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**EXTENDED PHASE 1 HABITAT SURVEY AND
BAT SURVEY AND OBSERVATIONS
PENARTH FIRE STATION, HAZEL ROAD,
PENARTH, VALE OF GLAMORGAN**

ON BEHALF OF

SOUTH WALES FIRE AND RESCUE SERVICE

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We confirm that in preparing this Report we have exercised reasonable skill and care, taking into account the project objectives, the agreed scope of the work, prevailing site conditions and the degree of manpower and resources allocated to the project.

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SUMMARY

Hawkeswood Ecology carried out Extended Phase 1 Habitat and Bat Surveys of Penarth Fire Station and Grounds, Hazel Road, Penarth. It is proposed to carry out a major refurbishment of the Site to upgrade and modernise the facilities.

The Station is situated in a heavily urbanised area of Penarth, but is within 80 metres of open space to the east and 450 metres of a stream corridor leading to Cosmeston Lakes Country Park to the west.

The grounds consist almost entirely of hard surfacing and amenity garden with various ornamental shrub plantings. The buildings are generally brick and profile metal walls with flat or metal roofs. There are very limited opportunities to access the Station for bats.

Subsequent bat observation surveys did not identify any bat activity associated with the buildings. There was considerable pipistrelle bat activity around the buildings however, and the grounds, although well lit, are used by foraging bats.

No bat roosting activity was recorded with the Site or buildings.

It is concluded that the Site is of low ecological value and the proposed development will provide potential ecological enhancements.

The conclusions of this report are considered valid for two years from the survey dates noted in Section 1 of the report.

1 INTRODUCTION

- 1.1 Hawkeswood Ecology was instructed to carry out Bat and Phase 1 Habitat surveys of Penarth Fire Station, Hazel Road, Penarth, approximate central Grid Reference ST 175 709, on behalf of the South Wales Fire and Rescue Service. It is proposed to refurbish the existing Station to upgrade facilities.
- 1.2 The development has been targeted for a minimum 'Very Good' BREEAM rating and as such the Ecological Value of the land needs to be determined, together with a survey for the presence of protected species.
- 1.3 The Site consists of the existing fire station buildings and associated hard-standing and amenity gardens.
- 1.4 The objectives of the survey are:
 - To assess the Ecological Value of the Site;
 - To assess the potential value of buildings on Site for the presence of roosting bats;
 - To assess the potential ecological impacts of the proposed works;
 - To provide recommendations to enhance the Site for wildlife.
- 1.5 The daytime bat roost assessment and Phase 1 Habitat Survey was carried out on 18th July 2014. Bat survey observations were carried out on 22nd July and 28th August 2014.

2 SURVEYOR EXPERIENCE

- 2.1 The surveyor carrying out the Bat and Phase 1 Habitat surveys is Eric Hawkeswood. Eric has many years experience of broad habitat and detailed botanical and species surveying. Eric has been an active member of the Brecknock Bat Group since 1999 and been involved in a number of long running surveys within the county. He is a Countryside Council for Wales (CCW) licensed bat worker (licence no. 38508:OTH:CSAB:2012) and has extensive experience of roost inspections and emergence work. He has been a professional in the nature conservation field for twenty five years formerly working as Reserves Manager and Conservation Officer at Gwent Wildlife Trust and Woodland Manager for the Ruperra Conservation Trust. He is currently joint proprietor of Hawkeswood Ecology.
- 2.2 Assistant surveyor on the evening observations were Sue Price, Emma Adamson and Liam Jones. All observers have extensive experience of emergence and activity surveys having worked with Hawkeswood Ecology for a number of years. Sue is presently in training for her roost visitor licence.

3 METHODOLOGY AND CONSTRAINTS

Desktop Study

- 3.1 Consultations were undertaken with the South East Wales Biodiversity Records Centre (SEWBReC); records of bats and roof nesting birds within a 1 kilometre radius of the Fire Station were requested.

Phase 1 Habitat Survey

- 3.2 The Phase 1 Habitat Survey consisted of a walk-over survey of the proposed Site taking into account features within and adjacent to it. Habitats were categorised according to the Phase 1 Habitat Survey guidelines (JNCC, 1990) and annotated onto a map (Figure 1). Plant assemblages were described using the DAFOR scale of cover abundance (Appendix 1) and each habitat was recorded using Target notes (Appendix 2). A full list of species recorded is provided in Appendix 3.

Bats

- 3.3 The principal aim of the daytime inspection was to survey the main structures of the buildings for the presence of bats and their roost sites. An external examination was made of the design and structure of the buildings to assess the suitability for use by bats and for potential access points. Evidence such as bat droppings (faeces) or urine staining on windows, doors, walls or other surfaces was looked for.
- 3.4 The buildings were then inspected internally looking for potential roost sites, staining, droppings, feeding remains and bats.
- 3.5 The daytime inspection was carried out with the aid of close focusing binoculars, ladders and a 1,000,000 candlepower spot lamp.
- 3.6 Two evening observations were carried out. Anecdotal evidence this year (2014) suggests that fewer sightings are being made in dawn observations as conditions for bats have been good. With warm dry weather following a wet and warm spring, food items are plenty. This has resulted in bats returning early to the roost after successful evening foraging and on occasions not leaving to forage again in the morning. Certainly, Hawkeswood Ecology findings have reflected this and dawn observations have largely been abandoned this season to prevent skewed and unfavourable results being reported.
- 3.7 Evening observations involved four observers and covered all aspects of the building. Machines used were Echo Meter 3 Real Time Expansion units which continually record bat calls for later analysis. The location of the surveyors during the observations is shown in Figure 2.

Constraints

- 3.8 No constraints to the survey were noted.

4 DESK TOP STUDY FINDINGS

- 4.1 SEWBReC report only a small number of bat records from within the 1 kilometre search area. The closest record is of a common pipistrelle recovered from a house 80 metres distant. There are only a further five records, relating to pipistrelle species, noctule and an unidentified bat all from over 750 metres distant. All records relate to bats in houses or public buildings in Penarth.
- 4.2 Swift is the only roof nesting bird recorded in the search area, from a house 50 metres to the north.
- 4.3 SEWBReC data is confidential and cannot be released in to the public domain without prior permission in writing from SEWBReC. Hawkeswood Ecology holds the data on the clients' behalf for one year (in accordance with conditions) in case of further query.

5. FIELD SURVEY FINDINGS

Phase 1 Habitat Survey

- 5.1 The site consists virtually wholly of hard-standing (tarmac and concrete) and the Fire Station Buildings with amenity gardens principally consisting of formally mown lawn (Target Note 1) and shrubs (see Figure 1).
- 5.2 The Site is bounded by a beech hedge which is well maintained to a height of 1.5 - 2 metres by trimming (Target Note 2) There is a 'woody' area near the main entrance gate off Hazel Road (Target Note 3) which is dominated by laurel.

Bat Roost Daytime Assessment

- 5.3 The buildings on site consist of the fire station itself, housing the offices, dormitories and kitchens, tender garage and the training tower which stands aside from the building. The buildings date from around the 1960's with the dormitory possibly a more recent addition (Appendix 4 Photographs).
- 5.4 The Fire Station office and kitchen area is brick built with cavity walls and is fully rendered externally. It has a flat roof and is covered with roofing felt. The dormitory, to the east of the tender garage and is a brick built building with a profile metal roof cover. The tender garage is a large space between the offices and dormitory. It has metal profile walls, where exposed, and a metal roof.
- 5.5 The buildings were well maintained with extremely limited opportunities for bats. Generally, the UPVC soffits and bargeboards were tightly sealed. Gaps were noted only in two locations where brick columns passed through the soffits of the Office buildings (see Appendix 1, photographs).
- 5.6 Internally, ceiling tiles were lifted in the office block. The roof is supported by rafters approximately 40cm deep and 40 cm apart; these effectively block access along the roof space. No direct evidence of bats was found. The dormitory has a pitched roof but no loft space internally as it is of warm roof construction.
- 5.7 The training tower is a tall building with five 'floors' including the ground floor. It is brick built, apparently of solid brick. The roof is a concrete slab. There was no evident access to the tower as

the openings were grilled or sealed with metal doors. Two storage rooms on the ground floor showed limited access but no evidence of bats (i.e. droppings or animals) internally.

Observations

5.8 The dusk emergence observations took place on 22nd July and 28th August 2014. The conditions at the time of the observations are detailed below in Table 1:

Table 1: Weather conditions for dawn and dusk observations:

Date	Survey type	Times	Weather conditions
22nd July 2014	Evening emergence	21.10 - 22.30 (sunset 21.17)	25 -20°C, clear, dry, F1 SW breeze, good visibility.
28th August 2014	Evening emergence	19.55 - 21.20 (sunset 20.09)	17 - 17°C, 20% cloud. Force 3 W breeze, dry, good visibility.

5.9 During the first observation, no bats were recorded until 21.43 hours, some 26 minutes after sunset when a common pipistrelle flew into the rear of the Site from the housing to the rear. From that point on there was fairly constant foraging activity around the Station and adjacent houses by at least three animals.

5.10 At 22.11 a soprano pipistrelle appeared on the Site having commuted along Hazel Road, this animal was recorded only once. The only other species recorded was an overflying noctule bat. There did appear to be some commuting between the Site and the open space to the east. Bats were frequently seen commuting along Hazel Road to the housing.

5.11 On the second observation, common pipistrelle was recorded at 20.18, with the next sighting at 20.31. Common pipistrelle were recorded relatively infrequently throughout the observation, again foraging around the Station grounds, adjacent housing and along Hazel Road. The only other species recorded during this observation was a soprano pipistrelle, recorded on two occasions at 20.51 and 21.04.

5.12 No bat activity was associated with the Station buildings.

6. DISCUSSION

6.1 The Site principally supports hard-standing, buildings and amenity gardens. The dense beech hedge on the rear boundary of the Site may be used by common urban birds such as blackbird. The Site does not support any plant species of interest and the Site is considered to be of low ecological value.

6.2 The Site does not support roosting bats. Although well lit with artificial light, bats do use the grounds of the Station for foraging and the along with the adjacent gardens, the wider area may be of some value to bats for foraging purposes.

- 6.3 The Site does not fulfil any of the requirements for designation as a Site of Importance for Nature Conservation (SINC). This is a county level designation that must be taken into account during the planning process. The guidelines for SINC's have been produced in partnership between Local Authorities and the Wildlife Trusts. Neither does the Site offer any potential for protected species.
- 6.4 To summarise, in general the Site is considered to be of Low Ecological Value within the understanding of the BREEAM Technical Guide for Bespoke Buildings.
- 6.5 Further to the above, it is considered that a credit is available for **LE03: Ecological Value of Site and Protection of Ecological Features** as *'Where a suitably qualified ecologist is employed and has, using their professional judgement, defined the site as land of low ecological value, this assessment/judgement overrides any assessment determined using checklist'*. In this instance, although there are some small decorative trees and two semi mature birch trees that will be affected by the development, it is considered that their presence does not improve the low ecological value of the Site.

7 RELEVANT LEGISLATION AND POLICIES

Birds

- 7.1 Part I of the Wildlife and Countryside Act 1981 (as amended) makes it an offence (with certain limited exceptions and in the absence of a licence) intentionally to kill, injure or take any wild bird, or intentionally to damage, take or destroy its nest whilst being built or in use, or to take or destroy its eggs. Consequently, even common birds such as blackbirds or robins, and their nests and eggs are protected in this way. Any works involving removal or other management of trees or shrubs must be undertaken outside the breeding bird season (March- August).
- 7.2 Further, section 1(5) of Part 1 of the W&C Act states any person intentionally disturbing any wild bird included in Schedule 1 whilst it is building a nest or is in or near a nest containing eggs or young or disturbs the young of such a bird is committing an offence and liable to a special penalty.

Bats

- 7.3 British bats are protected under the Wildlife and Countryside Act 1981. Schedule 5 of this act made it illegal to intentionally kill, injure or take any British bat. It is also an offence to intentionally damage or destroy their place of rest (the roost).
- 7.4 Further all bat species are protected under Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora (The Habitats Directive) as amended which requires the United Kingdom government to provide bats with strict protection. Lesser horseshoe bats are also protected under Annex II of the Habitat Regulations which requires the national government to identify Special Areas of Conservation to protect and enhance core populations of Annex II species.
- 7.5 The Habitats Directive is transcribed into England and Wales Law by The Conservation of Habitats and Species Regulations 2010. This legislation states in Part 3, Protection of Species, paragraph 41(1) that a person who:
(a) deliberately captures, injures or kills any wild animal of a European protected species,

- (b) deliberately disturbs wild animals of any such species,
(c) deliberately takes or destroys the eggs of such an animal, or
(d) damages or destroys a breeding site or resting place of such an animal,
is committing an offence.
- 7.6 Further, with regard to disturbance of EPS, Paragraph 41(2) that disturbance is an act which is likely to:
- (a) to impair their ability—
(i) to survive, to breed or reproduce, or to rear or nurture their young, or
(ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
(b) to affect significantly the local distribution or abundance of the species to which they belong.
- 7.7 In the case of a development involving the loss or modification of a building which may affect bats the above legislation must be considered and it may be necessary to apply to the Welsh Assembly Government for a European Protected Species Licence EPSL.
- 7.8 The introduction of the Conservation of Habitats and Species Regulations 2010, has removed the defence of killing or injuring a protected species during a lawful operation, thus even in an instance where planning permission is granted, the presence of bats must be considered and mitigated for prior to commencement of works. Under the above regulations, a WAG licence can only be given if three tests are satisfied:
- The action proposed is in the interest of preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance to the environment;
 - That there is not a satisfactory alternative;
 - That the action proposed will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.
- 7.9 Failure to satisfy the regulations and obtain an EPSL where required is likely to result in prosecution and can lead to severe fines of up to £5000 per bat and possible imprisonment.
- 7.10 Eight species of bat are Listed under section 42 of the Natural Environment and Rural Communities Act (2006) (NERC) as Species of Principal Importance for Biological Conservation in Wales. This is a list of species considered at threat within Wales and in need of conservation management to maintain and enhance population numbers.
- 7.11 A duty is placed on the Local Authority by the Welsh Assembly Government to maintain and enhance populations of species listed in Section 42.

8 POTENTIAL ECOLOGICAL IMPACTS OF THE PROPOSED DEVELOPMENT

Habitats - Evaluation

- 8.1 The Site is dominated by hard-standing, buildings and amenity gardens; the habitats present are of low ecological value and typical of those found in the local area. The habitats on site are of **no significance** in a local or regional context

Habitats - Impact Characterisation and Assessment

- 8.2 The scheme will result in destruction or disturbance to the habitats present on site with the possible exception of the beech hedge to the rear boundary. The habitats on Site are of low ecological value and widely represented locally. It is therefore considered that the loss of the habitats on Site is of **no significance** in a local or regional context.

Protected species - Evaluation

- 8.3 The Site does not support protected species but the grounds form part of a wider area between the houses used by foraging bats, however, the site is relatively small and well lit at night. The beech hedge may be used by common breeding birds but is unlikely to form an important habitat for them owing to its location and frequent disturbance. The Site is considered to be of **no significance** to protected species.

Protected Species - Impact Characterisation and Assessment

- 8.4 The Station grounds are used along with the neighbouring gardens, by foraging bats and possibly by breeding birds. Assuming the recommendations set out in section 9 are implemented it is considered that there will be **no significant** impacts on protected species from the proposed development.

9 RECOMMENDATIONS

- 9.1 To achieve construction credits, BREEAM offers incentives to implement measures to protect and enhance the ecological value of a Site to be developed.
- 9.2 A pre-assessment of the Site targeted the following credits for the project in the Land Use and Ecology section:

Unit	Description	Pre-assessment Score
LE01	Re-use of land	1
LE03*	Ecological Value of Site and Protection of Ecological Features	1*
LE04	Mitigating Ecological Impact	2
LE05	Enhancing Site Ecology	1
LE06	Long term Impact on Biodiversity	1

* see paragraph 6.5 re LE03

LE 01: Re-use of Land

9.3 The development is taking place on previously developed land. **Credits achievable for LE01 - 1.**

LE03: Ecological Value of Site and Protection of Ecological Features

9.4 The development is taking place on an area of land that is of low ecological value; following survey it is considered that there are no ecological features of value present. **Credits achievable for LE3 - 1.**

LE04: Mitigating Ecological Impact

9.5 Further calculations and discussions with the Landscape architect will be necessary to properly assess this element of the scheme. The use of native species of local provenance will be used on site. Non native species may be used only where there is a proven benefit to wildlife. **Credits achievable for LE04 – to be determined.**

LE05: Enhancing Site Ecology

9.6 The survey and ecological report has been carried out by a qualified ecologist and reviewed by a 'Suitably Qualified ecologist'.

9.7 Recommended actions to increase the lifetime biodiversity of the structure are:

- Bat boxes should be fitted integrally to the eastern western elevations. Bat boxes will be Schwegler or 'Habibat' type. The boxes are suitable for use by smaller bat species such as pipistrelle which were recorded around the Site (see Figure 3);
- Shrub plantings will include native small standard rowan and fruit bearing Swedish whitebeam;
- The grass seed mix used for the turf should include a long season meadow mix from BTCV and appropriate management (mowing once or twice annually) should be employed in accordance with the seed supplier instructions.

9.8 Assuming the above recommendations are employed the **Credits achievable for LE05 – minimum of 1.**

LE06: Long Term Impact on Biodiversity

9.9 Appointment of a SQE and production of a biodiversity management plan. **Credits achievable for LE6 –1.**

10 CONCLUSIONS

10.1 The Site presently dominated by buildings and hard standing with formally managed amenity gardens.

10.2 With respect to BREEAM, it is considered the agreed credits in the 'very good' pre-assessment are achievable if the proposed recommendations are employed subject to discussions with the Ecologist and Landscape Architect.

- 10.3 Further it is considered that the project can attract a credit for LE03: Ecological Value of Site and Protection of Ecological Features for the reasons given in paragraph 6.5.
- 10.4 There are no noted conservation constraints to prevent the development of the Site as proposed.

11 BIBLIOGRAPHY

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**FIGURE 1:
PHASE 1 HABITAT MAP**

FIGURE 2:
LOCATION OF OBSERVERS DURING BAT EMERGENCE OBSERVATIONS

FIGURE 3
TYPICAL BAT BOXES



Left: Habitat Box



Right: Schwegler 1WQ
summer/winter box

APPENDIX 1
DAFOR SCALE OF COVER ABUNDANCE

The DAFOR scale is used as a simple measure of cover abundance for individual plant species within a habitat. The scale is as follows:

- D Dominant
- A Abundant
- F Frequent
- O Occasional
- R Rare
- (L Locally – sometimes used as a prefix to the above)

APPENDIX 2
PHASE 1 HABITAT SURVEY TARGET NOTES

1. Amenity areas dominated by mown grass and shrubbery's; species present are:

Species	Frequency
Ash	O
Common bent	F
Creeping buttercup	LF
Creeping cinquefoil	O
Cut leaved cranesbill	LF
Daisy	F
Dandelion	O
Herb robert	O
Perrenial rye-grass	A
<i>Poa</i> sp	A
Self-heal	LF
Silver birch	O
Sun spurge	R
Wall barely	O
Yarrow	LF
Yorkshire fog	F

2. Beech hedge to rear boundary of Station grounds. Trimmed to 1.5 - 2 metres; beech is abundant with locally frequent ash; hedge bindweed is locally abundant.
3. Small area dominated by laurel with a semi-mature ash. Heavily shaded ground flora with much bare ground. Species present are:

Species	Frequency
Ash	O
False oat-grass	R
Ivy	A
Laurel	F
Wood avens	O

APPENDIX 3
LIST OF SPECIES RECORDED IN THE SURVEY

<i>Common Name</i>	<i>Scientific Name</i>
Ash	<i>Fraxinus excelsior</i>
Beech	<i>Fagus sylvatica</i>
Common bent	<i>Agrostis capillaris</i>
Creeping buttercup	<i>Ranunculus repens</i>
Creeping cinquefoil	<i>Potentilla reptans</i>
Cut leaved cranesbill	<i>Geranium dissectum</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i> agg
False oat-grass	<i>Arrhenatherum elatius</i>
Hedge bindweed	<i>Calystegia sepium</i>
Herb robert	<i>Geranium robertianum</i>
Ivy	<i>Hedera helix</i>
Laurel	<i>Prunus laurocerasus</i>
Perennial rye-grass	<i>Lolium perenne</i>
Grass	<i>Poa</i> sp
Self-heal	<i>Prunella vulgaris</i>
Silver birch	<i>Betula pendula</i>
Sun spurge	<i>Euphorbia helioscopia</i>
Wall barely	<i>Hordeum murinum</i>
Wood avens	<i>Geum urbanum</i>
Yarrow	<i>Achillea millefolium</i>
Yorkshire fog	<i>Holcus lanatus</i>

**APPENDIX 4
PHOTOGRAPHS**

Bat Survey and Observations: Phase 1 Habitat Survey, Penarth Fire Station,
Hawkeswood Ecology – October 2014



The Office from Hazel Road, potential access for bats arrowed.



Dormitory building



The rear of the tender appliance garage and office



The front of the tender appliance garage



Amenity gardens showing the two silver birch



Rear of Station, showing beech hedge

Bat Survey and Observations: Phase 1 Habitat Survey, Penarth Fire Station.
Hawkeswood Ecology – October 2014



Formally maintained frontage of Station



The area of laurel at the Site frontage

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Hawkeswood Ecology is an Ecological Consultancy working in Wales offering a wide range of expertise in ecological assessment for a broad range of clients.

