

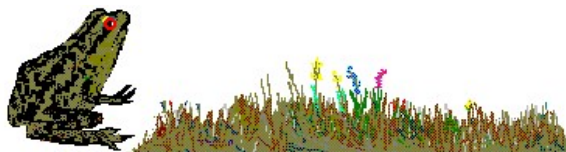


P/19/0228
Residential Development
at Collier's Row,
Heol Gerrig, Merthyr Tydfil

LANDSCAPE
MASTER PLAN
Revision 4

Document issued: 5th December 2020

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REVISION RECORD	DATE	
Landscape Master Plan completed	28/5/20	RDP
Proof read	1/6/20	KAP
LMP issued to client	1/6/20	RDP
LMP Revision 1 completed and issued to client	8/10/20	RDP
LMP Revision 2 (details of reptile mitigation proposals added). Re-issue document to client	10/11/20	RDP
LMP Revision 3 (replace "for the foreseeable future" with "for a period of five years" at paragraphs 1.7 and 7.3 as requested by the MTCBC Ecologist). Re-issue document to client	27/11/20	RDP
LMP Revision 4 Add "for a period of five years" at paragraphs 13 as requested by the MTCBC case officer). Re-issue document to client	5/12/20	RDP

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1. INTRODUCTION

- 1.1. Pryce Consultant Ecologists was commissioned in July 2019 to carry out a Preliminary Ecological Appraisal (PEA) of land at Colliers Row, Heol Gerrig, Merthyr Tydfil, on which Maxiom Ltd, as developer, was seeking planning permission to carry out a small residential development (application no. P/19/0228). Subsequent to the submission of the PEA in support of the application to Merthyr Tydfil County Borough Council acting in its role as Local Planning Authority (LPA) and the subsequent granting of outline planning permission for the scheme, the developer wishes to bring forward the development of one of the housing plots, Plot 4, in advance of the remainder of the site, the application being registered as application no. P/20/0074. As a consequence, the LPA requires that a Landscape and Ecological Management Plan (LEMP) is produced in support of the detailed application for Plot 4 but in order to inform the Plot 4 LEMP and to ensure that it forms part of an overall landscape strategy, the LPA has also requested that a Landscape Master Plan applicable to the whole site be submitted. The present document addresses the request for a whole-site Landscape Master Plan.

The outline consent is for the construction of eight detached units occupying eight individual plots as shown on figure MP1 and is centred at OS grid reference SO 0391 0625.

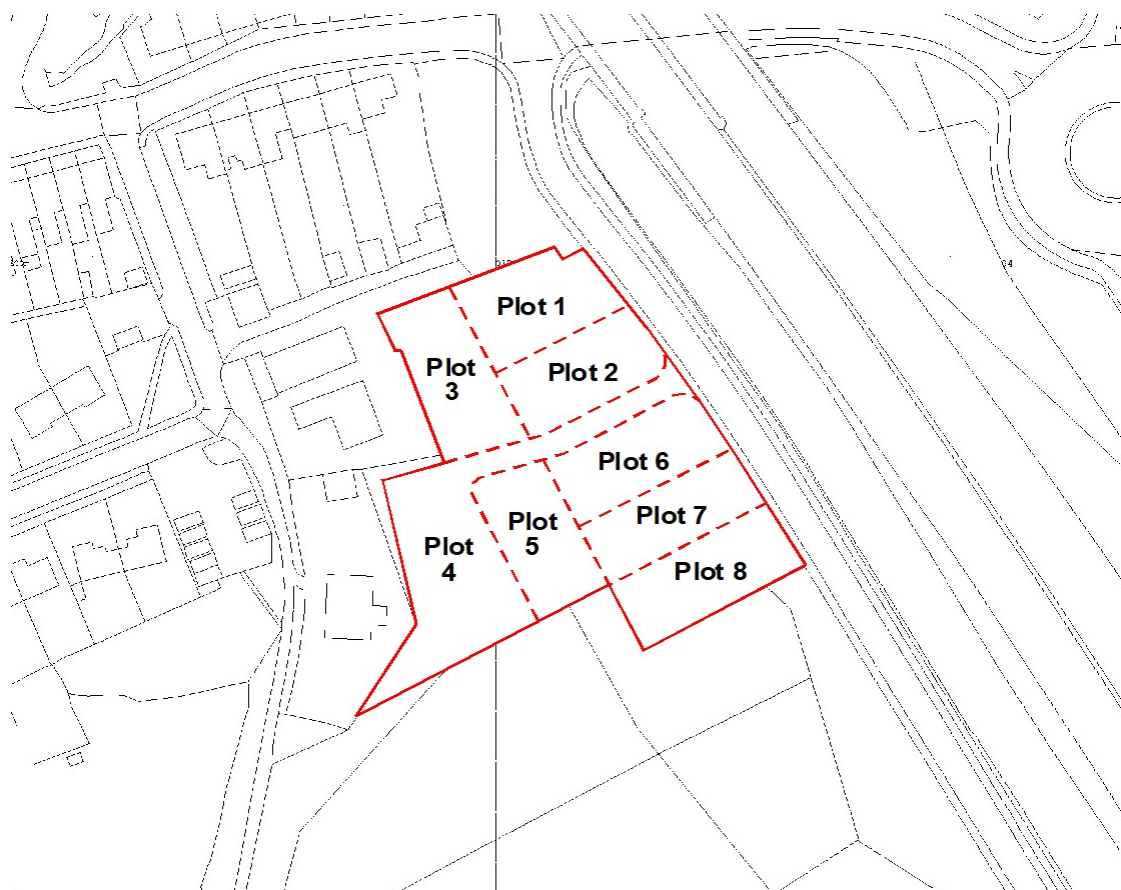


Figure MP1

Extent and Location of Development Site including layout of Plots (numbered)

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1.2. The summary of the *Preliminary Ecological Appraisal* which relates to the whole site is copied below.

1. Pryce Consultant Ecologists was commissioned in July 2019 to carry out a Preliminary Ecological Appraisal (PEA) of land at Colliers Row, Heol Gerrig, Merthyr Tydfil on which Maxiom Ltd is seeking planning permission to carry out a small residential development. The land which is the subject of this PEA is centred at OS grid ref. SO 0391 0625 and comprises of the survey site (outlined in blue on Figures 1 - 3) [of the PEA], within which is the application site (outlined in red) [of the PEA].
2. The site is currently mainly occupied by planted woodland and colonising scrub with adjacent horse-grazed, rather sparse grassland, all established on regraded colliery spoil. These are all secondary habitats which have become established since the c.1990s and, although capable of supporting nesting birds and other fauna, cannot be considered to be any more than of local significance.
3. The Merthyr Council Ecologist & Countryside Officer – Planning and Countryside has been consulted and commented as follows.

“The possible ecological issues on the site are likely to include (but not be limited to): bats roosting in trees and/or foraging and commuting across the site, nesting birds, reptiles, west European hedgehog.”
4. The South-East Wales Biodiversity Records Centre (SEWBRc) was consulted to procure existing site and species information from within a radius of 2km of the survey site. No protected or significant sites designated for their ecological interest are located within the survey site. The locations of such sites within the 2km area of search are shown on the SEWBRc maps reproduced at appendix 8 [of the PEA]. No such sites will be impacted by the proposed development. Records of protected species and species of conservation concern have been summarized at Tables 2.1 – 2.5 [of the PEA].
5. The present survey [the PEA] and SEWBRc data indicate that the most significant impacts from the proposed development are likely to be limited to the potential for disturbance to **bats** (which are European Protected Species), **reptiles**, **terrestrial-phase amphibians** and **nesting birds** (which are protected to varying degrees by the Wildlife and Countryside Act 1981) and **Hedgehog** (a *Species of Principal Importance* listed under section 7 of the Environment (Wales) Act 2016. **Great Crested Newts** are known from the area but it is judged that, as the nearest recorded breeding ponds are greater than 500m distant from the survey site, the proposed development will not significantly impact this species.

The young age and generally etiolated conformation of most trees within the site present no, or only very limited potential for harbouring roosting bats. Furthermore, habitat with potential to attract reptiles and terrestrial-phase amphibians is judged to be limited to the edge habitat between the planted woodland and sparse grassland as shown on figure 3 [of the PEA]. There is also potential for Hedgehogs to seek refuge in this edge habitat.
6. The development of the site will result in the loss of cover, potential bird nesting sites, bird territories, faunal foraging resources and commuting routes for bats and other fauna within the application site but this loss is of low significance when viewed in the context of the extent of similar existing habitats that will remain in the vicinity.

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7. Three plant species of County Borough Importance were recorded during the survey. Only a single plant of one of these species, Spiked Sedge, is located within the application site and will need to be disturbed by the proposed development. It is proposed, at the commencement of the site clearance operation, to translocate this plant to a nearby safe site.
8. No other protected or significant species will be impacted by the development.
9. With the exception of a single small bush of possible Hollyberry Cotoneaster, no **Invasive Non-Native Species** will be disturbed during the development of the site. No Japanese Knotweed was observed within the survey site during the survey.
10. It is recommended that habitat piles constructed from arisings from tree and rank vegetation clearance work are constructed to provide potential refuges for fauna such as reptiles, amphibians and Hedgehogs. Hibernacula should also be constructed from any surplus rubble.
11. **Timing of Works.** Site operations should be carried out bearing due regard to the requirements of all flora and fauna, at the appropriate times of year, in order to comply with current legislation and best practice (see appendix 7). All vegetation clearance should be commenced outside the bird breeding season (March to August inclusive) and preferably during mid-September to the end of October to avoid disturbance to hibernating animals such as bats, reptiles and amphibians. If it is unavoidable that vegetation clearance commences within the nesting season, immediately prior to the commencement of such works, areas to be cleared must be examined by a qualified ornithologist. The commencement of the clearance work will only be permitted if the ornithologist judges that the area does not support any nests. Failure to protect active nests is in breach of current legislation and could result in prosecution.
A suitable timetable for works should be designed to comply with all ecological constraints and requirements.
12. **Mitigation** of habitat loss may be achieved by the provision of bird nesting and bat roost features in the fabric of houses to be constructed on the site. This provision, associated with appropriate landscape and garden plantings, will reduce the impact on bats, birds and other fauna and the provision of suitable-sized apertures (130mm x 130mm) at the base of fencing between plots and to the adjacent land will allow for the passage of Hedgehogs.
13. **Landscape plantings** should seek to provide habitat connectivity linking habitats surrounding the site. Where possible, trees and dense hedges should be retained, maintained or planted around the site margins and between new properties to connect existing woodlands to the south and along the edge of the A470 with existing habitats to the west and gardens to the north and north-east.
All new plantings should be of species appropriate to preserve the character of the local landscape. Where native species are planted, in order to ensure that they are compatible with the local gene pool of the area, they should be of local provenance as outlined in Forest Practice Note No. 8, *Using Local Seed Sources for Planting Native Trees and Shrubs* (Forestry Commission, 1999).
In order to provide faunal feeding opportunities, plantings should include berry and seed-bearing trees and shrubs such as Hawthorn, Hazel, Alder Buckthorn, Crab Apple, Guelder Rose, Rowan and Elder. Native species of trees and shrubs

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(including non-berry-bearing species) generally have higher invertebrate productivity than alien species, thus resulting in a richer environment for birds and other fauna.

Existing vegetation and new plantings should not be over-managed and species such as Ivy, Bramble, willow and Gorse should be allowed to grow, as these also provide good food sources and cover for nesting birds and other fauna.

14. A landscape plan incorporating an appropriate ecological mitigation strategy and plan should be drafted as the scheme is progressed.
15. There should be input from a qualified ecologist at all stages of the project.
16. Careful planning and supervision of site personnel must seek to ensure that disturbance to all existing habitats and species is kept to an absolute minimum.
17. All site personnel must be made familiar with the ecological requirements of the site at induction courses and tool-box talks.
18. Attention is drawn to all additional recommendations made at section 5 and at appendices 5 and 6 of this report.
19. No other significant ecological issues were identified during the assessment.

20. **Future Site Maintenance**

Following the completion of the construction phase, future maintenance of the site should bear due regard to the well-being of all habitats, flora and fauna and only employ best-practice.

All maintenance works must be undertaken at times appropriate to avoid unnecessary disturbance, for example, to avoid the bird nesting season and to minimize disturbance to hibernating animals.

Lopping of trees and cutting of vegetation should not be over-aggressive and it should be borne in mind that species such as Ivy, Gorse, willow and Bramble are very important habitats for many species.

The frequent cutting of grass verges without removing the arisings invariably results in their decline in ecological value due to soil enrichment causing a considerable reduction in species-diversity. Arisings from grass cutting should therefore always be removed.

Management practices and prescriptions should be conveyed to the maintenance staff or contractors who carry out such routine maintenance, on every occasion that work is undertaken.

- 1.3. Following the application for permission to develop Plot 4, an email was received from the MTCBC Case Officer requesting the provision of a *Landscape and Ecology Management Plan (LEMP)* relating specifically to Plot 4 and a *Landscape Masterplan* for the whole site which would then inform the structural landscape for Plot 4. The email is reproduced below.

The above application is currently under consideration and a final assessment is yet to be made in respect of the acceptability of the scheme, however, I have now received comments from the Councils Ecologist and Landscape Architect which I have interpreted and summarised below.

The site is currently covered by juvenile trees planted as a part of the reclamation scheme associated with the Georgetown and Cyfarthfa Tips. While the plot is within a

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site allocated for housing in the Replacement Local Development Plan there are aspects of landscape, biodiversity and existing habitat that need to be addressed. I have now received comments from the Councils Ecologist and Landscape Architect which I have interpreted and summarised below.

Whilst I note that a Preliminary Ecological Appraisal (PEA) has been recently submitted in support of this current application, this appears to be a copy of the report that was submitted with the outline of application (P/19/0228) and therefore relates to the entire site. This is a full planning application and therefore whilst this is helpful and necessary background information, an ecology report needs to be produced specifically for the red line boundary site (i.e. plot 4). Thus, a Landscape and Ecology Management Plan (LEMP) which relates specifically to plot 4 (i.e. the red line boundary), needs to be provided. As you will appreciate, conditions (ecology and landscaping) attached to a planning permission can only be imposed on land within the applicants ownership. Whilst recommendations and enhancements can be referred to in respect of the wider site, landscaping should seek to visually improve the appearance of the application site, provide ecological enhancements and provide habitat connectivity with surrounding areas, this can only be controlled within the red line boundary and therefore needs to be included as part of this application. The private driveway providing access to the site is the only part of the site edged red which connects to the wider site. This part of the scheme should therefore be explored further. The access road could be widened to provide additional landscaping such as tree planting, either side (I should point out I am also awaiting comments from the Highway Officer). There are also opportunities on the dwelling for bat/bird boxes and outside the fenced garden (but with the red line boundary) for native hedge planting and/or the retention of the existing landscaping.

It would be helpful if a Landscape Masterplan was produced for the wider development site. This would then inform the structural landscape for plot 4. The scheme should demonstrate gapping up, proposed tree and shrub planting, along with specification for sizes, density, ground preparation and after care. Full botanical nomenclature should be used when referring to the proposed landscape scheme.

Detailed drawings should be included setting out all elements of the LEMP. In addition, compliance checks by the commissioned ecologist must be factored in with the subsequent compliance reports submitted to the Local Planning Authority. The LEMP should be submitted in support of the application and agreed by the Councils Ecologist prior to the determination of the application. It will therefore be conditioned as part of the application approval, should the application be successful.

As most of the ecological elements present within the wider site occur to a lesser extent within Plot 4, it is considered unnecessary to produce a separate PEA for Plot 4 in isolation as it would very largely be a repeat of the existing PEA. However, each of these elements has been considered in the production of the whole-site Landscape Master Plan (the subject of the present document) as well as the Landscape and Ecology Management Plan which relates only to Plot 4 and is the subject of a separate document.

- 1.4. The ecological recommendations listed at Section 5 of the *Preliminary Ecological Appraisal* have been taken into consideration in the production of the Landscape Master Plan and, indeed, provide the basis of the Plan. They are as follows.

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5.1 Further Survey

It is not considered necessary to carry out any further ecological surveys provided that the clearance of trees, scrub and rank vegetation is undertaken as described at paragraph 5.4.

5.2 Vegetation retentions

Prior to the commencement of any works on site, trees and other vegetation that it is planned to retain, must be identified and marked-out on the ground with a view to their protection from all disturbance during the construction period.

Particular attention must be paid to preventing the disturbance of the root spread of large trees to be retained within, and adjacent to the site, including those rooted outside the site. In addition, their canopy spreads are vulnerable to damage or intentional or accidental lopping when construction works are being undertaken. Existing trees to be retained should be protected during construction operations by establishing Root Protection Zones to British Standard BS5837 (revised 2005) and their canopy spreads not reduced. Areas of other vegetation to be retained should also be identified by establishing temporary high-visibility fencing around their perimeters. Protection fencing must be maintained in serviceable condition for the whole duration of the construction phase.

No additional soils or other material must be placed on top of existing root spreads, whether temporarily or permanently, which would result in the burial of roots to a greater depth than existing as the exclusion of air from the soil will ultimately kill the trees.

All site personnel must be instructed to comply with these requirements at all times.

A landscape plan incorporating an appropriate ecological mitigation strategy should be drafted as the scheme is progressed.

5.3 Translocation of Spiked Sedge

A single plant of Spiked Sedge, a species of County borough significance, was found growing within the application site at TN13 (see figure 2) which will be lost to the development. It is recommended that this plant is translocated by hand to a nearby safe site under the supervision of the site ecologist.

5.4 Clearance of trees, scrub and rank vegetation

Whenever possible, site clearance should be undertaken outside the bird nesting season, ie, between September and February inclusive and preferably in mid-September to the end of October to avoid disturbance to hibernating animals such as bats, reptiles, amphibians and Hedgehog.

It is anticipated that no potential bat roost sites will be disturbed or otherwise affected by the proposed development. However, trees should be cleared bearing due regard to the possibility that bats could be encountered unexpectedly. Any trees that are found to have roost potential that have not been identified during the present appraisal should be further examined by a bat ecologist.

All site operations should avoid unnecessary disturbance to bat habitat and best practice methods designed to minimise impact on bats resulting from tree felling and lopping should be employed. These are outlined at appendix 5 [of the PEA]. If any bats or roosts were to be found during site clearance operations, all work must stop immediately and advice sought from the site ecologist.

In order to minimize potential harm to reptiles, terrestrial phase amphibians, Hedgehogs and other fauna during site clearance work or when levelling ground irregularities, a visual “finger-tip” search of the habitat identified as “Potential reptile habitat” (see figure 3 [of the PEA]), should be undertaken by the site ecologist. This search must be undertaken immediately prior to, and during the removal of the habitat. Initial disturbance to the vegetation and soil must be carried out with hand-tools only and only after the ecologist is satisfied that the area is clear of animals will the use of mechanical plant be permitted.

In order to provide potential refuges for reptiles and terrestrial-phase amphibians, habitat piles constructed from arisings produced during site clearance works should be sited in convenient undisturbed areas as advised by the site ecologist (see paragraph 5.13, below).

5.5 Containment of polluted run-off within the site

Polluted or silt-laden run-off from the construction works or from the site once construction is completed, must be prevented from reaching any watercourse and subsequently the Afon Taf. Run-off from the site must comply at all times with NRW consent standards.

5.6 Bats

It is anticipated that no potential bat roost sites will be disturbed or otherwise affected by the proposed scheme but site operations should avoid unnecessary disturbance to bat habitat and best practice methods designed to minimise impact to bats resulting from tree felling and lopping should be employed. See paragraph 5.4 and appendix 5 [of the PEA].

Site personnel should be mindful of the protection afforded to bats and the potential consequences of killing animals or disturbing their roosts during site work which could result in prosecution under the protection legislation.

Mitigation of habitat loss may be achieved by the provision of bat roost features in the fabric of houses to be constructed on the site. This, associated with appropriate landscape and garden plantings, will reduce the impact on bats.

5.7 Reptiles and Amphibians

In order to minimize potential harm to reptiles and terrestrial phase amphibians, site clearance work should include a visual “finger-tip” search as described at paragraph 5.4, above.

Site personnel should be mindful of the likely presence of reptiles and amphibians and be instructed to avoid disturbing, damaging or killing them. Emphasis should be given to the protection afforded to reptiles and the potential consequences of killing animals during site work which would be construed as ‘intentional killing’ as defined in the protection legislation.

In order to provide potential refuges for reptiles and terrestrial-phase amphibians, habitat piles constructed from arisings produced during site clearance works should be sited in convenient undisturbed areas as advised by the site ecologist.

5.8 Great Crested Newt

Great Crested Newts, their breeding ponds and their places of rest/shelter are fully protected and an NRW licence to disturb a European Protected Species is required to permit any disturbance to individual animals or their places of rest.

It is considered unlikely that Great Crested Newts occur within, or visit the survey site. However, if any were to be found during site clearance operations, all work must stop immediately and advice sought from the site ecologist.

5.9 Badger

Although no signs of Badgers were observed during the present survey, all site personnel must be made aware that animals could occasionally visit the site. It is considered unlikely that Badgers occur within, or visit the survey site but if any holes suspected of being a sett are found during site clearance operations, all work must immediately stop within 30m of the suspected sett and advice sought from the site ecologist.

All excavations left overnight must be provided with a means of escape to prevent any animals becoming trapped, such as a fixed, sloping plank or a sloping side to part of the excavation.

Attention is further drawn to the best practice protocol designed to minimise impact to Badgers during development works, which is reproduced at appendix 6 [of the PEA].

5.10 Birds

All nests occupied or being built by breeding birds are protected against disturbance by the Wildlife and Countryside Act 1981. The nesting season is generally taken to be March to August inclusive but it should be borne in mind that some species nest outside this period. Whenever possible, site clearance should be undertaken between September and February inclusive and preferably mid-September to the end of October to avoid disturbance to hibernating animals such as bats, reptiles and amphibians. If it is necessary to disturb or remove any potential bird nesting habitat during the nesting season, an experienced ornithologist must assess the site immediately prior to the commencement of clearance operations in order to confirm that no active nests will be disturbed. If any active nests are found, work must cease in that area until the ornithologist certifies that no active nests are present.

Mitigation of habitat loss may be achieved by the provision of nest boxes and other suitable features in the fabric of houses to be constructed on the site. This, associated with appropriate landscape and garden plantings, will reduce the impact on birds.

5.11 Hedgehog

Site personnel should be mindful of the possibility of the presence of Hedgehogs and ensure that any animals found come to no harm, in particular, during the winter when they may be hibernating in dense vegetation including in banks and hedge-bottoms. Animals should be left alone or, if in imminent danger from site operations, should be carefully removed to safety beyond the working area. In order to minimize potential killing or disturbance to animals during the removal of rank vegetation and other potential Hedgehog refuges, a visual "finger-tip" search of the habitat should be undertaken prior to and during clearance work and initial disturbance be carried out with hand-tools only, prior to the use of mechanical plant.

The provision of suitable-sized apertures at the base of fencing and walls between plots and to the adjacent land will allow access and egress for Hedgehogs. Holes should be 130mm x130mm in size in order to allow free passage to Hedgehogs but deter cats and other larger animals. At least one hole should be provided in each side of the garden plot with a maximum distance between holes of 10m, typically to include five different hedgehog holes in each garden to allow them access freely. Further

information can be seen at www.britishhedgehogs.org.uk/leaflets/Hedgehog-Street-top-tips.pdf

The construction of habitat piles as recommended for reptiles and amphibians will also be of benefit to Hedgehogs.

5.12 Invasive Non-Native Species (INNS)

With the exception of a small bush of Cherry Laurel recorded about 25m north of the application site on the roadside at TN17 and a single possible Hollyberry Cotoneaster on the woodland edge at TN5, no Invasive Non-Native Species were recorded during the present survey. Neither of these species is of major significance at this site at present but it should be noted that bird-sown seedlings may be present within the application site and any plants encountered during construction works should be removed for off-site disposal.

Although no Japanese Knotweed stands or plants were seen during the survey, it is possible that small plants might have been overlooked. Site staff should be aware of its possible presence and be vigilant in its detection. Construction works must ensure that knotweed stands are not disturbed in a way that would cause the spread or export of propagules from the site and site operations must comply with approved containment practices. Japanese Knotweed must be treated using approved methods prior to the commencement of any work which might cause its disturbance or spread in compliance with the *Knotweed Code of Practice* (Environment Agency, 2013).

5.13 Construction of Habitat Piles & Hibernacula

Arisings from scrub cutting should, where possible, be utilized to form habitat piles. Woody and herbaceous arisings from site clearance should be made into piles, ideally in undisturbed sites, where they will receive sun for at least some part of the day. Habitat piles are particularly attractive to reptiles and amphibians seeking refuge and hibernation sites but also provide cover for Hedgehogs and many other species.

In addition, stone and rubble should be utilized to provide winter hibernacula.

Details can be found at section 9, page 45, of the *Reptile Habitat Management Handbook* (Edgar *et al*, 2010) downloadable from <http://www.arc-trust.org/Resources/Arc%20Trust/Documents/reptile-habitat-management-handbook-ffull.pdf>

5.14 New plantings

Landscape plantings should seek to provide habitat connectivity linking habitats surrounding the site. Where possible, trees and dense hedges should be retained, maintained or planted around the site margins and between new properties to connect existing woodlands to the south and along the edge of the A470 to existing habitats to the west and gardens to the north and north-east.

All new plantings should be of species appropriate to preserve the character of the local landscape. Where native species are planted, in order to ensure that they are compatible with the local gene pool of the area, they should be of local provenance as outlined in Forest Practice Note No. 8, *Using Local Seed Sources for Planting Native Trees and Shrubs* (Forestry Commission, 1999).

In order to provide faunal feeding opportunities, plantings should include berry and seed-bearing trees and shrubs such as Hawthorn, Hazel, Crab Apple, Alder Buckthorn, Guelder Rose, Rowan and Elder. Native species of trees and shrubs

(including non-berry-bearing species) generally have higher invertebrate productivity than alien species, thus resulting in a richer environment for birds and other fauna.

Existing vegetation and new plantings should not be over-managed and species such as ivy, bramble, willow and gorse should be allowed to grow, as these also provide good food sources and cover for nesting birds and other fauna.

5.15 Timing of Works

in order to comply with current legislation and best practice, all works should be carried out bearing due regard to the requirements of all flora and fauna, during the appropriate times of year (see appendix 7 [of the PEA]).

A suitable timetable for works should be drawn-up to comply with all ecological constraints and requirements.

5.16 Implementation and Supervision

Careful planning and supervision of site personnel should seek to ensure that disturbance to existing habitats and species is kept to an absolute minimum.

Where required, there should be input from the site ecologist at all stages of the project. Where appropriate, the above recommendations should be translated into clauses in works contracts and be specified in method statements.

The ecologist should attend site at the commencement of works to familiarize site personnel with ecological constraints. Site personnel should be made familiar with the ecological requirements of the site at induction courses and tool-box talks.

If necessary, the site ecologist should monitor progress as construction work proceeds in order to ensure that ecological requirements are being satisfactorily implemented.

5.17 Future Site Maintenance

Following the completion of the construction phase, future maintenance of the site should bear due regard to the well-being of all habitats, flora and fauna and only employ best-practice.

All maintenance works must be undertaken at times appropriate to avoid unnecessary disturbance, for example, to avoid the bird nesting season and to minimize disturbance to hibernating animals.

Lopping of trees and cutting of vegetation should not be over-aggressive and it should be borne in mind that species such as Ivy, Gorse, willow and Bramble are very important habitats for many species.

The frequent cutting of grass verges without removing the arisings invariably results in their decline in ecological value due to soil enrichment causing a considerable reduction in species-diversity. Arisings from grass cutting should therefore always be removed.

Management practices and prescriptions should be conveyed to the maintenance staff or contractors who carry out such routine maintenance, on every occasion that work is undertaken.

- 1.5. This Landscape Master Plan has been prepared in close consultation with the developer who undertakes to implement its recommendations during the enabling and construction phases of the project and to carry out any reasonable remedial actions should the need arise.

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- 1.6 MTCBC, in September 2020, requested that the recommendations made in section 5 of the *Preliminary Ecological Appraisal* be translated into requirements and, as such, further details of each needed to be provided. Except for Plot 4, which is the subject of a separately issued *Landscape and Ecology Management Plan*, it is not possible at this stage to provide such details for the houses to be built on the other plots within the site as they have not yet been designed. However, the text of the recommendations made in the first issue of this Landscape Management Plan has been revised to elevate the recommendations into obligations that will be required as part of the planning consent.
- 1.7 In November 2020, MTCBC asked for further details of the proposed reptile and terrestrial-phase amphibian mitigation measures. The Authority's requests are as follows:

Full details of the receptor site need to be added into both LEMP documents. There should be enhancement of the receptor site (addition of a reptile hibernaculum) prior to the translocation of any animals.

Some information has been added, but more is required. Is this area outside of all plots onsite. Is it connected habitat? Will it remain available into the future? How it is to be enhanced for reptiles prior to the works? Some photographs might be useful.

Figure MP3 shows that the receptor site, approximately 25m x 5m in extent, is located outside the proposed building plots (bounded by the red line) but is within the ownership of the developer.

Figure MP3 also shows the receptor site to be connected habitat, both to the construction site and to other habitats in the vicinity, in particular, the edge habitat between the woodland areas and the grazed field. The edge habitat is the most suitable habitat available to reptiles and amphibians within, and in the vicinity of the site. Construction operations will result in a temporary short interruption of about 20m in the connection of edge habitats between the eastern side of the existing field and the western side where the southern red line site boundary adjacent to Plots 4 and 5 crosses the existing grazed field. However, this interruption will be restored once the boundary fencing is erected along the red line site boundary and vegetation has become established along the foot of the fence.

The receptor area is in the ownership of the developer and he has given an undertaking that it will remain undisturbed for the foreseeable future.

The receptor area will be enhanced by the construction of both a hibernaculum and a habitat pile in the locations shown on figure MP3. These are in addition to the hibernaculum and habitat pile proposed within Plot 4 (the plot to be developed first). Further details of the construction of these features have been provided at section 7.6, below.

Future management will seek to maintain or enhance the current structural diversity of the vegetation of the edge habitat. When he has completed all construction works at the site, the developer has undertaken to make arrangements to retain and maintain the receptor area for a period of five years, its management being undertaken by the site management company which will be set-up to maintain the public landscaped areas of the whole site.

Photographs of the receptor area taken during the Phase 1 habitat survey on 8th August 2019 are reproduced below.



Photograph 1. Reptile translocation receptor area looking north-west, 8/8/2019



Photograph 2. Reptile translocation receptor area looking south-east, 8/8/2019

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2. LANDSCAPE MASTER PLAN RATIONALE

- 2.1 The Landscape Master Plan includes strategies, methodologies and prescriptions to successfully implement the recommendations set out in the *Preliminary Ecological Appraisal* summarized at section 1.2, above. The aspects which it covers include
- species protection and management,
 - habitat retention, protection and disturbance limitation,
 - habitat enhancements and creation
 - habitat specifications to assist landscape practitioners,
 - species composition specification for landscape plantings,
 - seasonal timings,
 - planting-stock nativeness and provenance,
 - habitat management,
 - species management,
 - duration of landscape implementation, maintenance and management
- 2.2 The Landscape Master Plan will form part of the site Environmental Management System and has been drafted by the site ecologist who will ensure its satisfactory implementation in order to make certain that landscaping and ecological mitigation targets are successfully achieved.
- 2.3 All works will be carried out bearing due regard to the protection of retained habitats, flora and fauna and appropriate new features will be designed into the scheme to provide foraging and roosting, nesting and refuge sites for faunal species. Retained, enhanced or newly created habitats will be protected by appropriate fencing to ensure that they are not damaged during construction site operations.
- 2.4 Careful planning and supervision of site personnel will seek to ensure that disturbance to all ecological features is kept to an absolute minimum.
- 2.5 Prescribed works will only be carried out during the appropriate seasons, in order to comply with current legislation and best practice as outlined at appendix 5.
- 2.6 This Landscape Master Plan covers ecological issues which need to be addressed during the pre-construction period and the construction phase but future management will be at the discretion of the purchasers of the new dwellings. It is anticipated, however, that many of the gardens, once established, will provide a range of habitats providing, for instance, faunal cover, foraging, refuge and nesting sites.

3. LANDSCAPE MASTER PLAN OVERVIEW

- 3.1 This Landscape Master Plan has been prepared at the request of the Local Planning Authority and provides an overview of the landscape proposals for the whole development (Plots 1 – Plot 8).
- 3.2 The scope of landscaping is limited by the close juxtaposition of the housing plots and the fact that the future maintenance of the proposed landscape features will ultimately be the

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responsibility of the plot owners. Features that will need regular attention have therefore been limited to simple hedgerows and a small area of woodland that will only require an acceptable level of domestic maintenance. Figure MP2 shows the site Landscape Master Plan as proposed.

- 3.3 The principal landscape feature will be the provision of a small woodland area together with a strong hedgeline to be established inside the northern, southern and western boundaries of the site. Once established, these features will provide a dense hedgerow habitat corridor inside the site boundary backed on the western and northern boundaries by the existing boundary walls and on the southern boundary by a new, 2m high, solid close-boarded wooden fence that will provide shelter, not only to the hedgerow plants but also to fauna using the corridor. An additional hedgeline will be planted running north-west – south-east through the centre of the site between proposed plots which is broken only by the access road. These corridors will provide habitat connectivity between scrub habitats outside the site to the north, gardens to the west and the existing woodland to the south.
- 3.4 The new woodland and hedgelines will be provided as described at section 5, below.
- 3.5 General vegetation clearance will not be carried until after the small woodland and hedgeline habitat corridors that will be retained along the site boundaries have been set-out and protected with appropriate fencing. The possibility that reptiles and terrestrial-phase amphibians might be present will be addressed by ensuring that vegetation clearance is accompanied by a finger-tip search enabling any animals present to be removed to safety.
- 3.6 Following the general vegetation clearance operation and the setting-out of Plot boundaries, the internal hedgelines (between Plots 3/5 and Plots 1/2/6/7) will be established in ameliorated soil using new planting stock of locally native species of local provenance, as described at paragraph 5.4.
- 3.7 130mm x 130mm apertures will be cut in the base of all new wooden fence lines at intervals of every 10m to facilitate the passage of Hedgehogs.
- 3.8 0.5m wide flower-rich grass verges will be provided along each side of the internal access road which will be constructed between the kerb-line and the feather-edge fencing along plot boundaries.
- 3.9 Artificial bat roosting and bird nesting features will be built into the fabric of all new houses as described at sections 6 and 8.
- 3.10 Careful planning and supervision of site personnel will seek to ensure that disturbance to all ecological features is kept to an absolute minimum. All site personnel will receive induction and tool-box talks which will provide details of all flora and fauna, particularly protected species and Section 7 *Species of Principal Importance*¹ that may be present within the site. Personnel will be reminded of their legal obligations to respect and, as far as possible, leave undisturbed, all wildlife that may be encountered.
- 3.11 Prescribed works will only be carried out during the appropriate times of year, in order to comply with current legislation and best practice as outlined at appendix 5. A suitable timetable for works will be drawn-up to comply with all ecological constraints and requirements.

¹ *Species of Principal Importance for Conservation of Biological Diversity* listed under section 7 of the Environment (Wales) Act 2016.

ECOLOGICAL CONSTRAINTS LEGEND



Areas to be hand searched for reptiles, amphibians and Hedgehog by the site ecologist immediately prior to, and during vegetation clearance operations



Potential category 2 bat roost tree to be examined by the site ecologist prior to removal



Plants of local significance to be translocated to safety

All nests occupied or being built by breeding birds are protected against disturbance by the Wildlife and Countryside Act 1981. The nesting season is generally taken to be March to August inclusive but it should be borne in mind that some species nest outside this period. Whenever possible, site clearance should be undertaken between September and February inclusive and preferably mid-September to the end of October to avoid disturbance to hibernating animals such as bats, dormice, reptiles and amphibians. If it is necessary to disturb or remove any potential bird nesting habitat during the nesting season, an experienced ornithologist must assess the site immediately prior to the commencement of clearance operations in order to confirm that no active nests will be disturbed. If any active nests are found, work must cease in that area until the ornithologist certifies that no active nests are present.

Trees will be cleared bearing due regard to the possibility that bats could be encountered unexpectedly. Any trees found to have roost potential will be further examined by the site ecologist. Best practice methods to minimise impact on bats resulting from tree felling and lopping will be employed (appendix 4).

All new buildings to be fitted with bat-roost and bird-nest features as advised by the site ecologists including bat bricks, Swift cavities and bird boxes on east, north and west-facing aspects.

All new plantings to be of locally-native species of local provenance as detailed in the text

130mm x 130mm gaps, 10m apart, to be cut in bases of new fences to allow Hedgehog access

Woody arisings to be used to form a habitat pile and an earth-capped rubble hibernaculum to be provided at this location

To minimize potential harm to reptiles, amphibians, Hedgehogs and other fauna, a visual "finger-tip" search of edge and other habitat with potential to conceal these species will be undertaken during initial clearance of vegetation which will be carried using hand-tools only, prior to the use of mechanical plant.

LANDSCAPE PLANTINGS LEGEND



Small woodland and 1.5m wide hedgelines incorporating existing woodland plants where possible, gaps filled by new plantings where necessary



1.5m wide new hedgeline along site boundary planted on existing open grass-dominated area



1.5m wide new hedgerow dividing plots



0.5m grass verges between kerb and wooden feather-edge fence to be constructed as part of Plot 4 development



Development Site Boundary

Maxiom Ltd

Land at Colliers Row, Merthyr Tydfil
Figure MP2

LANDSCAPE MASTER PLAN

0 10 50
SCALE
METRES



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- 3.12 Once construction has been completed and the new dwellings and plots have been sold to end-users, future management and maintenance of the habitat features provided during the construction phase within the plots will become the responsibility of the new owners.

4 CLEARANCE OF VEGETATION

- 4.1 It is anticipated that it will not be possible to retain any areas of existing vegetation except for the small area of woodland and within the prescribed hedgeline corridors running inside the northern, western and southern site boundaries and the single plant of Spiked Sedge located in Plot 7.
- 4.2 In order to minimise disturbance or possible killing of protected species, the removal of existing trees, scrub, bramble, tall-herb and other rank vegetation will be undertaken between September and February (to avoid the bird-nesting season) but preferably between mid-September and the end of October when fauna such as reptiles and Hedgehog are active and would be able to escape unaided.
- 4.3 The Landscape Master Plan seeks to minimize the possible impact on reptiles and amphibians and includes means to prevent the accidental killing and injuring of animals if any are present. Notwithstanding the provisions outlined at paragraph 3.5, the initial clearance of vegetation, including areas of trees, bramble, scrub, tall-herb and rank vegetation (including long grass) which have the potential to harbour reptiles and terrestrial-phase amphibians, will ideally be limited to September and October inclusive, as reptiles are active in this period and will be more able to escape disturbance. The operation will commence in the centre of the area to be cleared and work outwards towards the boundaries through which displaced animals will have the opportunity to escape. Initial clearance will be undertaken using hand tools only (eg strimmer, chain-saw, loppers, hand saws, etc) and will remove vegetation down to a height of no less than 50mm.

Prior to, and during the initial clearance of vegetation, the site ecologist or other suitably qualified person will be in attendance to carry-out a finger-tip search of the working front to ensure that any fauna, including reptiles, amphibians and Hedgehog, are not killed or disturbed and come to no harm. Any animals encountered will be carefully removed off-site to a location in the vicinity that will not be disturbed in the foreseeable future. The receptor area has been agreed in advance with the Planning Authority's Ecologist. The chosen receptor area includes woodland-edge and rank and short grassland vegetation suitable to support reptiles, terrestrial phase amphibians and Hedgehogs and is located to the south of the site on land in the ownership of the developer. Its location is shown on figure MP3.

- 4.4 Suitable wood, brash and wood-chip produced by on-site vegetation clearance will, under the direction of the site ecologist, be made into habitat piles and hibernacula for reptiles, terrestrial-phase amphibians, Hedgehogs, etc. One habitat pile and one hibernaculum will be located on the nib of land forming the south-western extremity of Plot 4, their exact positions to be decided in consultation with the site ecologist. A second habitat pile and a second hibernaculum will be constructed in the translocation receptor area shown on figure MP3. Further details are at paragraph 7.6.

Any woody arisings produced by on-site vegetation clearance not used for the construction of habitat piles and hibernacula will be chipped and used as a soil ameliorant or mulch in the landscaping scheme.

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- 4.5 The single plant of Spiked Sedge located in Plot 7 will be translocated by hand to safety under the supervision of the site ecologist. The replanting site will be within the reptile translocation receptor area.



Figure MP3

The 25m x 5m reptile, terrestrial-phase amphibian and Hedgehog translocation receptor site will be located within the area delineated by the dashed purple line. Its location is shown in relation to the application site (red line).

5 LANDSCAPING

5.1 Proposed boundary hedgelines and small area of woodland within Plot 4

As far as possible, with the exception of sections of the southern boundaries of Plot 4 and Plot 5 which will be planted in existing open grassland, suitable existing trees and shrubby woodland plants that are currently located in the small woodland area and within the proposed hedgeline corridors will be retained and preserved. The woodland and hedgelines are essential to provide shelter and refuge, as well as foraging potential for fauna such as reptiles, amphibians, birds and Hedgehogs which will also use the habitat as corridors after the landscape scheme is established.

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The site ecologist or arboriculturalist will select existing trees and shrubs and will individually mark them for retention and incorporation into the retained woodland and new hedgelines. Woody plants for retention in all the new hedgelines will be trimmed to c.300mm height at the time of the erection of boundary fencing along the southern side of the Plot, the fencing contractors taking particular care that marked plants retain their markings and are not unduly damaged. Trees in the small woodland area will be left undisturbed, trimmed or removed as applicant's advised by the site ecologist with a view to enhancing the species composition by the introduction of new plantings of species selected from the list at paragraph 5.3.

Following the completion of boundary fence construction, trimmed plants will be allowed to regrow within the confines of the 1.5m wide defined hedgeline corridors and gaps between plants will be filled by new plantings of appropriate species. The planted areas will be protected by temporary fencing which will be maintained in a serviceable condition for the duration of construction work. Detailed specifications will be provided by the landscape architect. These areas will be protected from potential damage resulting from the ingress of construction plant and materials by the erection of high-visibility temporary fencing (eg orange Netlon hung on road pins) which will be maintained in serviceable condition for the whole duration of the construction phase (including, where appropriate, construction work on adjacent Plots).

5.2 Provenance of planting stock

Specified plantings will be of species appropriate to preserve the character of the local area and will be principally of locally native species of local origin (Herbert, *et al*, 1999). In order to ensure that plantings are compatible with the local gene pool, all woody plant species will be of local provenance as outlined in Forest Practice Note No. 8 '*Using Local Seed Sources for Planting Native Trees and Shrubs*' (Forestry Commission, 1999).

Feeding opportunities for birds and other fauna will be enhanced by planting native nectar-producing and berry- and seed-bearing trees, shrubs and herbaceous plants. Native species of trees and shrubs (including non berry-bearing species) generally have higher invertebrate productivity than alien species, thus resulting in a richer foraging environment for birds and other fauna. However, some non-native species such as Berberis, Pyracantha, Cotoneaster, etc may be included in new gardens and other soft-landscape areas where they will provide additional ornament as well as having potential for faunal foraging, cover and nesting birds.

5.3 Species composition of small-woodland and boundary hedgeline planting enhancements

The hedgelines will include existing trees and shrubs selected for retention and cut-back at the time of fence construction. Gaps that require planting will be identified by the site ecologist and will be filled using 1+1 whips (except for pot-grown Holly). A similar planting regime will be employed in the section of the southern boundary hedgeline currently occupied by open grassland, except that, as no existing trees are present, stock will be planted conventionally in two lines 1m apart with individual plants in each line planted at 400mm centres or closer if considered necessary. The final mix of species planted will depend upon the species composition and abundance of retained woodland plants but will be selected by the site ecologist from the following species.

<i>Corylus avellana</i>	Hazel (native form, not cultivar or selected garden types),
<i>Crataegus monogyna</i>	Hawthorn (native form, not cultivar or selected garden types),
<i>Sambucus nigra</i>	Elder (native form, not cultivar or selected garden types)
<i>Rosa canina</i>	Dog Rose (native form, not cultivar or selected garden types),

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<i>Viburnum opulus</i>	Guelder Rose (native form, not cultivar or garden types),
<i>Sorbus aucuparia</i>	Rowan (native form, not cultivar or selected forms),
<i>Frangula alnus</i>	Alder Buckthorn,
<i>Lonicera periclymenum</i>	Honeysuckle (native form, not cultivar or selected garden types),
<i>Hedera helix</i>	Ivy (native form, not cultivar or selected garden types)
<i>Ilex aquilinum</i>	Holly (native form) to be introduced as 15cm pot-grown plants.

Planting will be undertaken when suitable soil and weather conditions prevail, most probably in late autumn or late winter/early spring. Planting stock will be planted in compliance with BS4428:1989 and BS8545:2014.

Prior to planting, the soil will be ameliorated with suitable soil or compost worked in to the gaps to be planted and, if required, a controlled slow-release fertilizer such as Enmag and soil improver such as Alginure will be incorporated into the soil. All new plantings will be provided with tree shelters. Chipped arisings derived from woody vegetation clearance may be used as a mulch following planting. On completion of planting, the planted areas will be provided with temporary fencing as described at paragraph 5.1.

Once established, the hedgelines will be trimmed to provide healthy, bushy growth, 3m high and 1.5m wide at the base in order to ensure they attain and maintain a dense and uniform structure and to provide wildlife habitat. The developer will arrange to do this whilst the site is still being developed but maintenance beyond then will become the responsibility of the new householders. Pruning will be carried out no more frequently than once per year in late winter, thus ensuring that autumn-produced berries and fruits are available for winter faunal feeding. No vegetation which has potential to harbour birds' nests will be pruned or cut in the bird breeding season which is generally taken to be March – August inclusive but may extend beyond this period.

All plants which fail or are vandalized during the period that the developers remain active on site will be replaced with equivalent planting stock.

5.4 Proposed internal hedgelines

The internal hedgelines will be derived solely from newly planted stock. It is intended that they will provide an additional habitat corridor connecting the northern and southern site boundaries broken only by the access road and will also provide additional faunal shelter and refuge, as well as foraging potential.

Following the completion of fence construction, hedging plants will be planted within the 1.5m wide corridors shown on figure MP2 to form the new hedges. All planting stock will be 1+1 whips except for pot-grown Holly. Species plants will be planted where possible and in preference to cultivars or selected forms. The species composition will be as follows.

<i>Corylus avellana</i>	Hazel (30%) (native form, not cultivar or selected garden types),
<i>Crataegus monogyna</i>	Hawthorn (30%) (native form, not cultivar or selected garden types),
<i>Sambucus nigra</i>	Elder (5%) (native form, not cultivar or selected garden types)
<i>Rosa canina</i>	Dog Rose (5%) (native form, not cultivar or selected garden types),
<i>Viburnum opulus</i>	Guelder Rose (5%) (native form, not cultivar or garden types),
<i>Sorbus aucuparia</i>	Rowan (5%) (native form, not cultivar or selected forms)
<i>Frangula alnus</i>	Alder Buckthorn (5%),
<i>Lonicera periclymenum</i>	Honeysuckle (5%) (native form, not cultivar or selected garden types),
<i>Hedera helix</i>	Ivy (5%) (native form, not cultivar or selected garden types),
<i>Ilex aquilinum</i>	Holly (5%) (native form) to be introduced as 15cm pot-grown plants.

An addition, suitable ornamental plants may be added but nowhere should they exceed 15% of the total mix. Such species might include the following.

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P/19/0228 Residential Development at Collier's Row, Heol Gerrig: Landscape Master Plan REVISION 4*Cotoneaster simonsii**Cotoneaster bullatus**Pyracantha coccinea**Berberis darwinii**Berberis thunbergii*

Planting will be undertaken when suitable soil and weather conditions prevail, most probably in late autumn or late winter/early spring. Planting stock will be planted in compliance with BS4428:1989 and BS8545:2014.

Prior to planting, the soil will be ameliorated with suitable soil or compost worked in to the gaps to be planted and, if required, a controlled slow-release fertilizer such as Enmag and soil improver such as Alginure will be incorporated into the soil. All new plantings will be provided with tree shelters. Chipped arisings derived from woody vegetation clearance may be used as a mulch following planting. On completion of planting, the planted areas will be provided with temporary fencing as described at paragraph 5.1.

Once established, the hedgelines should be trimmed to provide healthy, bushy growth, 3m high and 1.5m wide at the base in order to ensure they attain and maintain a dense and uniform structure and to provide wildlife habitat. Pruning will be carried out no more frequently than once per year in late winter, thus ensuring that autumn-produced berries and fruits are available for winter faunal feeding. No vegetation which has potential to harbour birds' nests will be pruned or cut in the bird breeding season which is generally taken to be March – August inclusive but may extend beyond this period.

All plants which fail or are vandalized during the period that the developers remain active on site will be replaced with equivalent planting stock.

5.5 Grass verges of internal access road

The 0.5m wide grass verges to the access road (shown on figure MP2) will be created using *Emorsgate EM4 Wild Meadow grassland seed mix*. Once established, the verges will provide narrow areas of species-rich grassland suitable to support a diversity of wild plants, invertebrates and other fauna, in particular, pollinators, and facilitate their movement along the habitat corridor so formed and between gardens, once established. The species included in this mix are as follows.

<i>Achillea millefolium</i>	Yarrow
<i>Betonica officinalis</i> (<i>Stachys officinalis</i>)	Betony
<i>Centaurea nigra</i>	Common Knapweed
<i>Galium verum</i>	Lady's Bedstraw
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Lotus corniculatus</i>	Bird's-foot Trefoil
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Primula veris</i>	Cowslip
<i>Prunella vulgaris</i>	Selfheal
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Rhinanthus minor</i>	Yellow Rattle
<i>Rumex acetosa</i>	Common Sorrel
<i>Silene flos-cuculi</i> (<i>Lychnis flos-cuculi</i>)	Ragged Robin
<i>Trifolium pratense</i>	Wild Red Clover
<i>Vicia cracca</i>	Tufted Vetch
<i>Agrostis capillaris</i>	Common Bent (cultivar)
<i>Alopecurus pratensis</i>	Meadow Foxtail (wild)
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass (wild)

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P/19/0228 Residential Development at Collier's Row, Heol Gerrig: Landscape Master Plan REVISION 4*Briza media**Cynosurus cristatus**Festuca rubra**Phleum bertolonii*

Quaking Grass (wild)

Crested Dog's-tail (cultivar)

Slender-creeping Red-fescue (cultivar)

Smaller Cat's-tail (wild)

Sowing will be carried out when soil and weather conditions are suitable, most probably in late autumn or late winter/early spring. Planting stock will be planted in compliance with BS4428:1989 and BS8545:2014.

From a biodiversity point of view, the grass verges, once established, will be maintained by infrequent mowing or strimming, ideally just once per year in late summer to a minimum height of 150mm, although in mild winters, an additional cut in late winter to a minimum height of 150mm may also be desirable. All arisings must be removed for off-site disposal.

As the habitat becomes established and matures, maintenance may be varied and species composition diversified but arisings must always be removed off site if a flower-rich sward is to be maintained.

5.6 Management of habitat areas and ecological features

Once the new dwellings are sold the maintenance of habitat within the plots will become the responsibility of the new owners. It will be recommended to the new owners that existing vegetation and new plantings should not be over-managed and, where possible, wild incoming species such as ivy and bramble should be allowed to grow, as these provide good food sources and cover for birds and other fauna especially in winter. Hedgelines should be cut no more frequently than once per year in late winter, thus ensuring that autumn-produced berries and fruits are available for winter faunal feeding. The new owners will also be given advice on the benefits of attracting wildlife to their gardens and the means by which this can be achieved and maintained.

Grass verges, once established, should be maintained by infrequent mowing or strimming, ideally just once per year in late summer to a minimum height of 150mm, although in mild winters, an additional cut in late winter to a minimum height of 150mm may also be desirable. All arisings must be removed for off-site disposal.

Future site maintenance will be undertaken by a maintenance company to be set up after the development is complete and will be planned to minimise habitat and faunal disturbance and to maintain and enhance ecological features. Grass verge maintenance staff will be briefed and reminded of the management aims and prescriptions and will, if necessary, be guided by MTCBC biodiversity staff.

6 **BATS**

- 6.1 There is potential to achieve conservation enhancement by providing suitable roost opportunities within the new dwellings. The site ecologist will advise on the most suitable types and appropriate sites for their installation. Accessible hollow soffit boxes as well as suitable, simple, off-the-peg bat roost boxes and/or bat bricks are readily available; for examples, see
<https://www.nhbs.com/browse/subject/422/schwegler-bat-boxes>
<http://www.ibstock.com/eco-products/>
<http://www.hanson.com/en>

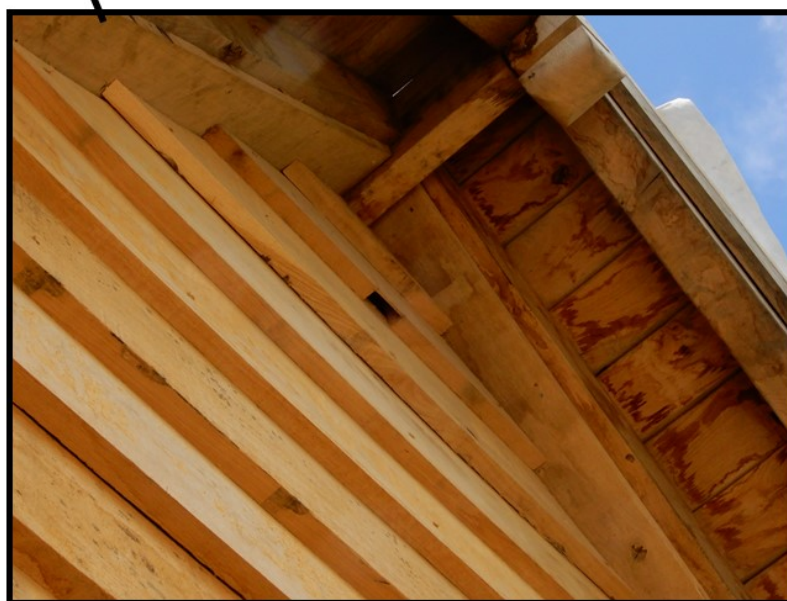
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**Figure MP4**

Bat roost cavity to be provided behind the wooden cladding at the apices of the eastern and western pine-ends similar to these provided by the developer at his construction site in Llanelli.

Access holes 15mm x 45mm.



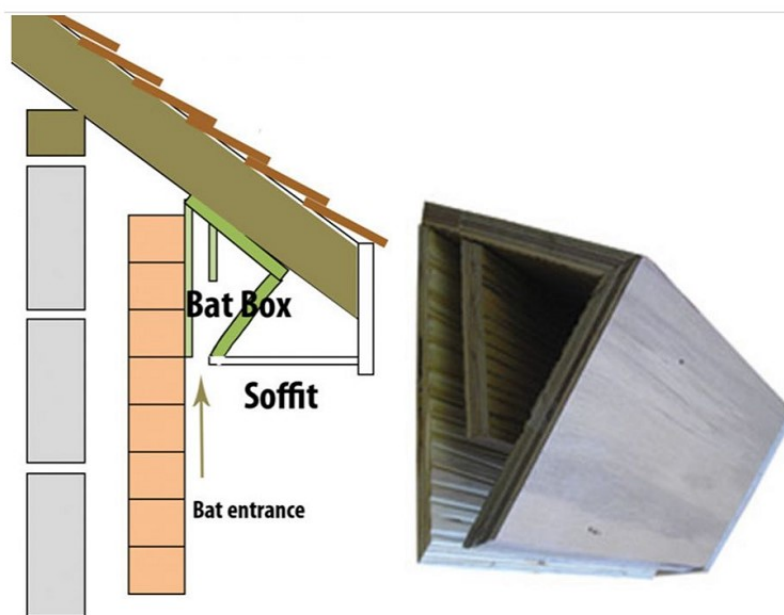
It will not be possible to prescribe detailed bat roost features until the houses are designed but it may be possible to construct purpose-built cavities behind the wooden cladding at the apices of pine ends of the new houses which would be lined with suitable mineral roofing felt material to allow bats to grip the internal vertical surfaces. Each cavity would be accessed by a 15mm x 45mm horizontally-aligned slot through the wooden cladding located near the base of the box. The developer has provided such bat roost features in a house that he is currently building in Llanelli as shown on figure MP4.

In addition, internal sections of the soffits at the corners of new houses will be provided with roost boxes to the design marketed by Wildcare Nationwide Ecology Supplies at <https://www.wildcare.co.uk/soffit-bat-box.html> as shown at figure MP5. The boxes will be constructed from 12-18mm FSC hardwood exterior plywood and its dimensions are as follows: entrance slot 20mm, length 330mm, height at its highest point 250mm and at lowest 140mm. The angles of the various components will be made to match the roof pitch of the new house.

All site operations will avoid unnecessary disturbance to bat habitat. In general, the trees growing within the site are not sufficiently mature to offer bat roost potential but three relatively mature trees with possible roost potential are shown figure MP2. The best practice methods outlined at appendix 4 designed to minimise impact on bats resulting from tree felling and lopping will be employed. If any bats or roosts were to be found during site

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**Figure MP5**

**Bat roost soffit-boxes to be provided where possible within the new houses
This box is marketed by Wildcare Nationwide Ecology Supplies.**

clearance, further work to that tree will stop immediately and advice sought from the site ecologist.

- 6.2 Pipistrelles, the most frequent species in the urban environment, can thrive where there is outside or flood-lighting where they feed on moths and other insects attracted to the light (in contrast to many other bat species). However, outside lighting must be directed away from roost entrances and potential bat habitat. The site ecologist will advise as regards outside lighting where bats might be impacted
- 6.3 Landscape plantings will be limited to the provision of strong hedgelines along the northern, western and southern site boundaries and across the site and they will provide edge habitats attractive to foraging bats as well as habitat connections between existing scrub to the north, gardens to the west and the woodland to the south. Landscape plantings will be of locally native species as described at section 5, and will be suitable to support insects and other invertebrates which will contribute to the diet of the local bat population.

7 REPTILES AND AMPHIBIANS

7.1 Existing reptile habitat

Although the habitat within the site is generally unsuitable to support reptiles and terrestrial-phase amphibians, small numbers may occur along the existing edge-habitats shown in yellow and brown cross-hatch on figure MP2. It is an offence under the Wildlife and Countryside Act to kill individual reptiles and the developer will ensure that vegetation clearance work is carried out carefully, preferably in September or October although any time between April and October may be possible provided that the site ecologist has certified that no active birds' nests will be disturbed by the operation. The ecologist or other suitably qualified person will be in attendance when undertaking the initial site clearance

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operation in the yellow and brown hatched areas shown on figure MP2 to carry-out a finger-tip search of potential habitat and safely remove any animals encountered.

7.2 Obligations of site personnel

Site personnel will be made aware of their obligations to these protected species and, at all times, will ensure that all reasonable steps are taken to ensure that no harm comes to individual animals.

7.3 Precautions to minimize damage to animals during site clearance

This Landscape Master Plan seeks to minimize the possible impact on reptiles and amphibians and includes means to prevent the accidental killing and injuring of animals if any are present. The initial clearance of vegetation which has the potential to harbour reptiles and terrestrial-phase amphibians, including areas of trees, bramble, scrub, tall-herb and rank vegetation (including long grass), will ideally be limited to September and October inclusive, as reptiles are active in this period and will be more able to escape disturbance. The operation will commence in the centre of the area to be cleared and work outwards towards the boundaries which will give displaced animals the opportunity to escape. Initial clearance will be undertaken using hand tools only (eg strimmer, chain-saw, loppers, hand saws, etc) and will remove vegetation down to a height of no less than 50mm.

Prior to, and during the initial clearance of vegetation, the site ecologist or other suitably qualified person will be in attendance to carry-out a finger-tip search of the working front to ensure that any fauna, including reptiles, amphibians and Hedgehog, are not killed or disturbed or come to any harm. Any animals encountered will be carefully removed off-site to the reptile receptor area which is located in the vicinity on land that will not be disturbed in the foreseeable future. Its location has been agreed with the Planning Authority's Ecologist.

The chosen receptor area includes woodland-edge and rank and short grassland vegetation suitable to support reptiles, terrestrial phase amphibians and Hedgehogs and is about 25m x 5m in extent. It is located to the south of the site outside the proposed building plots on land in the ownership of the developer and its location is shown on figure MP3.

Photographs of the proposed receptor area taken during the Phase 1 habitat survey on 8th August 2019 are reproduced on page 14.

The developer has given an undertaking that the receptor site will remain undisturbed and the habitats it contains will be appropriately managed for a period of five years following the completion of the development by the management company which will be set-up to maintain the public landscaped areas in the site.

The habitat within the receptor site will be enhanced by the provision of a hibernaculum and a habitat pile, also shown on figure MP3. These are in addition to the hibernaculum and habitat pile proposed within Plot 4 (the plot to be developed first). Further details of the construction of these features have been provided at section 7.6, below.

Figure MP3 also shows the receptor site to be connected habitat, both to the construction site and to other habitats in the vicinity, in particular, the edge habitat between the woodland areas and the grazed field. The edge habitat is the most suitable habitat available to reptiles and amphibians within, and in the vicinity of the site. Construction operations will result in a temporary short interruption of about 20m in the connection of edge habitats between the eastern side of the existing field and the western side where the southern red line site boundary adjacent to Plots 4 and 5 crosses the existing grazed field. However, this interruption will be restored once the boundary fencing is erected along the red line site boundary and vegetation has become established along the foot of the fence. In addition, a

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hibernaculum and a habitat pile will be constructed on the nib of land at the south-western corner of plot 4. Details are at paragraph 7.6.

7.4 Reptile and amphibian habitat provision

The internal access-road verges offer the only potential for habitat replacement within the development site but these are of very limited extent and their suitability to support reptiles and amphibians will depend on the maintenance of a minimal mowing regime. All drain pots will be fitted with escape ladders to ensure that any animals falling-in have a means of escape. Gardens may offer potential habitat but the creation and maintenance of such habitat will be at the discretion of the new owners.

7.5 Reptile and amphibian habitat connectivity

There are limited opportunities within the site to provide reptile habitat connectivity although the proposed boundary and internal hedgelines may offer some potential for animals to travel between adjacent habitats. Once vegetation is established along its base, the new fencing along the southern boundary of Plots 4 and 5 shown on figure MP1, will provide a habitat connection between existing potential reptile habitats to the east of the site with those to the west. Access under new fencing, through which reptiles and amphibians can easily pass, will be provided. See section 9, below, on Hedgehogs, regarding the provision of such access.

7.6 Habitat piles and hibernacula

Suitable wood, brash and wood-chip produced by on-site vegetation clearance will, under the direction of the site ecologist, be made into habitat piles to provide habitat and cover for reptiles, terrestrial-phase amphibians and Hedgehogs. One pile will be located within the nib of land in the south-western extremity of Plot 4 and another within the translocation receptor area shown on figure MP3.

Reptile and amphibian hibernacula will also be created from waste rubble and masonry as well as wood and brash derived from on-site operations and will be located in the same area within Plot 4 and in the translocation receptor area. The approximate planned locations of habitat piles and hibernacula are shown at figure MP3 but their exact positions will be decided on site in consultation with the site ecologist. Details are given below but the site ecologist will be on-hand to further advise the developer as necessary.

Habitat Pile construction

Suitable wood, brash and wood-chip produced during vegetation clearance will be used to construct the habitat piles. The site ecologist will advise on their location and the construction method is described in the following text and is shown at figure MP6, below.

- Depending upon the size of the branches and woody material available, piles will be approximately 2000mm long and 1000mm wide with the longest side facing south.
- The largest branches will be placed first, aligned approximately parallel, to form a solid base. If necessary, stakes should be hammered into the ground to prevent branches from rolling out of place.
- Progressively smaller branches followed by brash should be laid over the top of the basal branches and be pegged-down to the layer below using small branches or strong twigs cut to convenient lengths.
- Complete the pile to the required height (approx. 1000mm to 1250mm) using bushy/leafy/twiggy branches laid across the top of the pile, pegged down as before.
- As piles rot away, they may be restored by adding woody material from future ground maintenance work.

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Figure MP6 Construction of Habitat Pile

Hibernaculum construction

Hibernacula will be constructed of soil-covered, free-draining, buried rubble and wood as detailed below. The site ecologist will advise on their location and construction and examples of the construction concept are shown at figures MP7 and MP8, below.

- Each hibernaculum will be approximately 2000mm long and 1000mm wide with the longest side facing south.
- Remove existing surface turf layer as intact as possible and place to one side.
- Excavate to approximately 500mm depth. If necessary, provide additional drainage by, for example, running a trench to lower ground and backfilling it with rubble. If it is not possible to provide adequate drainage, the hibernaculum may be constructed on the sub-soil surface once the turf has been removed.
- Line the base with gravel to provide a drainage layer at least 100mm deep.
- Backfill with a mixture of rubble and logs of various sizes to form a layer up to about 500mm thick, then cover with brash or small rubble or a mixture of both to provide an upper layer up to 300mm thick.
- Finally, place the retained soil and turf over the pile and lightly tamp with the excavator bucket ensuring that gaps and crevices are left around the edges at ground level to allow animals to enter and exit the hibernaculum as in figure MP7.
- The final height of the pile above ground will depend on the initial depth of the excavation but the core should provide at least 800mm of loose ground into which animals can retreat.

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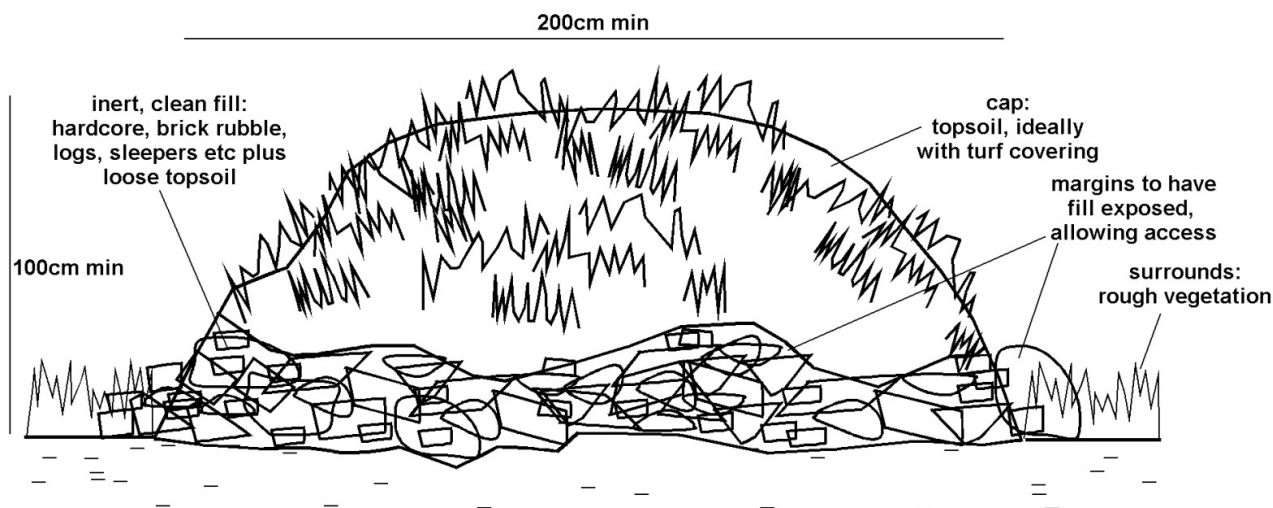
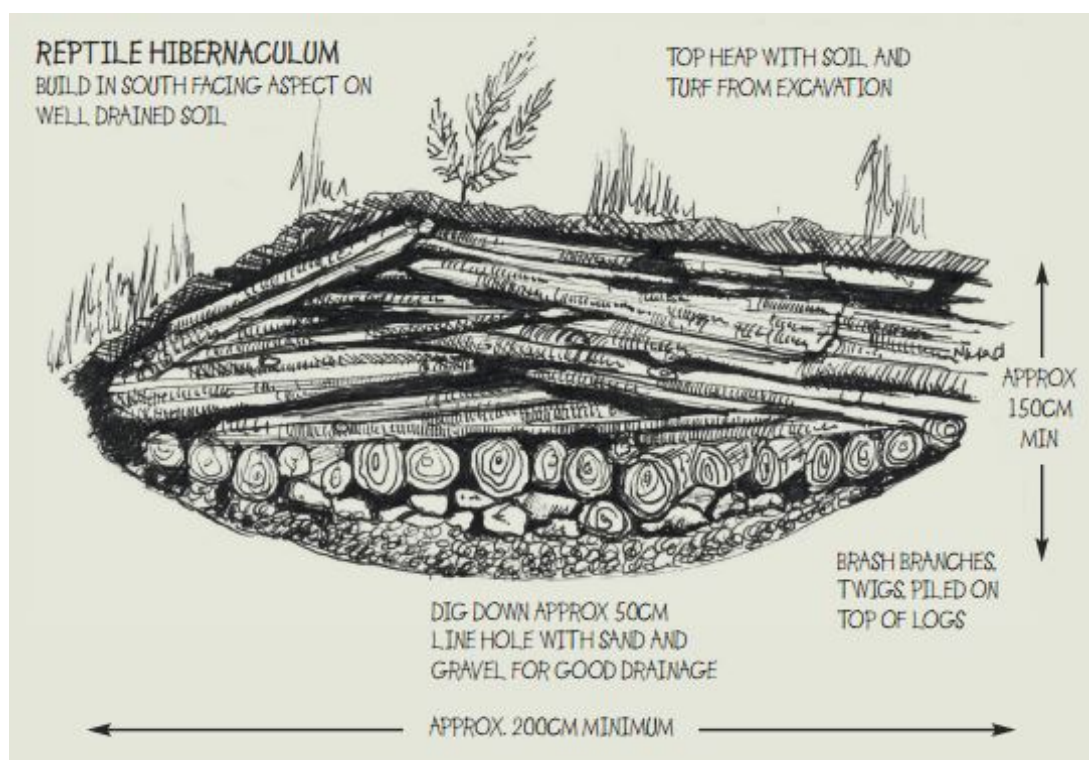
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Figure MP7 Hibernaculum construction showing open base not covered with turf or soil to allow access to animals seeking refuge

From p.42 of *Great Crested Newt Mitigation Guidelines* (English Nature, 2001). Downloadable at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296930/LIT_2695_df1209.pdf



Source: Herefordshire Wildlife Trust.

Figure MP8. Hibernaculum construction: half buried type.

Any woody arisings not required in the construction of habitat piles or hibernacula will be chipped and used as a soil ameliorant in the landscaping scheme.

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7.7 Maintenance of cleared areas within the site

Land to be occupied by later phases of the construction project which have been cleared of vegetation during initial site mobilisation that will not be subject to immediate construction work, should be prevented from revegetating to prevent it returning to a condition suitable to support reptiles. Vegetation regrowth should therefore be regularly reduced to near ground level and all loose ground compacted to prevent any cavities being available in which animals could find refuge.

7.8 Future Reptile and amphibian habitat management

Future management of public landscaped areas will seek to maintain or enhance the current structural diversity of the vegetation of the edge habitat. When the developer has completed all construction works at the site, he has undertaken to make arrangements to retain and maintain the receptor area for a period of five years, its management being undertaken by the site management company which will be set-up to maintain the public landscaped areas of the whole site.

Once the new dwellings are sold the maintenance of habitats within the plots will become the responsibility of the new owners but they will be advised on the value of maintaining their plots to maximize their benefit to wildlife. Vegetation should not be over-managed and, where possible, wild incoming species such as ivy and bramble should be allowed to grow, as these provide good food sources and cover for reptiles, amphibians and other fauna, especially in winter. It will be recommended to the new owner of Plot 4 that existing vegetation and new plantings, as well as the habitat pile and hibernaculum located in the Plot, are left undisturbed, although replenishment with additional branches, brash, etc should be carried out periodically as required.

Grass verges, once established, should be maintained by infrequent mowing or strimming, ideally just once per year in late summer to a minimum height of 150mm, although in mild winters, an additional cut in late winter to a minimum height of 150mm may also be desirable. All arisings must be removed for off-site disposal.

Future site maintenance should be planned to minimise habitat and faunal disturbance and to maintain and enhance ecological features. Grass verge maintenance staff must be briefed and reminded of the management aims and prescriptions and will, if necessary, be guided by MTCBC biodiversity staff. Management for reptiles in and around the receptor area should be minimised and will seek to maintain the present diversity of vegetation structure whilst not allowing the area to become overgrown with scrub and Bramble.

8 NESTING BIRDS**8.1 Precautions to protect nests during site clearance**

As all nests occupied or being built by breeding birds are protected by the Wildlife and Countryside Act 1981, scrub or dense vegetation or any other potential nesting habitat will not be disturbed or removed during the breeding season unless, immediately prior to the commencement of such operations, it is judged by the site ecologist, not to be supporting any nests. Removal of scrub and other dense vegetation is therefore best undertaken between September and February inclusive to ensure that disturbance to nesting birds is kept to a minimum. However, it is always preferable to complete this work in September or October as other species such as reptiles, amphibians and Hedgehogs will still be active in these months and have a better chance of escape than later when the weather is cold.

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8.2 New provision for nesting birds

The new dwellings present the opportunity for the installation of nest boxes to attract several species of breeding birds. In general, such features should avoid placement in south-facing situations, preference being given to west- and north-facing aspects and may be of varying types including those located in internal cavities formed in walls and/or soffits, as well as suitably designed boxes attached to walls. Various potential types of bird nest features are shown at appendices 1 and 2. Where possible, such nesting features will be built into the fabric of new buildings rather than hung on walls as an afterthought but details cannot be given until the houses are designed.

House Sparrow, Robin, Blue Tit, Great Tit, and Starling, among other species, frequently nest in association with human habitation in the urban and sub-urban environment. The details, locations and numbers of boxes of appropriate designs to attract different species will be specified by the site ecologist in consultation with the developer.

The provision of bird nesting features will result in an ecological gain which, in combination with the new boundary hedgelines and potential of new gardens, will, to some degree, mitigate the loss of scrub woodland habitat. The site ecologist will be retained by the developer and will advise on the designs, details, locations and numbers of boxes appropriate to attract different species.

Swifts have declined in numbers considerably in recent years due to the loss of traditional nest sites in old buildings as a result of their demolition or renovation. Suitable off-the-peg



Figure MP9

Swift-boxes similar to those constructed at the developer's house-building Site in Llanelli may be provided on new houses to be built at Colliers Row

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nest boxes are available from several manufacturers which should be installed so that a minimum 5m clear drop is available to allow birds to fly directly into and out from the nest holes. A choice of possible designs is available; for examples see appendix 1 or visit:

http://www.swift-conservation.org/swift_bricks.htm.
<https://www.nhbs.com/browse/subject/426/bird-boxes>
<http://www.ibstock.com/eco-products/>
<http://www.hanson.com/en>

The developer has provided Swift nesting boxes on a house that he is currently building in Llanelli as shown at figure MP9, the design of which may be suitable for some of the houses to be built at Colliers Row.

There is also potential to provide artificial nest sites for **House Martins**. Again, a choice of possible designs is available; for examples see appendix 1 or visit:

<https://www.wildcare.co.uk/wildlife-nest-boxes/bird-boxes/house-martins-swallows.html>

Where accessible, the bird nesting features provided should be cleaned-out and repaired as necessary but this will be the responsibility of the buyers of the properties

8.3 Provision of habitats suitable to attract birds

At section 5, the plantings specified along the new boundary hedgelines include locally native species of local origin as these generally are more productive of insects which, in turn, support foraging birds. Native berry-producing plants such as Ivy, Rowan, Crab Apple and Hawthorn, as well as non-natives such as Cotoneaster and Pyracantha, also provide food for birds in autumn and winter. The site ecologist will ensure that the species specified are planted and managed to ensure their satisfactory establishment.

9 **HEDGEHOG**

Hedgehog is a *Species of Principal Importance for Conservation of Biological Diversity* under section 7 of the Environment (Wales) Act 2016. It is possible that Hedgehogs frequent areas of dense vegetation, wall-bottoms and other potential refuges within and around the margins of the site and animals may retreat to these situations during daylight hours and over the winter period.

In order to avoid possible killing or injury to Hedgehogs, initial disturbance of any habitats which could potentially be concealing individual animals will be undertaken with great care, using hand tools only. Clearance will only be undertaken between April and October, when animals will be active and not in hibernation. Site staff will carry out a visual “finger-tip” search of the habitat prior to, and during clearance work and will ensure that if any individuals are encountered, they are translocated to safety away from the site or are allowed to seek refuge in areas which will not be disturbed. Any animals caught will be translocated to the reptile receptor area shown at figure MP3.

Movement of individual animals into the site and between gardens will be facilitated by ensuring that boundary fencing allows space below panelling or by the provision of 130mm x 130mm holes at ground level about every 10m. Similarly, new boundary walls will be constructed with 130mm diameter pipes through their bases about every 10m to allow Hedgehog passage. Consideration will also be given to drilling 130mm diameter holes in the bases of existing walls at appropriate locations as advised by the site ecologist.

10 BADGER

No signs of Badgers were seen during the *Preliminary Ecological Appraisal* and it is considered unlikely that animals visit the site. Nevertheless, attention is drawn to best practice designed to minimise impact on Badgers during development works which is reproduced at appendix 3. In particular, all excavations left overnight will be provided with a means of escape to prevent any animals becoming trapped, such as a fixed, sloping plank or a sloping side to part of the excavation.

11 INVASIVE NON-NATIVE PLANT SPECIES (INNS)

During the *Preliminary Ecological Appraisal*, a small bush of Cherry Laurel was recorded about 25m north of the development site and a single possible Hollyberry Cotoneaster was recorded on the woodland edge some 10m south of the site. No INNS were recorded within the development site but it should be noted that bird-sown seedlings may be present and any plants encountered during construction works will be destroyed or removed in a way that will not result in their proliferation.

It is possible that small plants of Japanese Knotweed might be present within the site. Site staff should be aware of its possible presence and be vigilant in its detection. Construction works must ensure that knotweed stands are not disturbed in a way that would cause the spread or export of propagules from the site and site operations must comply with approved containment practices. Japanese Knotweed must be treated using approved methods prior to the commencement of any work which might cause its disturbance or spread in compliance with the *Knotweed Code of Practice* (Environment Agency, 2013).

12 IMPLEMENTATION AND SUPERVISION**12.1 Design and Construction Stages**

There will be input from the site ecologist during the design and construction stages of the project. All the actions prescribed in this Landscape Master Plan will be included in appropriate clauses in works contracts and be specified in appropriate method statements. Where appropriate, the site ecologist will approve documents and plans.

An appropriately implemented Environmental Management System (EMS) will be produced and provide guidance to site personnel. The Landscape Master Plan will form an essential part of the EMS and a Landscape and Ecology Management Plan will be produced for each phase of the development, the first to be produced relating to Plot 4 which will be the first Plot to be developed. The site ecologist will ensure their satisfactory implementation in order to make certain that ecological management and mitigation targets are successfully achieved.

The site ecologist will be retained to ensure that the appointed personnel are familiar with the ecological conditions and requirements of the site and that such requirements are being satisfactorily implemented.

Site works will be supervised by an appropriately qualified member of staff performing the duties of an Ecological Clerk of Works to ensure that the ecological requirements of the works progress to completion satisfactorily.

12.2 Site inductions and tool-box talks

All site personnel will be made familiar with the ecological requirements of the site and made aware of their obligations to protected species and other relevant wildlife legislation at

induction courses and tool-box talks. This is essential during the early stages of site operations, in particular during the initial clearance of vegetation, to ensure that any animals present come to no harm.

13. ONGOING HABITAT MANAGEMENT AND MONITORING

Future management of the habitats and other ecological features provided within the plots during the construction phase will become the responsibility of the owners of the new houses once the development has been completed and the developer has left the site. Therefore, although appropriate recommendations will be made, the ongoing maintenance and management of biodiversity in each plot will not be subject to any controls and will be at the discretion of each householder.

The maintenance of the access road verges, reptile translocation receptor area and peripheral habitats will be the responsibility of the developer until the time that construction work on all the plots within the development site has been completed. Maintenance after that time will be achieved by the developer setting-up a management and maintenance company to be paid-for by regular contributions agreed with each of the householders within the site. The company will be responsible for the ongoing management of the verges and other communal features as well as the reptile translocation receptor area and other habitats within the site but outside the plots **for a period of five years**. The company's maintenance staff will be precisely briefed on the desired objectives and the means by which they may be achieved as described in each section of this Landscape Master Plan.

It is not proposed that any formal ecological monitoring will be carried out but the management and maintenance company's staff will be briefed to become sufficiently knowledgeable to be able to vary the desired maintenance regime should it become necessary.

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APPENDIX 1

Example of prefabricated Swift box for installing into new buildings.

Ibstock Ecoproducts

<http://www.ibstock.com/eco-products/>



Swift Box

Swifts come to the UK for just four months each summer from Central and Southern Africa. Despite legal protection their numbers are declining. Since Roman times they have been at home in traditional man-made buildings. However, they find it increasingly difficult to find nest sites in modern or refurbished buildings due to the effective sealing of the eaves.

- Designed with the needs of the swift in mind
- Available in Smooth Blue, Smooth Cream and Smooth Red
- Discrete nesting box for location near eaves
- Ideal for new build and conservation work

Size (Width x Depth x
Height) (mm)

Total System Weight (kg)

Durability

327 x 140 x 140

4.5

Frost Resistant

For more information please contact the Ibstock [Design Advisor Team](#)

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Example of prefabricated House Martin box for installing on new buildings.**Woodstone House Martin Nester,**

Product code: 10678

£17.50 ex VAT

In Stock

Only 1 left

Quantity

ADD TO BASKET

Or

ADD TO QUOTE

Description**Delivery****Returns**

A double house martin nest box made from a mixture of concrete and wood fibres, suited for placing in the eaves.

20 x 16 x 11cm

Examples of nest boxes suitable for other bird species.

Blue Tit, Great Tit

Robin



House Sparrow

Pryce Consultant Ecologists

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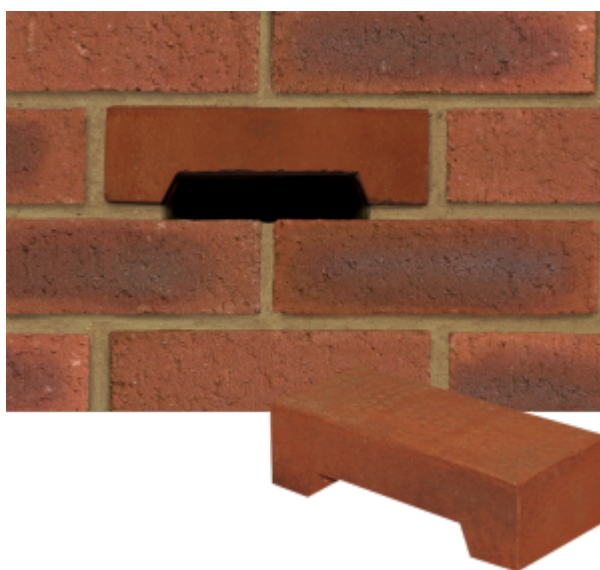
APPENDIX 2

Examples of prefabricated bat boxes for installing into new buildings.

Ibstock Ecoproducts

<http://www.ibstock.com/eco-products/>

In the UK there are 17 species of bats, all of which are protected by law. Our range of bat boxes helps to encourage safe habitats for these remarkable mammals, allowing them to live in harmony with people.



Free Access Bat Box A

- Available in all brick types
- Discrete single bat brick
- Easy to install
- Allows bats to create a natural home habitat within the cavity of the building

	Size (mm)	Durability
Bat Box Type A	215 x 65	F2 S2 – Fully Frost Resistant

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Bat Box B



Bat Box C

Enclosed Bat Box (B and C)

- Designed specifically for the pipistrelle bat
- Available in all brick types
- Discrete home for bats
- Various sizes
- Several roosting zones are created inside the box
- Bats are contained within the bat box itself
- Maintenance free with entrance at the base
- Ideal for new build & conservation work

	Size (mm)	Durability
Bat Box Type B	215 x 215 or 215 x 290	F2 S2 – Fully Frost Resistant
Bat Box Type C	215 x 215 or 215 x 290	F2 S2 – Fully Frost Resistant

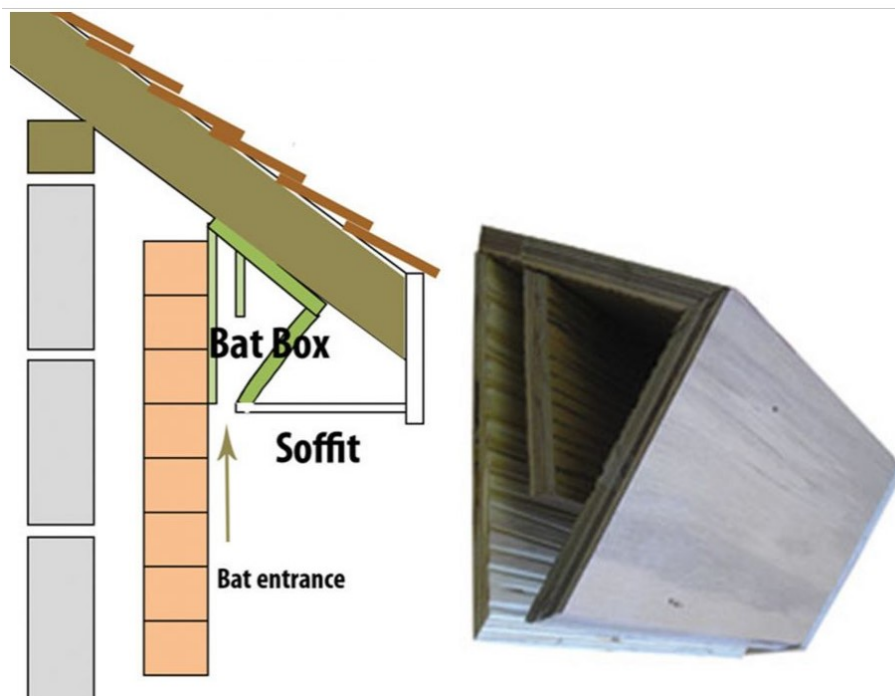
For more information please contact the Ibstock [Design Advisor Team](#)

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Internal sections of the soffits of the new houses will be provided with roost boxes, for example, to the design marketed by Wildcare Nationwide Ecology Supplies <https://www.wildcare.co.uk/soffit-bat-box.html> as shown below.

The boxes are constructed from 12-18mm FSC hardwood exterior plywood and its dimensions are as follows: Entrance slot 20mm, Box length 330mm, Height of box at its highest point 250mm and at lowest 140mm. The angles of the various components will be made to match the roof pitch of the new house.



APPENDIX 3

BEST PRACTICE PROTOCOL PROVIDING FOR THE WELL-BEING OF BADGERS

If evidence of Badger activity is identified during site surveys or construction works, in order to comply with the Protection of Badgers Act, 1992, it will be necessary to protect all existing setts against disturbance and interference during site works. In general, any disturbance is prohibited within 30m of any active sett unless licensed by Natural Resources Wales or the Welsh Government and then only between the months of July to November inclusive (September is the least damaging month as most birds will have finished nesting by then and animals such as Hedgehog, amphibians and reptiles will still be active and have a better chance of escape). Significant destruction of foraging grounds may also be judged as an infringement of the law on animal welfare grounds and, in extreme cases, prosecutions have been brought by the RSPCA.

Best practice principles advise that:

- All site personnel are made aware of the presence of setts and foraging grounds
- All site personnel are aware of the implications of the law
- If any setts are found during site works, a substantial fence will be erected, consisting of posts with three plain wires and with clearly visible bunting strung along the top, or Herras fencing, around each sett, a minimum distance of 30m from any entrance in order to prevent accidental access by any vehicle. A line of bunting supported on road pins is inadequate.
- Fragmentation of Badger territories is minimised during construction works.
- Existing Badger paths will not be obstructed during site works.
- All trenches dug on site will be provided with escape ramps, sloping boards or battered sides to allow any trapped animals to escape. As few trenches as possible will remain open on site over night.
- Fires will not be built near any sett.
- Any chemicals or other noxious substances stored on site will be in an area which is proofed against Badgers.
- If necessary, replacement foraging resources will be provided for the duration of the works.
- Landscaping proposals will bear due regard to the needs of foraging Badgers by the provision of infrequently cut grass verges and native species fruiting trees and shrubs.

APPENDIX 4

BEST PRACTICE PROTOCOL FOR TREE FELLING WHERE TREES HAVE THE POTENTIAL FOR SUPPORTING ROOSTING OR HIBERNATING BATS

Mature trees with trunk/branch cavities and/or a covering of ivy are particularly valuable bird nesting and bat roost sites, and will be retained wherever possible; compensatory planting with appropriate species will be undertaken where felling is inevitable.

Where tree felling or lopping is planned, such work will only be carried out between August and February to avoid the bird-breeding season.

All bats are protected by the Wildlife and Countryside Act 1981. Bat tree-roosts are extremely difficult to identify, and it should be assumed that any mature native-species tree is an actual roost. Every effort should be made to avoid disturbance or damage to these trees during construction work. It is an offence under the Wildlife and Countryside Act to knowingly disturb bat roosts or hibernacula. To minimise disturbance to bat populations by the removal of trees the following protocol will be followed.

- As far as possible all trees having bat roost potential should be preserved. If it is necessary for trees to be removed, all felling operations will bear due regard to this protocol.
- If bats are found during tree work, then all work will stop and Natural Resources Wales must be informed immediately.
- If the tree trunk is smaller than 200mm diameter and if it has no dense ivy, suitable holes, loose bark, and no holes associated with the root system, then work can be carried out on the tree between September and February (ie avoiding the bird breeding season).
- To avoid disturbing nursery roosts, work must never be carried out between June and August inclusive.
- If the tree does have any of the above or has a trunk size greater than 200mm, it must be cut only in September and October when bats, including young of the year, are still mobile and able to fly-out. If cutting must take place at other times, summer is probably best as bats can be more easily seen, can fly away and may take young with them, thus enabling a better chance of survival. But due regard must also be taken of nesting birds and the presence of other breeding fauna.
- If felling were to take place during hibernation (November to March) the bats will be torpid, difficult to see and the whole roost may be lost as they will be unable to escape.
- Any timber cut will be left lying for at least 24 hours to allow bats the opportunity to escape.
- It is also important to consider to what extent the habitat that is being removed is available elsewhere locally. For example, if only one tree in twenty of similar age or structure is to be felled, then it is likely that the impact of the loss will be less important. If the tree to be felled is solitary and in an area with few or no mature trees, then the impact may be significant.

Where the loss of mature trees is unavoidable, compensatory planting with appropriate locally native species of local provenance should be undertaken.

APPENDIX 5 PROTECTED and OTHER SIGNIFICANT SPECIES and HABITATS: Recommended Times of Work to avoid undue disturbance

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