will be determined in accordance with national planning policy set out in Planning Policy Wales and Technical Advice Note 5: Nature Conservation and Planning (2009) and relevant case law. In accordance with the Conservation of Habitats and Species Regulations 2010 (as amended), any development proposals that has the potential for adverse impact on the integrity of a European site will be subject to a Habitats Regulations Assessment. Prior to implementing any consent that may be granted which may affect species of European importance, developers will need to secure a derogation from Natural Resources Wales under the Conservation of Habitats and Species Regulations 2010 (as amended), the 'Habitats Regulations.
MG20 – Nationally Protected Sites and Species	Development likely to have an adverse effect either directly or indirectly on the conservation value of a site of special scientific interest will only be permitted where it is demonstrated that: 1. There is no suitable alternative to the proposed development; and 2. It can be demonstrated that the benefits from the development clearly outweigh the special interest of the site; and 3. Appropriate compensatory measures are secured; or 4. The proposal contributes to the protection, enhancement or positive management of the site. Development proposals likely to affect protected species will only be permitted where it is demonstrated that: 1. The population range and distribution of the species will not be adversely impacted; 2. There is no suitable alternative to the proposed development; 3. The benefits of the development clearly outweigh the adverse impacts on the protected species; and 4. Appropriate avoidance, mitigation and compensation measures are provided. For the purposes of the policy, nationally designated sites include Sites of Special Scientific Interest (SSSI). Within the Vale of Glamorgan there are 28 SSSI and these are detailed in Appendix 2 and their locations are shown on the Constraints Map. Protected species are those detailed within the Wildlife and Countryside Act 1981 (as amended) and species specific legislation e.g. the Protection of Badgers Act 1992. The presence of a protected species is a material consideration in the determination of planning

Policy	Details
	applications. When assessing any development proposal which if carried out would be likely to result in harm to a protected species or its habitat, the Council will be guided by advice received from Natural Resources Wales. There will always be a presumption against development which is likely to harm a protected site or species. However, there may also be instances when the importance of a development proposal will outweigh the conservation value, either temporarily or permanently to a SSSI / protected species and in such instances, the objective will always be to ensure that the nature conservation value of the site or protected species is preserved and where possible enhanced. Where development is permitted, appropriate conditions or agreed planning obligations will be used to secure adequate compensation or mitigation measures
Policy MG21 – Sites of Importance for Nature Conservation, Regionally Important Geological and Geomorphological Sites and Priority Habitats and Species	Development proposals likely to have an adverse impact on sites of importance for nature conservation or priority habitats and species will only be permitted where it can be demonstrated that: 1. The need for the development clearly outweighs the nature conservation value of the site; 2. Adverse impacts on nature conservation and geological features can be avoided; 3. Appropriate and proportionate mitigation and compensation measures can be provided; and 4. The development conserves and where possible enhances biodiversity interests. Sites of Importance for Nature Conservation (SINC) are identified to protect areas of high wildlife value at a local level. Regionally Important Geological and Geomorphological Sites are locally designated sites of local, national and regional importance for geodiversity (geology and geomorphology). Priority Habitats and Species for Conservation are identified in the Environment (Wales) Act 2016 Section 7. Species or habitats are important wildlife features, are rare or declining and are not protected by primary legislation. Development which is likely to have an adverse impact on SINCs, RIGS or Priority Habitats and Species will be required to demonstrate that every effort has been made to avoid and mitigate any adverse impacts and that the need for the development outweighs the nature conservation or geological value. Where on site mitigation is not possible or sufficient to prevent any adverse impact then off-site compensation will be required. Off-site compensation will be secured through planning conditions or Section 106 agreements as appropriate. The Council will produce Supplementary Planning Guidance on 'Biodiversity and Development' to support these policies and provide advice for developers on the Council's approach to biodiversity issues.

Appendix D : Photographs

Photograph 1: Hardstanding in car park.

Photograph 2: Amenity grassland and play area.

Photograph 3: Species poor hedgerow along western boundary.

Photograph 4: Amenity grassland playing field.

Photograph 5: Row of broadleaved trees along southern boundary adjacent to amenity grassland.

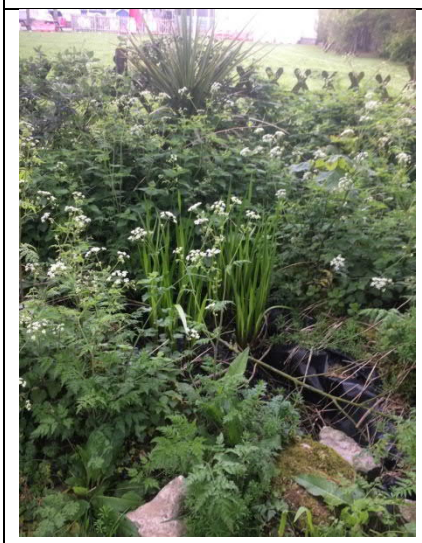
Photograph 6: Broadleaved plantation woodland – 'Forest Schools nature area '.

Photograph 7: Row of broadleaved trees along easttern boundary adjacent to amenity grassland. .

Photograph 8: Courtyard with raised beds. Target Note 4.

Photograph 9: Ammenity grassland with seating area.

Photograph 10: Ornamental planting in car park.



Photograph 11: Pond in the broadleave plantation woodland 'Forest Schools nature area '.

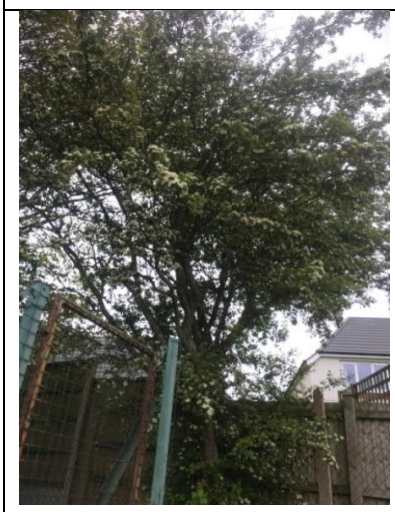
Photograph 12: Log/brash pile in the broadleave plantation woodland 'Forest Schools nature area '.

Photogrph 13: Bug hotel in 'Forest Schools nature area '.

Photograph 14: Tree 1.

Photograph 15: Tree 2.

Photograph 16: Tree 3.



Photograph 17: Tree 5.

Photograph 18: Building 2.

Photograph 19: Building 2. Gaps under facia boards.

Photgraph 20: Building 3

Photograph 21: Building 3

Photograph 22: Building 1

Photgraph 23: Building 1, gap under facia boards.

Appendix E : Target Notes for Phase 1 Habitat Map

Target Note	Description
1	Raised beds with ornamental planting.
2	Peace pole and olive tree.
3	Play area on amenity grassland.
4	Courtyard with raised beds and ornamental planting.
5	Canopy between buildings.
6	Wooden shed.
7	Wooden shed.
8	Metal container.
9	‘Forest Schools nature area’ with Pond, bug hotel, log/brash pile and bird boxes.

Appendix F : Staff Pen Portraits - SQE

Lisbeth Nash BSc (Hons) MCIEEM

Principal Ecologist

Lisbeth is a Principal Ecologist over 12 years of field work and consultancy experience. She is responsible for the day to day management of the ecology team in the south west including resourcing, project delivery and technical input. Lisbeth has experience in surveying for protected species including planning, resourcing and managing landscape scale surveys including landscape scale surveys for wind farm, road and pipeline schemes. Lisbeth is practised in ecological desk studies, Phase 1 habitat surveys, ecological site supervision and internal inspections of buildings and structures. Lisbeth is experienced in assessing ecological impacts and preparing reports and assessment for successful planning submissions and has prepared scoping reports and chapters for Environmental Impact Assessment (EIA). She has experience of using remote sensing equipment and analysing bat sonograms using Analook Software. Lisbeth has completed successful European Protected Species Licence applications for bats and dormice and has undertaken supervision of works and post construction monitoring under licence. She has been involved in the mitigation and landscape design for a number of projects, developing ecological enhancements and protected species mitigation. Lisbeth has been a Consultant Ecologist on a number of BREEAM and CfSH Assessments and has been involved with design teams for landscape and lighting designs. Lisbeth is a bat survey licence holder in Wales and England and a great crested newt survey licence holder – England and Wales. She is a Full Member of the Chartered Institute of Ecology and Environmental Management.

Kevin Webb CEcol

Associate Director

Kevin is a Chartered Ecologist with twenty years' experience of undertaking professional ecological work in a range of public and private positions. He is currently responsible for the management of the AECOM ecology team in the south west and south Wales including overall responsibility for project delivery and technical input but works as required across the country on schemes which require technical input. Kevin has particular expertise in ornithology (including extensive international experience). He is familiar with the planning process and has been recently involved on a number of DCO projects. He still regularly undertakes fieldwork for a variety of ornithological schemes and has maintained his A- licence for bird ringing for the last twenty-five years. He holds barn owl survey and ringing licences for England and Wales and has recently held project specific NRW Schedule 1 survey licences for 9 species and SNH Schedule 1 survey licences and BTO ringing licences for a further 14 species. He is also very experienced with protected species survey and mitigation (design and implementation) and holds a number of development licences relating to (at present) great crested newt and badger. Kevin is very experienced in preparing Ecological Impact Assessments as part of the EIA process and has also reviewed more than one hundred Chapters for legal and policy compliance on behalf of planning authorities and developers. Kevin has appeared as an expert witness at public inquiry and has further experience of speaking and presenting evidence at a range of public consultation events for a variety of developments. Kevin has experience of preparing detailed habitat management plans, restoration plans and landscape and ecological management plans for a range of habitat types throughout the country. He is familiar with the management techniques required for a implementing such plans and has more than five years practical experience of preparing and implementing management plans for SSSI calcareous grassland, dune slacks and lowland acid grassland. Kevin retains a broad understanding of the principles of habitat creation/restoration and regularly co-ordinates team of experts to ensure positive results. He has extensive experience of giving technical evidence at a range of public forums including planning and Council meetings.

Lucy Foster BSc (Hons) ACIEEM

Ecologist

Lucy is an Ecologist with seven years of consultancy experience. Lucy holds a First Class Honours Degree in Ecology from Cardiff University. Lucy is experienced in undertaking Phase I Habitat Surveys, bat surveys (manual

and automated static surveys), bat roost assessments, protected species surveys including otter, water vole, badger, pine marten, reptile, red squirrel and Scottish wildcat, Habitat Suitability Index (HSI) assessments for great crested newts, and ornithology surveys (including vantage point surveys and raptor and wader walkover surveys). Lucy is competent in the use of Analook to analyse bat calls, ArcGIS to map data from field work, use of handheld GIS devices (Trimbles) to record observation in the field, and Excel to manage large databases. She has experience producing a wide range of reports for a range of clients including Phase I Habitat Reports, Habitat Management Plans, ornithology chapters for EIA and Phase II survey reports for breeding birds, badgers, otters, water vole, reptiles and bats.

Appendix G : Landscape Habitat Management Plan - Scope of Contents

Site Description

1.1. Introduction

1.2. General Information

1.2.1. Location

1.2.2. Summary Description

1.2.3. Land Tenure

1.2.4. Map Coverage

1.2.5. Photographic Coverage

1.3. Environmental Information

1.3.1. Physical Information

1.3.2. Biological Information

1.3.3. Cultural information

1.3.4. Historic and Current management

1.3.5. Ecological Relationships and Implications for Management

2. Evaluation and Objectives

2.1. Conservation Status of the Site

2.1.1. Historic Nature Conservation

2.1.2. Site Status

2.1.3. Site definition and Boundaries

2.2. Evaluation of Site Features

2.2.1. Criteria for Evaluation

2.2.2. The Site in the Wider Perspective and Implications for Management

2.2.3. Specified Limits

2.2.4. Ideal Management Objectives

2.3. Factors Influencing Management

2.3.1. Natural Trends

2.3.2. Man Induced Trends

2.3.3. External Factors

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