

ANDERSON & ASSOCIATES SOUTH WALES (LTD)

LAND WEST OF PRIMROSE COTTAGE, PENLLYN

ECOLOGICAL APPRAISAL REPORT

03 July 2014



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SUMMARY

Soltys Brewster Ecology were commissioned to undertake an ecological appraisal of a parcel of land at Penllyn in the Vale of Glamorgan. The site is proposed for the development of a new residential dwelling and an ecological appraisal was undertaken to inform any ecological constraints/ opportunities associated with the proposed works.

The land within the site boundary was dominated by dense bramble scrub and tall ruderals. The field boundaries comprised species-poor hedgerows and a low stone wall to the east, with an earth and stone bank associated with both the southern and western boundaries. The range and extent of habitats on the site was reflected in the limited potential to support protected or notable fauna. The surrounding landscape consisted of arable land and residential houses with their respective gardens.

In terms of development potential, the dense overgrown scrub habitat was considered of little or no ecological interest and represents the most suitable part of the site for development. The three mature trees associated with the southern site boundary were considered of ecological interest in the context of the site and are likely to provide resources for nesting birds and foraging/commuting bats locally. These trees are to be retained throughout development works.

A single tree on the southern boundary, immediately west of the wooden gateway, was found to support features of limited potential value to roosting bats. This tree is to be retained although should any management works be proposed (pruning etc.) further consideration of nesting birds and bats would be recommended ('reasonable avoidance measures') such as timing of works in autumn or winter and lowering of felled limbs to ground prior to removal from site.

Other considerations include the avoidance of the bird nesting season (March to August) for any clearance of bramble scrub or woody vegetation and the design of site lighting to minimise increased illumination along the retained hedgerow boundaries as far as practical. Based on the availability of potentially suitable habitat over much of the development site, a survey to establish the presence/absence of common reptiles would be recommended prior to commencement of development. The site is largely isolated within the surrounding agricultural/residential area although the presence of a small population of Slow Worm or Common Lizard could not be precluded. Surveys and mitigation (if required) could be programmed between April and September.

1.0 INTRODUCTION

- 1.1. Soltys Brewster Ecology were commissioned to undertake an ecological appraisal of a small parcel of land located at Penllyn in the Vale of Glamorgan, which is proposed for the development of a new residential dwelling (see Appendix I for Proposed Site Plan). The site is located at grid reference SS 97271 76214 and is surrounded by arable land and residential houses with their respective gardens.
- 1.2. This report presents the findings of an ecological appraisal of the site undertaken in June 2014 and outlines the ecological constraints/opportunities associated with the development.

2.0 METHODOLOGY

- 2.1. In order to establish the baseline ecological conditions on site and in the adjoining habitats a site walkover survey was undertaken in June 2014.
- 2.2. The fieldwork was undertaken by a suitably qualified ecologist on 20th June 2014 and incorporated all the land within the proposed development boundary and areas immediately adjacent to it. All habitats within the proposed development boundary were classified, mapped and described by means of Target Notes and any considered to have potential to support rare, protected or otherwise notable species of flora and fauna were noted, as were any direct signs of these species (e.g. Badger *Meles meles* setts and dung-pits).
- 2.3. A subjective assessment of the trees potential to support roosting bats was also undertaken with trees assigned to a category based on those described in the Bat Conservation Trust (2012) Bat Surveys- Good Practice Guidelines. Trees were categorised as follows:
- Category 1* - Trees with multiple, highly suitable features capable of supporting larger roosts.
 - Category 1 - Trees with definite bat potential, but fewer suitable features than Category 1* trees.
 - Category 2 – Trees which supports features of limited potential to support bats, or trees with no obvious potential although of a size and age where elevated surveys may reveal cracks/ crevices.
 - Category 3 – Trees with no potential to support bats.

3.0 RESULTS

Site Appraisal

3.1. The site was found to consist of a single field dominated by dense bramble scrub and tall ruderals, standing up to 2m high with a concrete driveway leading to the wooden gate access point. The field boundaries comprise species-poor hedgerows and a low stone wall to the east with three mature trees associated with the southern hedgerow. Due to the largely inaccessible nature of the dense Bramble at the site, the survey was undertaken from the margins of the site (within the application boundary). In these areas, some selective clearance of Bramble had been undertaken to permit access for the topographical survey and this same corridor was used by the ecologist. Uniform dense Bramble scrub was present over most of the site and the limited access was not considered as a particular constraint in terms of Phase I habitat mapping. A habitat map and associated target notes are displayed in Appendix II with summary descriptions in the following sections.

Dense Scrub and Tall Ruderals

3.2. The overgrown, dense scrub dominating the site was found to be of limited diversity and supported species such as Bramble *Rubus fruticosus*, Common Nettle *Urtica dioica*, Field Bindweed *Convolvulus arvensis*, Great Willowherb *Epilobium hirsutum* and Common Hogweed *Heracleum sphondylium* (Plate 1 & Front Cover, Target Note 2).

Hedgerows

3.3. The site boundaries comprised a combination of species-poor defunct and intact hedgerows. The hedgerows lying to the south of the field boundary and west of the site were unmanaged and lay atop an earth and stone bank (Plate 2, Target Note H2 and H3). The northern site boundary was not an obviously defined hedgerow; the majority of which appeared to be an extension of the dense scrub with a 3m clearing towards the middle section (Plate 3, Target Note H4). The main hedgerow elements included Elder *Sambucus nigra*, Ash *Fraxinus excelsior*, Cherry Laurel *Prunus laurocerasus*, Hawthorn *Crataegus monogyna* and Blackthorn *Prunus spinosa*. Ground flora included species such as Herb Robert *Geranium robertianum*, Hart's Tongue *Asplenium scolopendrium* and mosses as ground cover.

Plate 1. Dense Scrub and Tall Ruderals (Target Note 2)



Plate 2. Southern boundary hedgerow atop an earth and stone bank (Target Note H2)



Plate 3. Northern boundary hedgerow with 3m clearing**Trees**

- 3.4. Three mature trees including Ash and Sycamore *Acer pseudoplatanus* were associated with the southern field boundary (Plate 4, Target Note H2).

Plate 3. Sycamore tree to the west of the southern field boundary (Target Note H2)*Fauna*

3.4. In the course of the survey, a search of field signs for protected or notable species was undertaken and the potential of the habitats to support these species considered. In the context of this report, these species meet any of the following criteria:

- Species protected by British or international law;
- UK BAP Priority Species or LBAP species;
- Nationally rare or nationally scarce species;
- Species of Conservation Concern (e.g. JNCC Red List, RSPB/BTO Red or Amber Lists);

Bats

3.5. The Ash tree immediately west of the wooden gateway on the southern boundary (see Target Note 3) was found to support features of limited potential value to roosting bats and was classified as Category 2 (Plate 4, Target Note A*). The two remaining trees were classified as Category 3 (negligible potential to support roosting bats). The hedgerow boundaries trees also offer foraging and commuting habitat for local bats.

Plate 4. Heavily Ivy clad Ash Tree potentially suitable to support roosting bats - Category 2 Tree (Target Note A*)



Birds

- 3.6. The dense bramble scrub dominating the field and hedgerow boundaries are habitats that offer potential nesting and foraging habitat for local birds. Common Whitethroat *Sylvia communis*, Common Blackbird *Turdus merula* and Coal Tit *Periparus ater* were noted during the site visit.
- 3.7. Although none of bird species observed would be considered to be particularly rare or endangered, the Common Whitethroat is included on both the Amber List of species of Conservation Concern in the UK (Eaton *et al.* 2009) and the Amber list in Wales (Johnstone *et al.*, 2011) with Coal Tit also appearing on the Amber list in Wales (Johnstone *et al.*, 2011).

Reptiles

- 3.8. The dominant presence of dense scrub habitat on site, and piles of cut branches and grass cuttings along the southern site boundary suggests potential suitable habitat to support common reptile species such as Grass Snake *Natrix natrix* or Slow Worm *Anguis fragilis*. However, the site is effectively isolated within an agricultural/residential area and the presence of anything other than small numbers/individual reptiles was very unlikely.

4.0 CONCLUSIONS AND RECOMMENDATIONS

- 4.1 The field survey undertaken at the site identified a limited range of habitat types including dense bramble scrub with tall ruderals, hard standing and species-poor hedgerows. The area of dense scrub on site was considered to be of limited ecological interest and the proposed development is to be located within these areas (see proposed site plan in Appendix I).
- 4.2 The trees to the south of the site are likely to function as locally important foraging, sheltering and commuting habitat for bats, birds and other species. It is therefore recommended that these trees and associated hedgerows are retained in order to maintain existing habitat connectivity in the area and that they are used to frame the development footprint.
- 4.3 A single tree on the southern boundary was noted as having limited potential to support roosting bats. This tree will not be affected by the proposed works although in the event that pruning was needed, further consideration of nesting birds and bats would be recommended. The tree was classed as of Category 2 potential for roosting bats and, whilst dedicated bat surveys would not be required, best practice guidelines (Bat Conservation Trust 2012) identify that reasonable avoidance measures – such as timing of works in autumn/winter and lowering cut limbs to the ground prior to removal – would be appropriate. For any tree works, operatives should be advised of the low risk that bats could be present and, in the unlikely event that a bat were discovered, all work should cease and advice sought from Natural Resources Wales (NRW) or the local authority ecologist.
- 4.4 Any proposed site lighting should be designed/ oriented to minimise increased illumination of the retained boundary vegetation (including trees) in consideration of their likely function as wildlife corridors, and both bird and bat foraging and commuting habitats. Further advice on lighting and bats is included in Appendix III.
- 4.5 Other considerations for development of the site would include avoidance of the bird nesting season (March to August inclusive) for clearance of bramble scrub or woody vegetation. Any clearance within the nesting season should be preceded by a thorough check for the presence of nesting birds.

Reptiles

- 4.6 All common species of reptile are protected against killing or injury under Schedule 5 (sections 9(1) and 9(5)) of the Wildlife and Countryside Act 1981 (as amended). The habitat within the application boundary could potentially support small numbers of common reptiles and a survey to establish likely presence/absence would be recommended prior to commencement of development works. As indicated in Section 3, the site is

isolated within an agricultural/residential area and the presence of anything other than individual or small numbers of reptiles was considered unlikely.

- 4.7 Given the scope of the development proposal, the option of retaining reptiles on-site during construction and operation of the scheme is considered unlikely. In the first instance, a survey to establish the likely presence/absence of reptiles at the site would be recommended with the findings used to inform the requirement (if any) for mitigation measures. If reptiles were found to be present, it is likely that mitigation would involve a capture/transfer exercise (translocation) to an off-site location agreed with the local authority. In the event that reptiles were found to be present at the application site, mitigation could involve a phased vegetation clearance to encourage animals to move off-site to the west with a trapping/transfer exercise undertaken to remove any remaining animals.
- 4.8 No works should be undertaken until a strategy for protecting the reptile population has been identified and agreed with the local authority. As general guidance, capture and transfer of reptiles can only be undertaken between April and September inclusive.

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Bat Conservation Trust (2012) *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London.

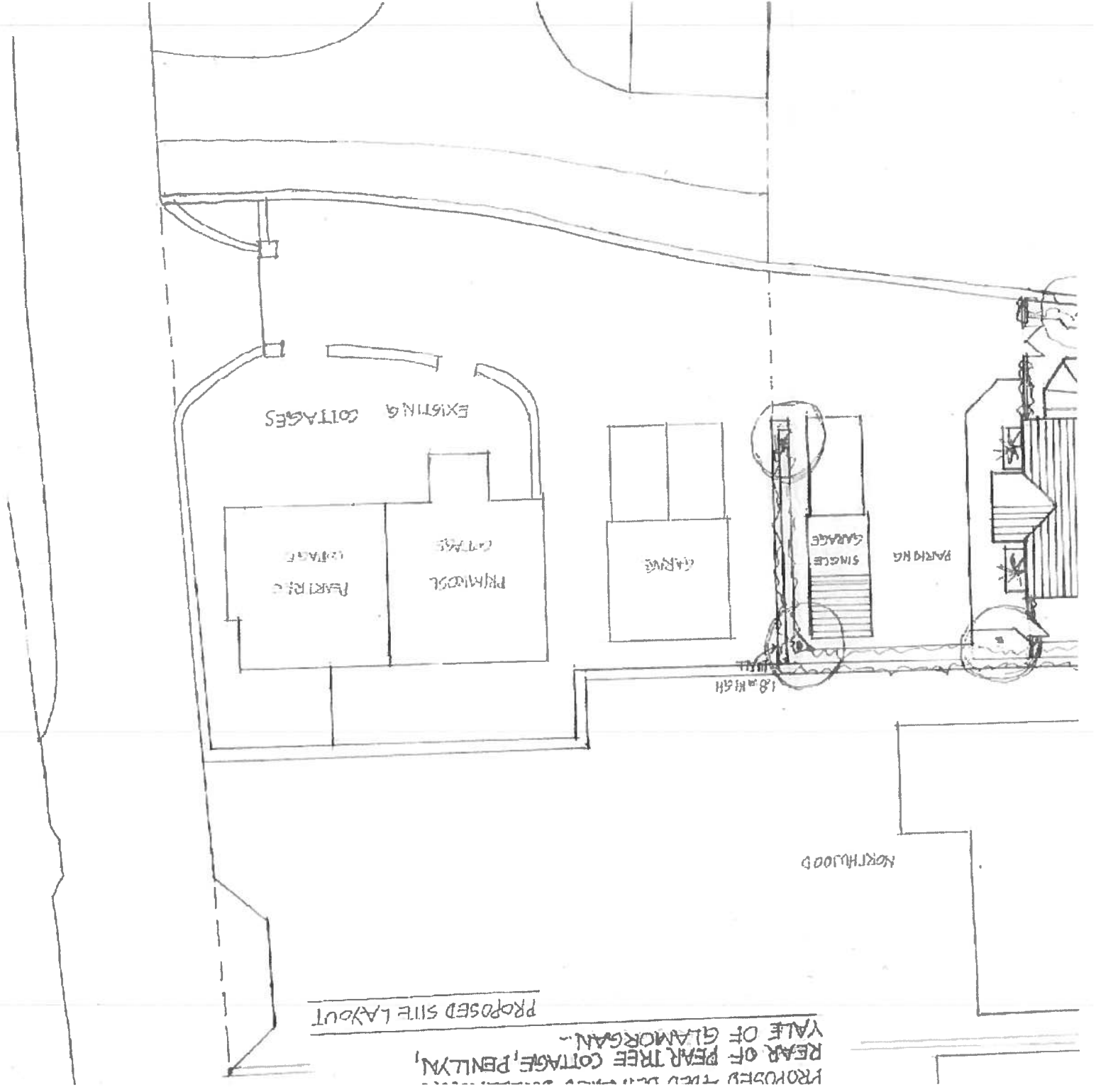
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APPENDIX I PROPOSED SITE PLAN



PROPOSED SITE LAYOUT
 REAR OF PEAR TREE COTTAGE, PENLLYN,
 VALE OF GLAMORGAN -

APPENDIX II HABITAT PLAN AND TARGET NOTES



35

HWOOD

Carolside

Dom-da
Cottage

Ald Mill Barn



- Key:**
- Species-poor Intact Hedgerow
 - Species-poor Defunct Hedgerow
 - Stone Wall
 - Fence
 - Dense Scrub
 - Target Note
 - Bat Potential Tree
 - Hedgerow Number
 - Wooden Fence

client/project
Anderson & Associates Ltd
Penllyn, Vale Of Glamorgan

drawing
Figure 1.
Habitat Map

drawing no. E1454301/001

revision * NTS @ A3

scale AO

drawn AO

date July 2014

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TARGET NOTES TO ACCOMPANY PHASE 1 HABITAT SURVEY MAP

Target Note	Description/ comment
<i>Bird Species Heard/Seen:</i> Blackbird, Coal Tit and Whitethroat.	
1	Stone wall entrance leading onto a hard standing, concrete driveway.
2	Overgrown, single field dominated by dense bramble scrub and tall ruderals standing approximately 2m high. The ground base to the east of the field is predominantly comprised of broken and cut branches. Species present include Bramble, Common Nettle, Field Bindweed, Great Willowherb, Common Hogweed, Meadow Buttercup, Creeping Thistle, Broadleaved Dock, Hart's tongue, Hedge Woundwort and Rough Meadow Grass.
3	Area of mown grass cuttings within approximately 1m wide gap in the eastern corner of the southern field boundary hedgerow.
4	Pile of cut branches and scrub lying within approximately 1.5m wide gap near the western corner of the southern boundary hedgerow.
5	A small clearing in hedgerow three (H3) approximately 3m wide to the east of a section dominated by Elder.
6	Area of Elder, Bramble and Lilac approximately 3.5m high lies adjacent to the stone wall and resident garage. Beneath the canopy lie old wooden fence posts, a wooden chest of drawers and small pieces of rubbish.
7	Eastern site boundary comprises a low stone wall approximately 0.5m high and two stone pillars either side of a wooden gateway.
8	Arable land adjacent to western site boundary.
9	Gardens associated with the residential houses to the north and south of the site boundary.
H1	Intact, species-poor hedgerow with signs of past management, ranging from 2-3m high and 0.5-2.5m wide. Species present include Ornamental shrub sp., Ash, Cleavers, Common Nettle, Bramble, Ivy, Bay Laurel, Hawthorn, Orchard apple, Leylandii, Elder and Cherry Laurel. Ground species includes Herb Robert, Hart's Tongue, Common Forget-Me-Knot, Green Alkanet, Daisy and Common Polypody.
H2	Intact, unmanaged, species-poor hedgerow approximately 3.5-4m high, standing on an earth and stone bank approximately 0.5-0.75m high. Cherry Laurel is dominant. Very little ground flora due to the abundance of tall ruderals such as common nettle. Three mature trees are associated with the hedgerow. Two mature Ash trees lie near the wooden gateway towards the eastern site boundary and a mature Sycamore tree lies near the south west corner. Species present include Elder, Ash, Bramble, Common Nettle, Cherry Laurel and Sycamore. Bank species includes Bryophyta sp., Lords and Ladies and Ivy.
H3	Defunct, unmanaged species-poor hedgerow approximately 2-2.5m high, standing on an earth and stone bank approximately 0.5-0.75m high. Hawthorn and Blackthorn are dominant. A barbed wire fence lies to the west of the hedgerow. Species present include Hawthorn, Blackthorn, Sycamore, Hedge

APPENDIX III ADVICE SHEET ON THE USE OF STREET LIGHTING AND BATS

The following advice in relation to residential lighting where bats may be an on-site or influencing factor is based up on information contained within an article by Emery (2008) and available via Urbis lighting (<http://www.urbislighting.co.uk/>).

Firstly in terms of light source, the use of Low Pressure Sodium (SOX) is recommended, as these lamps emit light at a single wavelength with a very low amount of UV meaning that very few insects are attracted to this light source. This light also has a minimal effect on the bats. However, the use of these light sources is currently being phased out.

Next best would be High Pressure Sodium (SON) as these lamps emit light over a slightly broader wavelength spectrum attracting more insects but as these are a more intense light source they have a greater effect on bats. There are ranges of metal halide lamps available and they are classed as white light sources, these emit light at wavelengths across the colour spectrum but can also emit high levels of UV. These can attract large numbers of insects and are also a closer match daylight meaning these have an even greater impact on bats (avoid these types).

The lighting types recommended would be 8m Column heights (rather than 10m - however, see notes below) using (in order of preference) external rear louvres, or internal rear louvres, or 120mm rear shields. Either flat or curved glass protectors may be used with the former being preferred, as light spillage is marginally less than curved. However, there may be conflicts with using some louvres (plus, spacing will be reduced and so more lighting columns may be required, therefore increasing costs).

Units may be obtained from numerous suppliers, as the above-mentioned items are standard items. However, talking to Matt Emery from Urbis Lighting with regards to bats is recommended. He is a lighting engineer firstly with an interest in bats and how light influences their behaviour and this information is also recommended by the Institute of Lighting Engineers (ILE) <http://www.ile.org.uk/>.

FURTHER NOTES

Lower Mounting Height

This option is easily implemented and would generally result in a reduced column cost.

In comparison studies between 10m and 8m column heights, the overall spread of light has been reduced by lowering the column height, however due to the lower mounting height the intensity of the light on the road has been increased with the higher illuminance values spreading further. This option reduces the column spacing by 20% resulting in more columns being required thereby neutralising the benefit of the lower unit costs.

Louvres - External

External louvres are used with a flat protector so there is no spacing constraint from the optic. As with the shields mentioned below, these are externally mounted so there are increased stresses on the supporting columns and brackets from additional wind loading. As with the internal louvres (see below) an additional unit cost will incur.

In comparative studies, the external louvre almost completely blocks all the light emitted behind the units. However, this does have a greater effect on the column spacing achievable as large amounts of light are being blocked. Excellent for light sensitive species of bats (i.e. *Myotis sp.*). Urbis therefore recommends the use of its ZX2 and ZX3 product designs that have been proven to reduce light on a road scheme in the Sirhowey Valley, Caerphilly.

Louvres - Internal

Internal louvres are not available with a flat protector due to the limited space available inside the optic. Louvres are a specially designed accessory with each one requiring testing resulting in higher additional costs per unit than any of the other options described here.

In comparative studies, the internal rear louvre greatly reduces the spread of light behind the units. However it does reduce the column spacing achievable, this is because the louvre is blocking the light emitted from the optic making the luminaire less efficient.

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7	Eastern site boundary comprises a low stone wall approximately 0.5m high and two stone pillars either side of a wooden gateway.
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	Bindweed, Common Nettle, Bramble, Elder and Cleavers. Bank species includes Bryophyta sp., Lords and Ladies and Ivy.
H4	Not an obviously defined, species-poor hedgerow; the majority of which appears to be an extension of the scrub within the field described in target note 2. Species present include Bramble, Common Nettle, Field Bindweed, Great Willowherb, Hogweed, Creeping Thistle, Broadleaved Dock, Hart's tongue, Rough Meadow Grass, Bracken, Elder, Cleavers, Hawthorn, Sycamore and Wych Elm.
A*	Heavily Ivy clad mature Ash with limited potential to support bats. Unable to fully assess - caveat survey. Classified as Category 2.

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The lighting types recommended would be 8m Column heights (rather than 10m - however, see notes below) using (in order of preference) external rear louvres, or internal rear louvres, or 120mm rear shields. Either flat or curved glass protectors may be used with the former being preferred, as light spillage is marginally less than curved. However, there may be conflicts with using some louvres (plus, spacing will be reduced and so more lighting columns may be required, therefore increasing costs).

Units may be obtained from numerous suppliers, as the above-mentioned items are standard items. However, talking to Matt Emery from Urbis Lighting with regards to bats is recommended. He is a lighting engineer firstly with an interest in bats and how light influences their behaviour and this information is also recommended by the Institute of Lighting Engineers (ILE) <http://www.ile.org.uk/>.

FURTHER NOTES

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This option is easily implemented and would generally result in a reduced column cost.

In comparison studies between 10m and 8m column heights, the overall spread of light has been reduced by lowering the column height, however due to the lower mounting height the intensity of the light on the road has been increased with the higher illuminance values spreading further. This option reduces the column spacing by 20% resulting in more columns being required thereby neutralising the benefit of the lower unit costs.

Louvres - External

External louvres are used with a flat protector so there is no spacing constraint from the optic. As with the shields mentioned below, these are externally mounted so there are increased stresses on the supporting columns and brackets from additional wind loading. As with the internal louvres (see below) an additional unit cost will incur.

In comparative studies, the external louvre almost completely blocks all the light emitted behind the units. However, this does have a greater effect on the column spacing achievable as large amounts of light are being blocked. Excellent for light sensitive species of bats (i.e. *Myotis sp.*). Urbis therefore recommends the use of its ZX2 and ZX3 product designs that have been proven to reduce light on a road scheme in the Sirhowey Valley, Caerphilly.

Louvres - Internal

Internal louvres are not available with a flat protector due to the limited space available inside the optic. Louvres are a specially designed accessory with each one requiring testing resulting in higher additional costs per unit than any of the other options described here.

In comparative studies, the internal rear louvre greatly reduces the spread of light behind the units. However it does reduce the column spacing achievable, this is because the louvre is blocking the light emitted from the optic making the luminaire less efficient.

Rear Shield

Shields are becoming more widely available on a range of luminaires but as they are an accessory they incur an extra cost per luminaire. The longer the length of the shield the more effective it is, however the increased surface area causes greater stresses on the supporting column and bracket due to wind loading.

In comparative studies, the shield has helped reduce the spread of light behind the lighting column by almost 40%. However, the column spacing is reduced by 20% resulting in the possibility of more columns being required and also there is an increased unit cost for the accessory.

Using Flat Glass Protectors

The majority of Traffic Route luminaires are available with a flat glass protector option, so this method of limiting light emitted at high angles is easily available at little or no extra cost on unit prices. However the range of protectors typically used on traffic route lighting include curved bowls due to their less restrictive light distribution.

In comparison studies results show that there is little effect on the spread of light when a flat protector is used to light roads. This is due to the decreased column spacing required to still achieve the required lighting specification on the road increasing the intensity of the light in the area. The decrease in column spacing will also mean that extra columns could be required on longer stretches of road increasing costs.

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Bat Conservation Trust. (2008). *Bats and Lighting in the UK; Version 2, January 2008*. <http://www.bats.org.uk/>

Emery, M. (2008). *Effect of Street Lighting on Bats*. Urbis Lighting Ltd., 2 January 2008. <http://www.urbislighting.com/>