DAVID CLEMENTS ECOLOGY LTD

WAUNSCIL AVENUE, BRACKLA

ECOLOGICAL ASSESSMENT

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SUMMARY

This report sets out the results of an updated ecological survey of a site which is located off Waunscil Avenue in Brackla, Bridgend, South Wales. The site boundary encompasses a narrow section of land which lies at the Ordnance Survey grid reference SS 91221 79857 off Waunscil Avenue at around 46m AoD. The site is surrounded by existing residential development and is dissected by a public footpath.

It is proposed to develop the site to provide 73 new homes with associated infrastructure including road, paving, etc. The development boundary was reduced in 2015 so that the majority of an area of woodland to the north of the site is now to be retained.

The site does not contain or lie immediately adjacent to any statutory sites of nature conservation value such as SSSIs or LNRs nor any non-statutory sites such as SINCs. However, there is a Local Nature Reserve, Tremains Wood, and two SINCs, Coed y Morfa and Tremains within 1km of the site.

Within the site is a mosaic of habitats including grassland, scrub, trees and woodland which had been left unmanaged, until recently when encroaching dense scrub at the centre of the site has been cleared. All of the habitats within the site are considered to be of Local Value to wildlife. The mosaic of grassland, scrub, trees and woodland are known to support a range of common and widespread bird species, foraging bats species, invertebrates and reptiles. Some of these species are known to be of conservation importance but only in the local context and none are of notable significance or exceptional rarity.

The small section of woodland, when considered together with the adjoining woodland which forms a larger area of this habitat to the east, would have greater, potentially High Local Value for wildlife since this would form a more significant area of mature woodland, and is likely to support a variety of species including roosting bats, nesting birds and invertebrates. Areas of hardstanding and Japanese knotweed are considered to be of Negligible Value to wildlife.

Development of the site is likely to incur the loss of the majority of habitats within the development area ie grassland, scrub and scattered trees, and any remaining habitats such as those around the development sites periphery may be subject to some disturbances. There could also be some long term impacts on any retained habitats from disturbances that may occur post development for example casual vandalism, littering and predation from cats etc.

The present survey has evaluated the site and habitats within it, to be of Local value to wildlife. A similar assessment was made in 2009 based on an extended Phase 1 habitat and various protected species surveys, which were undertaken as part of an EIA (DCE 2009). This assessment was re-evaluated in update surveys carried out in 2013 and 2015 (DCE 2013; DCE 2015). In 2015, it was noted that scrub had encroached considerably onto areas of grassland since the 2009 surveys, and as such the quality of habitats are assessed as being smaller in extent with the sward being less species rich than recorded previously. In the recent 2018 survey, this encroaching dense scrub was found to have been recently cleared. It is considered therefore that the range of habitats within the site would still support a similar diversity of faunal species including protected species such as common reptiles, foraging bats and nesting birds including species which are of some conservation significance locally.

Although there will be some negative impacts as a result of the proposed development, these are not considered to be of more than local significance, particularly since habitats in the northern end of the site will be retained. Likely impacts can however be mitigated and or compensated for through the implementation of various mitigation measures during the construction and development phases. The retention of habitats to the north of the site will also provide areas which can be enhanced for biodiversity through additional planting and management.

On the basis of the evidence currently available it is therefore concluded that the site is not significantly constrained for development on ecological grounds. There may be some potential for impact to protected species such as common reptiles, nesting birds and foraging bats, but these should be readily amenable to mitigation.

Appropriate mitigation and enhancement measures are recommended.

1.0 INTRODUCTION

1.1 This report has been prepared by David Clements Ecology Ltd (DCE) on the instructions of Mulberry Homes Limited. It refers to an area land, formerly a railway cutting, which lies off Waunscil Avenue in Brackla, Bridgend, South Wales. The site location and context is shown at Plan 1.

1.2 The site measures approximately 1.5 hectares and encompasses a narrow section of land in a suburban setting on the outskirts of Bridgend, which lies at the Ordnance Survey grid reference SS 91221 79857 at around 46m AOD. Within the site is a mosaic of unmanaged habitats including grassland, scrub, trees and woodland. The site is surrounded by existing residential developments with are linked by a public footpath which dissects the site.

1.3 The wider area of Brackla in Bridgend comprises a densely developed area of residential properties as well as some commercial development. Similar habitats extend a small way to the north of the site and a small area of mature broadleaved woodland also connects from similar habitat within the site, extending to the east. There are however few areas of semi-natural habitat within the wider area, which are largely isolated from each other.

1.4 The site was previously surveyed for ecology in 2009 and 2015 (DCE 2009; 2015) at which time it was proposed to develop the whole of the site for residential uses. Currently it is proposed to develop the site to provide 73 new homes with associated infrastructure, which is likely to require the clearance of the majority of habitats on site. This development comprises approximately half of the land owned by the developer, as the development footprint has been reduced to allow retention of the majority of woodland to the north of the site.

1.5 The remainder of this report sets out the results of an ecological update survey and assessment of the site. It also assesses the likely impact of the development and makes recommendations regarding the mitigation of any potentially adverse biodiversity impacts.

1.6 Designated Sites of Biodiversity Interest

Statutory Sites

1.6.1 The site does not contain or lies immediately adjacent to any statutory sites of nature conservation interest such as Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) or Local Nature Reserves (LNRs). However, Tremains Wood LNR is within 1km of the site.

Non-Statutory Sites

1.6.2 The site does not contain or lies immediately adjacent to any non-statutory sites of nature conservation interest such as Sites of Importance for Nature Conservation

(SINCs) although there are two SINCs within 1km of the site (see Plan 1) which include:

- Coed y Morfa (ancient semi-natural woodland; approximately 300m north east of the site)
- Tremains (ancient semi-natural woodland; approximately 700m east of the site)

1.6.3 Sites of Importance for Nature Conservation (SINCs) are one of a class of non-statutory nature conservation designations which are recognised throughout the UK under a wide range of titles. Such 'Wildlife Sites' are so-called 'third tier' sites, generally ranked below sites which are of international or national biodiversity significance, but which are considered to have substantive nature conservation value in the sub-national (ie regional or district) context. They are usually designated at the county or county borough level by the relevant local planning authority, and are recognised as a planning constraint in the relevant statutory development plan. The framework for the identification and designation of 'Wildlife Sites' is set out in various Government documents, and is referred to in *Planning Policy Wales* (2011) and *Technical Advice Note (Wales)* 5: *Nature Conservation & Planning, 2009*.

2.0 APPROACH AND METHODS

2.1 Survey Methodology

2.1.1 The site was surveyed on 15th February 2018 in suitable weather conditions, being dry and bright with air temperatures of around 7°C. The site was subject to an Extended Phase 1 survey update based on that recommended by the Chartered Institute of Ecology and Environmental Management (CIEEM 2013). This was in turn based on the Phase 1 vegetation classification methodology developed by the former Nature Conservancy Council (current version: JNCC 2007), a nationally-accepted and standard method for the rapid survey and appraisal of ecological habitats which is based primarily on the recording of vegetation and its classification into defined habitat categories. Dominant and conspicuous flora species were recorded and 'target notes' were prepared for any features of particular interest.

2.1.2 This update survey comprised a review of the habitat extents recorded in the previous habitat surveys (DCE 2009; 2015) and a reconsideration of the previous ecological assessment of these habitats. The potential of the habitats on site to support protected species such as bats, nesting birds and reptiles etc was also considered, but no detailed fauna surveys were be carried out. Survey for bats, in particular, only comprised an exterior, ground level assessment of trees.

Bats

2.1.3 Large standard trees were subject to a preliminary (Phase 1) survey to assess their potential suitability for use by roosting bats. This survey was carried out from ground-level, using close-focusing binoculars, with particular attention being given to the presence of 'potential roosting features' (PRFs) such as those described by Andrews (2016). The trees were individually searched for features which are likely to be attractive to roosting bats such as cavities and rot-holes, splits and cracks, rugose or delaminating bark and dense ivy cover etc, and any such features were recorded together with the average diameter at breast-height (dbh) in centimetres (cm). In addition, a search was made for obvious signs of occupation by bats including droppings, urine stains and scratching around cavity entrances etc. The inspected trees were then categorised as follows:

1A	**Occupied by bats**	Bats are known to occupy features of the tree, or there is direct evidence of such occupation.	Further detailed survey by bat ecologist required. NRW licence required before any tree works.
1B	**High probability of bat use**	Tree has features which appear to be of high suitability for use by bats. Usually large old trees with numerous and/or well-developed PRFs.	Further surveys by bat ecologist required per BCT (2016) 'high roost suitability'. NRW licence will be required if any bats are found.
2A	**Moderate probability of bat use**	Tree has features which appear moderately suitable for use by bats. Usually large and/or old trees with at least some well-developed PRFs.	Further surveys by bat ecologist required per BCT (2016) 'moderate roost suitability'. NRW licence will be required if any bats are found.

2B	**Low probability of bat use**	Tree has overall low roosting suitability, although some features of low or marginal roosting potential may be present.	Inspection by arborist and/or bat ecologist immediately prior to and during tree works. 'Soft-felling' may be advised.
3	**Negligible probability of bat use**	Usually young and/or small trees, typically below 30cm dbh, lacking any obvious features suitable for use by bats.	No further survey required. No constraint to tree works.

2.2 Survey Constraints

2.2.1 The Phase 1 habitat survey update was undertaken in February, a time of year when many species of plants and fauna species have typically become inconspicuous or are absent. In this instance, this is not considered likely to have significantly affected the assessment due to the nature and the condition of habitats present as well as the availability of data from previous surveys. It should however, be borne in mind, that certain species may have been overlooked, particularly flowering plants.

2.2.2 Scrub around the site boundaries was particularly dense in some places, and made it impossible to inspect some of the trees closely. This has been considered in the assessment and recommendations.

2.2.3 The dense scrub described in the previous survey report (DCE 2015) as having encroached into the grassland had been cleared shortly before the present survey. However, this is not considered to be a significant limitation due to the availability of previous survey information.

2.2.4 It was not possible to access the dense scrub in the north of the survey area. However, this is not considered to be a significant limitation as it is outside the current development area, and data for this area is available from previous surveys.

2.3 Data Trawl

2.3.1 In addition to original survey, a data trawl was carried out with the South East Wales Biodiversity Record Centre (SEWBReC) in order to obtain access to any existing ecological information or records from the site. SEWBReC is the main repository for biodiversity and wildlife records in the south-east Wales region. Relevant records are referred to in the descriptive text.

3.0 SURVEY RESULTS

3.1 Habitats & Vegetation

3.1.1 The results of the vegetation and habitats survey are shown on Plan 2 of this report, and are described briefly below. Lists of the species as previously recorded (DCE 2015) are given at Appendix 1, and representative photographs are included at the end of the report.

Notable Plants

3.1.2 No notable species were recorded during the present survey. Previous survey by DCE (DCE 2009) recorded a small stand if wood small-reed (*Calamagrostis epigejos*), as well as treacle mustard (*Erysimum cheiranthoides*) within grassland in the northern part of the site. These are local species in the Glamorgan regional context. Their current status on the site is unknown.

Notable Habitats

3.1.3 None of the habitats are considered to comprise biodiversity conservation priorities in Wales as defined under Section 7[1] of the Environment (Wales) Act.

Invasive Non-native Species

3.1.4 The site was previously found to support stands of Japanese knotweed (*Fallopia japonica*) and montbretia (*Crocosmia* sp), both of which are invasive non-native species the spread of which is prohibited under regulations contained under Schedule 9 of the amended Wildlife & Countryside Act 1981. The continued presence of Japanese knotweed was confirmed by the present survey, and the continued presence of montbretia is considered highly likely.

Hardstanding

3.1.5 A small section of the road and a public foot path, which crosses the site, are included in the site boundary. These both comprise a bare tarmac surface.

Semi- improved Neutral Grassland

3.1.6 Grassland occurs in a linear corridor through the site. This is currently greater in extent than was recorded in the previous survey (DCE 2015) following the recent clearance of dense scrub. The sward had been cleared to approximately 100mm at the time of survey, but when the grassland re-grows it is likely to have a similar floristic diversity and structure to that previously described.

3.1.7 In the previous survey in 2015, areas of grassland where the habitat was more disturbed, such as those along narrow sections and adjacent to the footpath which

[1] In Wales the s.7 list of the EWA 2016 supersedes the s.42 list of the Natural Environment & Rural Communities Act 2006, which in turn replaced the 'Priority Habitats' and 'Priority Species' lists of the UK Biodiversity Action Plan and its Welsh equivalent.

crosses the lower half of the site, supported species-poor grassland with a uniform structure. These swards contained Yorkshire fog (*Holcus lanatus*) as the dominant species, along with occasional cock's-foot (*Dactylus glomerata*) and creeping bent (*Agrostis stolonifera*). Broadleaved herbs were generally sparse within the sward but included red and white clover (*Trifolium pratense* and *T. repens*), dandelion (*Taraxacum officinalis* agg), creeping buttercup (*Ranunculus repens*), which occured quite frequently, and yarrow (*Achillea millefolium*), as well occasional common mouse-ear (*Cerastium fontanum*) and common vetch (*Vicia sativa*). Field horsetail (*Equisetum arvense*) also occurred occasionally.

3.1.8 Where the grassland occurred in more open sections in 2015 the sward was found to be taller and more tussocky. Creeping bent was the most abundant grass, along with frequent Yorkshire fog, false oat-grass (*Arrhenatherum elatius*), tall fescue (*Festuca arundinacea*) and cock's-foot, as well as rye grass (*Lolium perenne*) and timothy grass (*Phleum pratense*). Broadleaved herbs included frequent creeping buttercup, red clover, plantains (*Plantago* spp) and docks (*Rumex* spp). Other species occurring more occasionally included meadow vetchling (*Lathyrus pratensis*), bush vetch (*Vicia sepum*), germander speedwell (*Veronica chamaedrys*), wild strawberry (*Fragaria vesca*), black medick (*Medicago lupulina*) and ribbed mellilot (*Melilotus offincinalis).* Creeping thistle (*Cirsium arvense*), common ragwort (*Senecio jacobaea*) and willowherbs (*Epilobium* spp) were found dispersed throughout these areas, which also contained scattered shrubs such as common hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) and saplings of trees such as ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*) and occasional oak (*Quercus* sp). Across the grassland occasional stands of common fleabane (*Pulicaria dysenterica*), meadowsweet (*Filipendula ulmaria*) and hemp-agrimony (*Eupatorium cannabinum*) were also recorded. Montbretia (C*rocosmia* sp), an invasive non-native species was also previously recorded in at least two locations within the grassland, and is likely to still be present.

3.1.9 In the 2015 survey, where grassland occurred adjacent to areas of dense scrub or woodland, additional shade-tolerant species such as herb-robert (*Geranium robertianum*) and, less frequently, wood avens (*Geum urbanum*) were recorded.

Marshy Grassland

3.1.10 In the previous survey in 2015, a small area of the grassland was found to support a greater abundance of marshland species, including a large percentage of hard and soft rush (*Juncus inflexus* and *J. effusus*). Other frequently occurring species included common fleabane, marsh thistle (*Cirsium palustre),* common bird's-foot trefoil (*Lotus corniculatus*), water mint (*Mentha aquatica*) and common knapweed (*Centaurea nigra*). The marshy grassland in this part of the site was very tussocky, and supported a number of ant-hills. This area had recently cut to a height of about 100mm at the time of the present survey, however, and only the rush species were still evident.

Scrub

3.1.11 Much of the dense scrub recorded in the 2015 survey as having encroached into the grassland areas has recently been cleared. However, dense bramble (*Rubus fruticosa* agg) scrub is still present along the majority of the east and west site boundaries,

together with dense mixed scrub which includes common hawthorn, wild rose (*Rosa* sp), blackthorn, buddleia (*Buddleia davidii*) and saplings of ash and sycamore. There are also some remnant stands of a willowherb species, previously recorded as rosebay willowherb (*Chamerion augustifolium*).

3.1.12 The 2015 survey hedge bindweed (*Calystegia sepum*) was recorded often growing around the scrub habitats, together with honeysuckle (*Lonicera periclymenum*) and a species of clematis (*Clematis* sp) occurring in places. Along the periphery of the scrub and within the understory, common nettle (*Urtica dioica*) was found to be frequent, along with willowherbs, docks and field horsetail. These species were not evident during the current survey, but are assumed to still be present within the remaining scrub.

3.1.13 In 2015 Japanese knotweed (*Fallopian japonica*) was recorded in several places, forming dense stands within the scrub. During the current survey, Japanese knotweed stands were still present but appeared to have been cut during the recent scrub clearance operations. The stands in the northern end of the proposed development area appear to have increased in extent since the previous survey.

Broadleaved Woodland

3.1.14 Within the centre of the site there is a small area of woodland which also extends outside of the site boundary to the east. The woodland was found to be in a similar condition to that recorded in 2015, containing a number of mature trees and with saplings scattered infrequently across the area, and therefore not forming a dense canopy or understorey. The canopy comprises largely ash and sycamore trees, with common hawthorn and hazel (*Corylus avellana*) forming the understorey. Occasional horse chestnut (*Aesculus hippocastanum*), ash and sycamore saplings also occur within the understorey. In the adjacent woodland connecting off-site there are a number of mature beeches (*Fagus sylvatica*). The ground flora comprises abundant ivy (*Hedera helix*) and hart's-tongue fern (*Phyllitis scolopendrium*). The 2015 survey also recorded frequent wood false-brome (*Brachypodium sylvaticum*), wood avens and germander speedwell in this area, all of which may still be present. A stand of Japanese knotweed also occurs within the woodland.

Scattered Trees and Scrub

3.1.15 Both the eastern and western peripheries of the site support scattered trees and shrubs, including a number of mature trees. The most common woody species is ash, but sycamore, field maple (*Acer campestre*), elm (*Ulmus* sp), willow (*Salix* sp), hawthorn and blackthorn also occur. There is also some Leyland cypress (x *Cupressocyparis leylandii*) present.

3.2 Fauna

Bats

3.2.1 All species of bat and their roosting sites are protected under the EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC; the 'Habitats

Directive'), implemented in the UK via the Conservation of Habitats & Species Regulations 2017 (the 'Habitats Regulations'). The roosting places used by bats are also protected against unauthorised disturbance or obstruction under the amended Wildlife & Countryside Act 1981. Several bat species, including common and soprano pipistrelle, are listed as priorities for conservation in Wales under Section 7 of the Environment (Wales) Act 2016.

3.2.2 There are a number of records of foraging bats within 1km of the site, including a number within the site and in the immediately surrounding areas, such as common and soprano pipistrelles and noctule bats (SEWBReC data 2018). Within the wider area there are frequent records of foraging pipistrelles, as well as single records of a whiskered bat approximately 650m away, and a lesser horseshoe bat approximately 900m away (SEWBReC data 2018), the latter a rare species of high conservation concern. The closest records of roosting bats are at approximately 600m from the site, where a pipistrelle bat roost has been recorded. The other known roosts have been recorded more than 900m from the site, including at a number of lesser horseshoe roosts at between 1500 and 3000m from the site (SEWBReC data 2018).

3.2.3 There are no buildings on the site but there are a number of mature trees, particularly along the site periphery as well as within the small section of woodland in the centre of the site. Of the trees which were inspected closely, none were assessed as being of greater value than Category 2B, having low potential for bat use, and the majority were assessed as being Category 3, ie with negligible potential. It was, however, difficult to inspect some of the trees along the site periphery due to the dense scrub and the potential of these trees is therefore unconfirmed at the time of writing.

Dormouse

3.2.4 Dormouse is also a 'European protected species' afforded legal protection which is similar to that of bats (see above). It is also a Section 7 listed species.

3.2.5 The woodland and connecting scrub of the site appears superficially suitable for dormouse, particularly since bramble and hawthorn – both known food sources for this species - are in moderate abundance. The site, and the habitats within it which are more likely to support dormouse, are relatively isolated from more optimal habitat elsewhere within the wider area, however. In addition nest-tube surveys for dormouse were undertaken in 2009 and found no evidence of dormouse (DCE 2009), and there are no other records of this species either within the site or the adjacent areas. The closest known record is 1500m from the site (SEWBReC data 2018). The probability of dormouse occurring within the site is therefore considered to be negligible.

Otter

3.2.6 Otter is also a 'European protected species' afforded legal protection which is similar to that of bats (see above). It is also a Section 7 listed species.

3.2.7 Otter are present in many of the main river systems in Wales, having now recovered much of its former range following its sharp decline in the 1970s and 1980s, although numbers often remain at lower levels than was previously the case.

3.2.8 There are no watercourses or waterbodies within or immediately adjacent to the site, although there are some small drains in the connecting woodland as well as within the wider area. The Ogmore River lies approximately 800m to the west of the site and has numerous records of otter (SEWBReC data 2018). Although the habitats within the site appear superficially suitable for otter, at least as temporary habitat, they are relatively isolated from watercourses and sites where otter is known to occur. The likelihood of otter occurring within the site is therefore considered to be negligible.

Badger

3.2.9 Badger is fully protected in the UK under the terms of the Protection of Badgers Act 1992. Protection applies both to the animal itself, which may not be intentionally killed, injured or captured, and to its nesting burrows (setts), which may not be intentionally destroyed, damaged or disturbed except under certain specified and/or licensed conditions. Current interpretation of the Act also infers a degree of protection to areas which are of key significance to foraging badgers.

3.2.10 There are no records of badger either within the site and or within the wider area (SEWBReC data 2018) and no evidence was found during the survey to suggest that this species utilises any habitats within the site. The site is considered unlikely to support badgers and or badger setts. The site does support habitats such as woodland, grassland and scrub which could potentially be suitable for this species, although they are limited in extent and isolated from other suitable habitats in the wider area. Badgers are therefore considered unlikely to occur within the site.

Other Mammals

3.2.11 There are numerous records of hedgehog, a Section 7 species, within 1km of the site although not from the site itself (SEWBReC data 2018). The nearest record is from approximately 150m away, and it is considered likely that this species could occur within suitable habitats within the site itself.

3.2.12 There are no other mammal records for the wider area which are considered to be a priority for conservation, although it is likely that a range of common mammal species could occur. These could include, for example, resident synanthropic species such as house mouse and brown rat, as well as open country species such as bank vole, mole or rabbit etc, and casual visitors such fox.

Birds

3.2.13 Nearly all species of bird are protected as individuals under the amended Wildlife & Countryside Act 1981, and this protection extends to their nests, eggs and young. A number of especially rare species listed on Schedule 1 of the Act are also subject to enhanced protection against disturbance whilst nesting.

3.2.14 A range of birds were recorded during the surveys in 2009 which included likely breeding species such as blackbird, blackcap, blue tit, bullfinch, chaffinch, chiffchaff, collared dove, dunnock, goldfinch, great spotted woodpecker, great tit, greenfinch, house sparrow, jackdaw, robin, long tailed tit, song thrush, starling, wood pigeon and wren. Blackbird, house sparrow, carrion crow, blue tit, magpie, great tit, song thrush

and wren were also recorded during the present survey. Some of the species recorded are of conservation significance, including 'Section 7' species such as house sparrow, bullfinch, dunnock and song thrush.

3.2.15 Other species which have been recorded flying over the site and in the wider area, include species of conservation significance including black-headed gull, house martin, swallow, firecrest, skylark, kestrel, merlin, hobby, honey buzzard, turtle dove, redwing, fieldfare, peregrine falcon, brambling and barn owl. A number of these species, such as barn owl and other birds of prey, are Schedule 1 species, but none of these are currently considered likely to breed within the site itself.

Reptiles

3.2.16 Four native reptile species occur in South Wales, comprising common lizard, slow-worm, adder and grass snake. These four species are all afforded so-called 'partial protection' under the amended Wildlife & Countryside Act 1981, which prohibits the deliberate killing or injury of individuals. However, there is no direct protection extended to the habitats which support these species. All four common reptiles are listed as 'Section 7' species in Wales.

3.2.17 Reptiles have previously been recorded from the site. A maximum of 12 slow-worms was recorded during the surveys undertaken in 2009 by DCE. These were found in the northern area of grassland (identified as 'GD' on Plan 2, DCE 2009) and the number of records was considered to indicate the presence of a 'good' population of this species according to Froglife (1999). The area of grassland habitat in this part of the site was found to be much smaller during the present survey due to encroaching scrub, and as such is likely to be less suitable for this species although it remains likely that slow-worms still occur, at least in low numbers.

3.2.18 It is also considered possible that small numbers of other common reptile species may also occur within the site, particularly common lizard. Grass snake is recorded approximately 400m from the site (SEWBReC data 2018) and could also occur, although the site is relatively isolated from wetlands habitats of the kind preferred by this species. Adder is considered unlikely to occur.

Amphibians

3.2.19 Five native amphibian species occur in South Wales, comprising common frog, common toad, smooth newt, palmate newt and great crested newt. The latter species is a nationally rare and declining afforded full protection under both UK and European legislation (see under bats, above), which also extends to the habitats which support it. The other four species are not afforded any direct statutory protection, other than with respect to trade, but common toad and common frog are both listed as 'Section 7 species' in Wales.

3.2.20 There are no waterbodies recorded within the site and none are known within the immediately adjacent area, although it is possible that some of the adjacent houses may have ponds. Breeding by amphibians is therefore unlikely to occur. There are no pre-existing records of amphibians within 1km of the site (SEWBReC data 2018) although it is considered possible that species such as common frog, common toad or palmate newt

could utilise the habitats within the site for foraging and commuting etc, at least on occasion.

3.2.21 There are no records the rare and specially protected great crested newt (GCN) from within 1km of the site (SEWBReC data 2018) and it is considered very unlikely that this species would occur.

Invertebrates

3.2.22 Upwards of 30,000 species of terrestrial and freshwater invertebrates are recorded in Britain, including some 27,000 insect species, occurring in every available habitat. About 40 invertebrate species are afforded full statutory protection in the UK under either European or British legislation, and many other species are accorded varying levels of conservation importance.

3.2.23 A moderate range of invertebrates were recorded in 2009 (DCE 2009). None of these were nationally notable and or Red Data Book species, however, and the majority were common and ubiquitous in occurrence. A few species of conservation significance are also recorded from the site, however, including cinnabar moth (*Tyria jacobaea*), which is a 'Section 7' species, plus some local species such as speckled bush-cricket (*Leptophyes punctatissima*) and burnet companion moth (*Euclidia glyphica*).

4.0 ECOLOGICAL EVALUATION

4.1 There is currently no nationally accepted system for the categorising of sites or features of biodiversity significance below the level of national value, criteria for which are set out by the former Nature Conservancy Council (1989, as amended). However, guidance for the identification of non-statutory sites of county significance (ie SINCs) is available in this instance (WBP 2008).

4.2 For the purposes of this study the habitats and features of the site have therefore been provisionally evaluated and graded in accordance with the categories set out in Appendix 2. The ecological assessment of the site is shown on Plan 3.

International, National, County Value & District Value

4.3 No parts of the site are considered to fall into any of these categories.

Local Value

4.4 All of the habitats within the site are considered to be of Local value to wildlife. The mosaic of grassland, scrub, trees and woodland are known to support a range of common and widespread bird species, foraging bats, common invertebrates and slow-worm. Some of these species are known to be of conservation importance but only in the local context and none are of notable significance or exceptional rarity.

4.5 The small section of woodland, when considered together with the adjoining woodland which forms a larger area of this habitat to the east, would have greater, potentially High Local value for wildlife since this would form a more significant area of mature woodland, and is likely to support a variety of species including roosting bats, nesting birds and invertebrates.

Negligible Value

4.6 Areas of hardstanding and Japanese knotweed are considered to be of Negligible value to wildlife.

5.0 ASSESSMENT OF DEVELOPMENT IMPACTS

5.1 The development proposals comprise the construction of 73 homes along with associated infrastructure including roads and paving etc. The development boundary was reduced in 2015 and as such only extends up to the area of woodland in the north of the site, with habitats north of this including the majority of the woodland being retained.

5.2 It is considered likely that the majority of habitats within the development area will be lost from the site, ie the grassland, scrub and scattered trees, and any remaining habitats such as those around the development sites periphery may be subject to some disturbances. There could also be some long term impacts on any retained habitats from disturbances that may occur post development for example casual vandalism, littering and predation from cats etc.

5.3 The present survey has evaluated the site and habitats within it as having Local value to wildlife. A similar assessment was made in 2015 following an update Phase 1 habitat survey (DCE 2015), and in 2009 based on a Phase 1 habitat and various protected species surveys, which were undertaken as part of an EIA (DCE 2009). It was noted in the 2015 assessment (DCE 2015) that scrub had encroached considerably onto areas of grassland since the 2009 surveys (DCE 2009), and as such the quality of habitats were assessed as being smaller in extent with the sward being less species rich than recorded previously. However, much of the encroaching scrub had been cleared shortly before the present survey. It is therefore considered that the range of habitats within the site would still support a similar diversity of faunal species including protected species such as common reptiles, foraging bats and nesting birds including species which are of some conservation significance locally.

5.4 It is considered that although there will be some negative impacts as a result of the proposed development, these are not considered likely to be of more than local significance, particularly since habitats in the northern end of the site will be retained. Likely impacts can however be mitigated and or compensated for through the implementation of various mitigation measures during the construction and development phases. In addition to specific mitigation measures that will be required to avoid harm to protected species known to be present on the site, the retention of habitats at the northern end of the site will also provide areas which can be enhanced through additional planting and management, and also an area which species present across the site can continue to use and where necessary be relocated to.

5.5 As such, it is considered on current evidence that the proposed development of this site is not unacceptably constrained by biodiversity issues.

6.0 RECOMMENDATIONS

6.1 Statutory Obligations

6.1.1 The following are mandatory requirements under current legislation:

1. In the unlikely event that any specially protected species, such as bats, are discovered anywhere on the site at any point prior to or during clearance or construction, all work in the immediate area must cease immediately and appropriate expert advice sought.

2. Clearance and construction must not cause disturbance or harm to any birds which are nesting on the site at the time. In the event that any nesting birds are discovered immediately prior to or during any works, all work in the immediate area must cease immediately and appropriate expert advice sought.

3. Clearance and construction must be preceded by appropriate and adequate measures to minimise the risk that common reptiles are killed or injured.

4. Clearance and construction must not result in the accidental spread of any Schedule 9 plants, including Japanese knotweed and montbretia, from the site.

6.1.2 In 1-2 above, the 'immediate area' should include any occupied tree in its entirety, and any other habitats for an area of at least 5m radius around the find-site. The affected area should be clearly demarcated on the ground (eg by means of striped bunting) and made off-limits to all site personnel until inspected by an appointed expert. Appropriate measures to rectify the situation in accordance with statutory obligations and responsibilities should be determined at the time by the appointed expert, and may include consultations with the statutory agencies and the seeking of derogation licences etc.

6.1.3 Clearance works affecting the above-ground parts of trees and shrubs, including bramble scrub, should avoid the main bird-nesting season which runs approximately from March to August inclusive. Alternatively, any works which must necessarily be carried out during this period must be preceded by a survey to ensure that no nesting birds are present. This restriction also applies to any other habitats which are found to support nesting birds, including any ground-nesting species.

6.1.4 Where the clearance of potential bird-nesting habitats is projected to occur at some unknown point in the future, the above-ground vegetation should ideally be cut down (eg coppiced) to approximately 200mm height over the winter period in order to render it unattractive to nesting birds, and then maintained in this condition by regular re-cutting until the start of site clearance operations.

Bats

6.1.5 All large trees should be closely inspected by a licenced bat ecologist or arborist, prior to being subject to any management works and or felling. Where evidence of roosting bats is found, the appropriate actions must be undertaken in accordance with current legislation and best practice.

6.1.6 Treatment of all other trees (and any larger trees where there is no evidence of roosting bats) should also follow a precautionary approach. These trees should be retained where possible, but where removal and or thinning is required, this should be undertaken during the winter months.

Common Reptiles

6.1.7 Slow worms have been recorded, largely within the area G2 within the site (as shown at Plan 2, DCE 2009), and it is considered possible that small numbers of other common reptiles such as common lizard may also occur within similar habitats of the site. A precautionary approach towards reptiles should therefore concentrate primarily on minimising the potential for causing the death and injury of individuals during site clearance and building operations, which is a statutory requirement.

6.1.8 Adequate mitigation for reptiles in this instance should be achievable through a combination of 'species deterrence' measures within the majority of the site, coupled with a localised 'fence, trap and clear' operation in the G2 area prior to the clearance of the grassland habitats of the site. The affected habitats should be enclosed by reptile proof fences and reptiles within the enclosures caught and transferred to suitable receptor habitats (ideally the northern area, immediately adjacent to the site which lies outside of the site development boundary). Mitigation in less sensitive areas of the should be achievable through the implementation of 'species deterrence' measures, which would comprise the staged removal of vegetation cover in the affected areas ahead of the development, together with the careful dismantling and removal of any potential refuge areas such as large stones, log piles, etc. It should be noted that these operations would be seasonally constrained, and could not be carried out during the winter hibernation period (ie November to March).

6.1.9 A detailed method statement with respect to reptiles should be prepared and agreed in advance with the Local Authority ecologist, prior to the commencement of site clearance and construction. Current NRW guidance with respect to reptile mitigation is provided at Appendix 5.

Invasive Plants

6.1.10 Several stands of Japanese knotweed were recorded in the woodland and scrub habitats. It is also likely that montbretia is present in the grassland areas. The Wildlife and Countryside Act 1981 specifically prohibits the reckless or deliberate spreading of these plants, and appropriate measures are therefore required to minimise the risk of its spread during any works, and to achieve its eradication wherever possible.

6.1.11 A number of options are available for the treatment of Japanese knotweed, and which are detailed in Appendix 6. Areas with Japanese knotweed should also be monitored for regrowth and treated accordingly.

6.1.12 The clearance of montbretia should follow the guidance provided by the Non-Native Species Secretariat[2].

[2] http://www.nonnativespecies.org/home/index.cfm

6.2 Non-Statutory Recommendations

6.2.1 Contractors should be provided with a 'toolbox talk' at the outset of site clearance and construction works setting out the known and possible habitat and species constraints, and the mitigation measures which are required. The toolbox talk should also set out procedures to be followed in the event that there are unexpected encounters with protected species etc. All contractors carrying out dense bramble scrub or tree clearance works (if appropriate), should be warned of the possible presence of nesting birds, roosting bats, common reptiles and of their protected status. It should be clearly understood that in the event of any being found during works, all works should cease in the affected area until appropriate expert advice has been sought.

6.2.2 Any retained habitats (such as woodland to the north of the development site and or boundary features such as large trees along the development sites periphery) should be securely fenced off with appropriate temporary fencing (eg chestnut paling on scaffold supports or 'Heras' fencing) at the start of construction work to prevent access and incidental damage by site vehicles, equipment and personnel.

6.2.3 All retained trees should be treated in accordance with British Standard BS5837 (2012) Guidance for the Treatment of Trees in Relation to Construction. Damage to mature trees, as well as tree and scrub understorey should be avoided.

6.2.4 Building compounds and storage areas should not be sited on areas of habitat which are to be retained, in the off-site habitats, and should be suitably fenced and bunded where they stand adjacent to semi-natural habitats. Similarly no equipment, machinery or materials should be brought into the retained areas, or stored under retained tree canopies, or ground levels altered within these clearly demarcated zones of protection.

6.2.5 Careful consideration should be given to the use of lighting within the developed site, as this can adversely affect activity by a variety of fauna, particularly foraging bats, nesting birds and invertebrates. Where possible, the edges of woodland and peripheral tree corridors should be retained as dark corridors. Light spillage into adjacent habitats such as scrub and grassland etc should be avoided, and brightness kept to the lowest permissible level in the areas adjacent to such habitats.

6.2.6 Retained habitats such as the woodland as well as scrub and grassland mosaic to the north of the development site, should be subject to sympathetic management to retain and enhance their value for wildlife, for example rotational coppicing in woodland and removal of encroaching scrub from grassland areas as well as a sensitive mowing regime. It is also recommended that the site boundaries are enhanced through additional planting of appropriate native species, to fill gaps between existing mature trees, and create a species rich hedgerow.

6.2.7 It is recommended that the new landscaping incorporates native species which are indigenous to the region, and from stock which is of local (or at least UK) provenance and also contain a good range of wildlife friendly plants (see Appendix 3 for example species).

6.2.8 Consideration should be given to the erection of bat roosting boxes in suitable locations around the site as well as bird nesting boxes – these could be erected on trees

and or new dwellings built within the site. These should be sited in such a manner that predators such as cats cannot reach them, and be at least 4m (preferably 5m) above ground level. The entrances to bat boxes should not be illuminated at night. Bat boxes should ideally be of 'woodcrete' construction (such as those manufactured by Schwegler Ltd), since these are much more robust and longer-lived than traditional wooden boxes and require less after-maintenance. Further advice is given at Appendix 4.

6.2.9 Other habitats such as ponds and water features could also be considered, and should ideally be established using primarily native species which are indigenous to the region.

6.2.10 A Wildlife Protection Plan (WPP) should be drawn up for the site clearance and construction stages, setting out detailed measures to ensure that the identified interests, potential interests and statutory obligations etc are appropriately treated, and identify the individuals who will be responsible for ensuring that the ecological mitigation requirements are met. Responsibility for implementation of the WPP should be assigned to an appropriately qualified and/or experienced member of the development team who would act as an 'Ecological Clerk of Works'.

6.2.11 A 5-year Biodiversity Management Plan should also ideally be drawn up to guide the long-term management of any retained semi natural habitats, within the ownership boundary, and its implementation funded by the developer.

6.2.12 The services of an appropriately qualified and licensed ecologist should be available on an 'on-call' basis throughout the development in order to deal promptly with any protected species or other ecological matters which may arise during the clearance and construction works.

7.0 REFERENCES

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APPENDIX 1: SPECIES RECORDED

All species recorded by DCE 2015, unless otherwise indicated

		Indicator species							Status
		W	NG	CG	AG	MG	PIL	TF	
Trees/shrubs									
Aesculus hippocastanum	horse chestnut								Alien
Acer campestre	field maple	x							
Acer pseudoplatanus	sycamore								
Buddleja davidii	buddleia								
Corylus avellana	hazel								
Cotoneaster sp	garden cotoneaster								Alien
Crataegus monogyna	hawthorn								
Fagus sylvatica	beech								
Fraxinus excelsior	ash								
Prunus spinosa	blackthorn								
Rubus fruticosa	bramble								
Rosa sp	rose								
Quercus sp	Oak sp								
Salix sp	Willow sp								
Ulmus sp	Elm sp								
Vascular plants									
Agristis stolonifera	creeping bent								
Arrhenatherum elatius	false oat-grass								
Brachypodium sylvaticum	wood false-brome								
Calystegia sepium	hedge bindweed								
Centaurea nigra	common knapweed		x	x					RCT LBAP
Cerastium fontanum	common mouse-ear								
Chamerion angustifolium	rosebay willowherb								
Cirsium arvense	creeping thistle								
Cirsium palustre	marsh thistle								
Crocosmia sp	Montbretia								
Dactylis glomerata	cock's-foot								
Epilobium hirsutum	great willowherb								
Epilobium montanum	broad-leaved willowherb								
Eupatorium cannabinum	hemp agrimony					x			
Fallopia Japonica	Japanese knotweed								IA
Festuca arundinacea	tall fescue		x						
Festuca rubra	red fescue								
Filipendula ulmaria	meadowsweet					x			
Fragaria vesca	wild strawberry								
Geranium robertianum	herb Robert								
Geum urbanum	wood avens								
Hedera helix	ivy								
Heracleum sphondylium	hogweed								
Holcus lanatus	Yorkshire fog								
Juncus effusus	Soft rush								

Juncus inflexus	hard rush								
Lathyrus pratensis	meadow vetchling		x						
Lolium perenne	perennial rye grass								
Lonicera periclymenum	honeysuckle								
Lotus corniculatus	common bird's-foot trefoil		x	x		x			
Medicago lupulina	black medick			x					
Melilotus officinalis	ribbed meliliot								
Mentha aquatica	water mint					x			
Phleum pratense	timothy grass								
Phyllitis scolopendrium	hart's-tongue fern								
Plantago lanceolata	ribwort plantain								
Plantago major	greater plantain								
Prunella vulgaris	self heal								
Potentilla reptans	creeping cinquefoil								
Ranunculus reoens	creeping buttercup								
Rumex sp	dock species								
Senecio jacobaea	common ragwort								
Taraxacum offininalis agg	dandelion								
Trifolium pratense	red clover		x						
Trifolium repens	white clover								
Urtica dioica	common nettle								
Veronica chamaedrys	germander speedwell								
Vicia sativa	common vetch								
Vicia sepium	bush vetch								
	SWWSP 2004 'Indicator Species' Totals								
		1	5	3	0	4			13

Key

PS - Regionally Scarce - Primary Species in SWWSP (2004)

CS - Regionally Uncommon - Contributory Species in SWWSP (2004)

Indicator Species (SWWSP 2004)

W - Woodland, NG - Neutral Grassland, CG - Calcareous Grassland, AG – Acid Grassland, PMG Purple Moor Grass and Rush Pasture, PIL – Post Industrial Land, TF Species-rich Tillage Fields and Margins

SINC Selection

Sites which support 1 primary species or 5 contributory species or habitats which support 8 neutral grassland, 8 calcareous grassland, 7 acid grassland, 12 Purple Moor Grass and Rush Pasture or 8 tillage field and margins indicator species should be considered for selection as a SINC. Post Industrial sites which support 20 or more indicator species from the combined post-industrial land, acid, neutral, calcareous and marshy grassland lists should also be considered for selection.

APPENDIX 2: DEFINITIONS OF SITE VALUE

International Value

Site carrying an internationally recognised designation such as Ramsar Site, World Heritage Site, Special Protection Area, Special Area of Conservation, Biosphere Reserve or Biogenetic Reserve, or:

Habitats: site supporting nationally significant areas of habitats of defined international community interest.
Species: site supporting nationally significant populations of species of defined international community interest.

National Value

Site meeting published Site of Special Scientific Interest (SSSI) designation criteria (NCC 1989), whether so designated or not.

Habitats: site supporting nationally significant areas of habitats of defined national rarity or interest.
Species: site supporting nationally significant populations or communities of UK Red Data Book, Nationally Notable or protected species (other than badger).

County Value

Site identified as a County Wildlife Site (CWS), Site of Importance to Nature Conservation (SINC) or similar at the county level (ie greater than district, borough or city level); meeting published CWS designation criteria (where these exist), but falling short of SSSI designation criteria, whether designated as a CWS or not.

Habitats: site supporting good examples of nationally threatened habitats, or extensive areas of habitats which are rare or unique in the county.
Species: site supporting large or strong populations or communities of nationally rare or protected species (other than badger), or of species which are rare in the county and uncommon nationally.

District Value

Sites failing to meet County Value criteria, but nevertheless supporting habitats, species or communities which appreciably enrich the ecological resource of the county, especially by virtue of their size or extent.

Habitats: sites supporting habitats uncommon in the county, small but unmodified fragments of nationally threatened habitats, or comprising extensive areas or systems of semi-natural habitats.
Species: sites supporting nationally rare species, or strong populations or communities of regionally uncommon species, which would not otherwise be present (ie they are critically dependant on the site characteristics).

Local Value

Habitats which fail to meet District Value criteria, but which appreciably enrich the ecological resource of the locality. This category can be further divided into:

- **High Local Value**: just failing to meet District Value Criteria; supporting species which are notable or uncommon in the county; or species which are uncommon, local or habitat-restricted nationally, and which might not otherwise be present in the area.

- **Local Value**: sites which are of ecological value only in the context of their immediate surroundings. Rare or uncommon species may occur but are not restricted to the site or critically dependant upon it for their survival in the area.

Sites failing to meet any of the above can be considered as being of '**Negligible**' ecological value.

APPENDIX 3: LANDSCAPING SPECIES

Trees and shrubs

All planting stock should be of native species which are indigenous to the region and will be of Welsh or at least UK, provenance.

Trees/shrubs

Quercus robur and/ or	Pedunculate oak
Quercus petraea	Sessile oak
Fraxinus excelsior	Ash
Acer campestre	Field maple
Corylus avellana	Hazel
Crataegus monogyna	Common hawthorn
Betula pendula	Silver birch
Cornus sanguinea	Dog wood
Ilex aquifolium	Holly
Malus sylvestris	Crab apple
Prunus avium	Wild cherry
Prunus spinosa	Blackthorn
Rosa canina	Common dog-rose
Sorbus aucuparia	Rowan
Taxus baccata	Yew
Viburnum opulus	Guelder rose
Euonymus europaeus	Spindle
Sambucus nigra	Elder

Planting should be carried out using 600mm bare-rooted transplants in spiral plastic guards (rabbit/vole protection) where appropriate. Standard tree aftercare should be applied.

Climbers

Clematis vitalba	Traveller's-joy
Lonicera periclymenum	Honeysuckle
Solanum dulcamara	Bittersweet
Tamus communis	Black bryony

Wildlife friendly plants for formal landscaping

The species listed below are primarily non-native species, which are commonly found in gardens and formal landscape areas. Those native species included are aesthetically pleasing and suitable for formal planting schemes.

Woody Species

Bodnant viburnum (*Viburnum* x *bodnantense*)
Californian lilac (*Ceanothus spp.*)
Firethorn (*Pyracantha spp.*)
Laurustinus (*Viburnum tinus*)
Japanese quince (*Chaenomeles japonica*)
Lilac (*Syringa vulgaris*)
Mahonia (*Mahonia spp.*)
Mock orange (*Philadelphus spp.*)
Serviceberry (*Amelanchier canadensis*)
White jasmine (*Jasminium officinale*)

Herbs

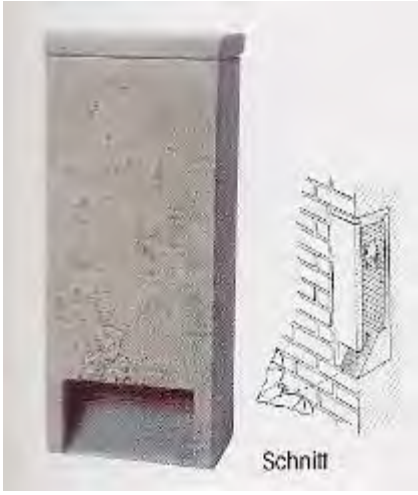
Alpine rock-cress (*Arabis alpina*)
Angelica (*Angelica archangelica*)
Annual honesty (*Lunaria annua*)
Aubretia (*Aubretia deltoidea*)
Autumn Stonecrop (*Sedum* 'Purple Emperor')
Borage (*Borago officinalis*)
California poppy (*Eschscholtzia californica*)
Canadian Fleabane (*Erigeron canadensis*)
Orpine (*Sedum telephium*)
Perennial cornflower (*Centaurea montana*)
Perennial honesty (*Lunaria rediviva*)
Perennial sunflower (*Helianthus decapetalus*)
Phlox (*Phlox paniculata*)
Poached-egg plant (*Limnanthes douglasii*)
Purple coneflower (*Echinacea purpurea*)
Purple-top vervain (*Verbena bonariensis*)

Candytuft (*Iberis sempervirens*)
Christmas rose (*Helleborus niger)*
Common mallow (*Malva sylvestris*)
Common poppy (*Papaver rhoeas)*
Cosmos (*Cosmos bipinnatus*)
Evening primrose (*Oenothera biennis*)
Wood forget-me-not (*Myosotis sylvatica*)
French marigold (*Tagetes spp.*)
Globe thistle (*Echinops ritro*)
Great mullein *(Verbascum thapsus*)
Grecian windflower (*Anemone blanda*)
Heart-Leaf Ice-plant (*Aptenia cordifolia*)
Hollyhock (*Althaea rosea*)
Hyssop (*Hyssopus officinalis*)
Ice plant (*Sedum spectabile*)
Lacy phacelia (*Phacelia tanacetifolia*)
Late Michaelmas-daisy (*Aster* x *versicolor*)
Lavender *(Lavandula angustifolia.)*
Lenten rose (*Helleborus orientalis*)
Ox-eye daisy (*Leucanthemum vulgare*)
Marjoram (*Origanum vulgare*)
Red campion (*Silene dioica*)
Red valerian (*Centranthus rubber*)
Rosemary (*Rosmarinus officinalis*
Sage *(Salvia officinalis*)
Shrubby Veronica *(Hebe recurva*)
Snapdragon (*Antirrhinum majus*)
Soapwort (*Saponaria officinalis*)
Spear mint (*Mentha* spicata)
Spring crocus (*Crocus chrysanthus*)
Sunflower (*Helianthus annuus*)
Sweet alyssum (*Lobularia maritime*)
Sweet bergamot (*Monarda didyma*)
Sweet rocket (*Hesperis matronalis)*
Sweet William (*Dianthus barbatus*)
Tickseed *(Coreopsis spp*)
Tobacco plant (*Nicotiana affinis*)
Wallflower (*Cheiranthus cheiri*)
Winter aconite (*Eranthis hyemalis*)
Yellow alyssum (*Alyssum saxatile*)
Yellow loose-strife *(Lysimachia vulgaris*)

Sources: *Plants for wildlife friendly Gardens* (Natural England), *Planting Gardens for Birds* (RSPB), *Gardening for Bats* (Bat Conservation Trust) and *Starting a Butterfly Garden* (*School Garden Company*).

APPENDIX 4: BAT & BIRD BOXES EXAMPLES

Schwegler 2F bat box



Schwegler 1FR wall integrated bat box, can be rendered over, just leaving entrance

Schwegler 27 wall integrated bat box, can be rendered over

Schwegler 1FQ wall-mounted bat box

Schwegler 2FF wall-hanging bat box

Schwegler 1WI integral wintering bat box, can be rendered over

Schwegler 1B bird box

Schwegler 2H robin box

Schwegler 1SP Sparrow Terrace

APPENDIX 5: REPTILE MITIGATION MEASURES – NRW GUIDANCE (CCW Draft Feb 2005)

For any development site which supports reptiles, or which contains habitats with the potential to support reptiles, NRW recommends detailed survey at an early stage. Where suitable survey information is unavailable, however, or where there is insufficient time to carry out the necessary surveys, it should be assumed that any habitats on the site which are suitable for reptiles do indeed support reptiles, and mitigate accordingly.

Legislation

The four most common British reptiles (comprising grass snake, adder, slow-worm and common lizard) are afforded so-called 'partial protection' under the Wildlife and Countryside Act 1981 (as amended). This protects individuals of all species from 'intentional' or 'reckless' killing and injury, but does not confer any direct protection to the habitats which support them.

Where it can reasonably be predicted that reptiles could potentially be killed or injured by activities such as site clearance, earthworks or construction operations etc, to carry out such activities in the absence of appropriate mitigation could legally constitute intentional or reckless killing or injuring, and could result in prosecution.

Where reptiles (other than sand lizard, smooth snake and turtles, all of which are subject to additional restrictions under the law) are present, or potentially present, on a development site, the developer should consider the need for mitigation at an early stage in the development programme. The presence of reptiles on a development site will not necessarily prevent the development from taking place, but it means that 'reasonable' mitigation measures must be put in place to prevent, as far as possible, the killing or injuring of any reptiles.

It is not necessary to obtain a licence to carry out works which affect reptiles, but it is always advisable to seek guidance in any case where a development could potentially cause impacts to reptiles, and to obtain advice regarding what would constitute 'reasonable' mitigation, although it is ultimately up to the developer to decide what is 'reasonable' (and to accept any consequences which may ensue). In most cases, the services of an appropriately qualified and experienced reptile consultant will be required.

The remainder of this document sets out the main elements of a typical reptile clearance strategy. It is recognised, however, that not all of the elements listed below will be necessary or appropriate in all cases, and that individual strategies will vary from site to site.

Reptile Clearance Methodology

If reptiles are confirmed as being present (or are assumed to be present, for example from habitat assessment) then measures should be put in place to avoid or minimise the killing and injuring of reptiles as a result of development operations. Ideally, a 'Reptile Mitigation Strategy' should be drawn up for the site by a suitably qualified person, and agreed in advance with either the NRW or the relevant Local Authority Ecologist.

Wherever possible, reptiles should be accommodated within the site, or on one or more adjacent or nearby site. The translocation of reptiles to a different site which lies at a distance from the development site should only be undertaken as a last resort. Where reptiles cannot be accommodated within the site, a suitable receptor site should be identified in advance and surveyed for suitability. If a reptile population already exists on the receptor site, then advance enhancement works to increase the 'carrying capacity' of the receptor site may be necessary Adequate time should be allowed in the development programme for the safe clearance of reptiles ahead of any potentially harmful works using suitable means, which may vary from site to site.

It should be noted that the clearance of reptiles from a site can <u>only</u> be undertaken when the reptiles are active (ie, during the spring, summer and autumn months) and should never be attempted during the winter hibernation period (which runs approximately from November to March inclusive). This constraint may lead to conflict with other issues – the presence of nesting birds, for example, all species of which are protected against disturbance – which will also need to be taken into account and mitigated for accordingly[3].

[3] Hedgerow translocations or clearance of habitats such as trees, scrub, bramble or reedbed etc can lead to direct conflicts, which may require phased clearance or other mitigation measures to overcome.

Mitigation measures should apply to all areas of the site which will be subject to potentially harmful impacts, including the laying of haul routes, siting of contractors' compounds and the bulk storage of materials and soils etc. It should be remembered that reptiles may be present beneath the soil at depths of up to 250mm or more, as well as in locations such as amongst tree roots or buried rubble and brick waste etc.

Typical Mitigation Procedure

1. Where there are suitable receptor sites adjacent to the development site, mitigation should commence with the removal of tall vegetation from all areas affected by development to make them less attractive to reptiles, and to encourage them to move away voluntarily into adjacent habitats. Vegetation should initially be cut to a height of about 200mm, starting furthest away from the adjacent habitats and working towards them, so as to drive any reptiles which may be present towards the receptor habitats. All cutting must be done by hand (eg by strimmer or brush-cutter), rather than by tractor-drawn mowers, so as to minimise the risk of causing reptile casualties. All arisings should be removed immediately from the site following cutting.

   After a maximum of two days, the vegetation of the site should be cut again in a similar pattern to a height of about 50mm, taking great care to avoid injuring any reptiles which may be present and with all arisings again being removed from the site. The vegetation of the site should then be maintained in this short condition for a minimum of two further days before proceeding to Step 2.

In some rare situations this staged cutting, coupled with the careful removal of any structures which may be used by sheltering reptiles (eg rubble piles, timber piles, drystone walls etc – see Step 3 below) may be sufficient to achieve 'clearance' of the site by rendering it so unsuitable for reptiles that no further measures are required. In these circumstances, the site should then be maintained in this unsuitable condition until the commencement of development works, which should then be preceded by 'destructive searching' (see Step 8 below). These situations are likely to be very unusual, however, and will require careful assessment in advance by an appropriately qualified person.

Where there are no suitable habitats in the surrounding area for reptiles to relocate to (for example if the site is surrounded by roads or hard standings, or is hemmed in by other developments) then this step should be ignored.

2. Reptile-proof fencing should be erected around the perimeter of the affected areas of the site. These should be erected in accordance with published specifications such as that contained in the Highways Agency's *Design Manual for Road & Bridges* (Vol 10(4) (7) HA116/05 *Nature Conservation Advice in Relation to Reptiles and Roads* or the forthcoming *Reptile Mitigation Guidelines* (English Nature). The fencing will normally be required to extend below ground level for a depth of about 250mm, and both the installation and fabrication process may require careful supervision by a suitably qualified reptile handler to ensure that no reptiles are accidentally injured in the process. On large sites it may be useful, and will probably speed up the process, if the site is subdivided into smaller parcels.

   Reptile-proof fences may be either vertical 'no-pass' fences or sloping 'one-way' fences. The former will prevent the movement of reptiles in either direction, whilst the latter can be erected in areas where the site lies immediately adjacent to a suitable receptor sites, and will allow reptiles to leave the development area voluntarily.

3. Within the enclosed parcels, any rubble piles, drystone walls, tree roots, buried rubble and timber piles etc should be dismantled by hand to prevent reptiles from using them to shelter in. All arisings should be removed from the site. As far as possible, these operations should be carried out by hand, with the minimum tracking by any vehicles or machinery across the site. Complex or large structures may need to be carefully dismantled under the supervision of a reptile handler who can halt the works and rescue any reptiles which may be found sheltering in them.

4. Following the clearance of sheltering places, the vegetation of the enclosed parcel should be cut, if it has not already been so. Cutting should initially be to a height of about 200mm, starting at the centre of the parcel and working outwards towards the edges. All cutting must be done by hand (eg by strimmer or brush-cutter), rather than by tractor-drawn mower, so as to minimise the risk of causing reptile casualties. All arisings should be removed immediately from the site following cutting.

   Note that for a linear site, such as a cycle-path or verge, strimming should be undertaken from the path working ahead and outwards at the same time, effectively cutting a 'V'-shape.

5. After cutting, the site should be strewn with 'refugia'. These should comprise a combination of suitable materials such as sheet metal, timber (eg chipboard), roofing felt and carpet tiles. These will be used by reptiles for sheltering beneath, or for basking on, where they can be found and caught more easily. If the vegetation is already shorter than 200mm, refugia may be laid out straight away without cutting the vegetation. Refugia should be spread evenly around the site at a high density (ie about 100 per hectare).

6. Depending on the site, visits should be made to the site by a reptile handler over at least the next two days to check beneath the refugia, collect any reptiles which may be beneath them and remove them to the receptor habitats. In practice, it will usually take at least a week for the refugia to 'bed in', and daily reptile collection visits may need to take place over a period of several weeks. Reptile collecting visits must be undertaken in suitable weather conditions, ie in dry, still conditions with air temperatures in excess of 10°C.

7. Daily or near-daily reptile collection and removal visits should continue until reptile numbers under the refugia begin to decline noticeably, at which point the vegetation of the site can be cut again, using the same methodology as at Step 4, but this time to a height of 100mm. Daily reptile collection and removal visits should continue for a further minimum of three days, in suitable weather conditions.

8. When reptile numbers are again detected to be declining, a final cut can be made to achieve very short, close-cropped vegetation of about 40-50mm height, again using the same methodology as at Step 4. This staged removal of the vegetation is likely to drive reptiles to make greater and greater use of the refugia, by removing alternative sheltering places and rendering the rest of the site unattractive to reptiles.

Depending on the individual circumstances of the site, it may be advisable to review the spread and location of refugia, and to begin to cluster these towards the edges of the site or in selected locations, although if this is done then the areas where refugia are no longer present must be kept in a highly unattractive state for reptiles. The manipulation of refugia numbers and locations may be used to reduce the amount of time needed for a reptile handler to check for reptiles. On a small site, however, there is probably no point in moving the refugia, and moving refugia may reduce capture efficiency[4]. This is a matter which will require expert assessment.

It is essential that the integrity of the reptile-proof fences is maintained throughout the trapping period. These should be checked on every visit, and any breaks repaired within 24 hours, otherwise reptiles could re-enter the trapping area from outside. An advantage of subdividing the trapping areas into compartments is that any breaks in the perimeter fence which do occur, and which go undetected for any length of time, will only affect the compartment it lies alongside, and not the whole trapping area.

On sites where vandalism is a significant problem, it may be necessary to institute security measures to ensure that the reptile-proof fences remain intact throughout the trapping period. The measures necessary will vary from site to site, but could include the use of 'Heras' fencing and/or the presence of site security personnel in extreme cases.

9. Daily or near-daily reptile collection visits should carry on until 10 successive nil-returns have been achieved, in suitable weather conditions, following the last vegetation cut. Following a final inspection by a suitably qualified person (the final inspection can be done at the same time as the last check of the refugia). At this point, the trapping records should be summarised and sent to the relevant Species Officer at the NRW. Although there is no obligation to do this, it will assist in maintaining a clear position with the statutory body and will encourage a cooperative dialogue. This may be useful in establishing that there has been full and reasonable compliance with the legal requirements in the event of a challenge arising.

   Note that there is no need to have 10 successive nil-returns between the vegetation cuts, but that these cuts should be at least 2 days apart and the numbers should be showing a decline (the exact time taken should be determined by the reptile handler in charge, and will vary from site to site).

10. NRW will then write to the developer to "release" the site to the developer or site engineers. Again, there is no obligation to obtain written consent from the NRW, but it will further demonstrate that there has been best-practice compliance to the satisfaction of the statutory body.

11. The area cleared of reptiles should then ideally be immediately stripped of all vegetation and the topsoil removed, leaving bare subsoil. This final stripping may be done with machinery (ideally using a bucket with

[4] Reptiles usually take a while to find refugia (hence the 'bedding in'), and once they do they tend to use them habitually. Moving refugia may simply confuse the animals and be counterproductive.

tines)[5]. In some cases it may be desirable that the site is 'destructively searched' prior to development, especially if the trapping out has not gone absolutely to plan (eg vandalism problems etc). This means that the topsoil layer to a depth of about 250mm is removed from the site in strips or sections, working sequentially across the site, using a digger with a tined bucket, under the supervision of a reptile handler who is able to check for the presence of any reptiles remaining in the soil. Where such reptiles are found, the reptile handler will stop the works, rescue the animal and release it to the receptor area.

12. The edges of the cleared area should be marked with high-visibility temporary fencing to prevent accidental trafficking of vehicles on the uncleared parts of the site (if any).

13. If there is any delay between the end of the reptile clearance operation and the commencement of development, measures must be taken to prevent the recolonisation of the site by reptiles from adjacent habitats, unless there is no such habitat adjacent to the site. To prevent reptiles re-entering the cleared area, the developer must therefore either:
    a) Keep the area in the cleared condition obtained at Step 9 - bare earth with no vegetation. To keep the area bare, the developer could consider using an approved herbicide. Or:
    b) Retain the reptile-proof fencing until development works are underway in the area concerned. If this option is chosen, the integrity of the reptile-proof fences will need to be checked regularly throughout the intervening period (ie daily or near-daily), and any breaks repaired within 24 hours. If undetected breaks occur for any length of time, the affected area (or compartment) will need to be trapped out again by repeating Steps 5-9 above.

    Maintenance of the site in a cleared and reptile-proof condition is really only critical during the reptiles' active period, since recolonisation is not likely to occur during the winter months. Therefore if a site has been cleared of reptiles in summer prior to development in winter, the reptile-proof fences can be removed (or allowed to deteriorate) once the hibernation period has begun (ie after about the end of October). If the start of development is subsequently delayed beyond the end of the hibernation period, however, (ie after about the end of March) it may be necessary to reinstall the fences, or even re-trap the site.

    The site can be re-opened to reptiles by removing the fencing after all construction works are complete.

Catching Methods

The use of refugia at high densities (100/ha) can be very effective for collecting slow-worms. However, other species are less readily found under refugia, and can be much more difficult to catch. 'Noosing' of common lizards whilst sunning on refugia can be effective, but requires skill and is very time-consuming. Snake catching is also a specialised skill, and carries health and safety implications. However, both snakes and common lizards tend to be more mobile than slow-worms, and are therefore more likely to reslake to the vegetation clearance and remove themselves from the trapping area where one-way fences make this possible.

Keeping Records

For trapping records, we recommend logging the date, time, weather conditions, temperature, minimum night temp (night before), species caught and location caught (a rough map would suffice, eg area A, B or C) and, if possible, the sex and age of the animals, and if gravid. Ideally a report of the trapping operation, in which all of the capture records are summarised and evaluated, should be prepared at the end of the operation and submitted to the NRW and/or the local authority ecologist. There is no obligation to do so, but the keeping of clear and unambiguous records may be essential in establishing that there was full and reasonable compliance with the law in the event of there being any challenge to the methods used.

When to Trap

Ideally clearance should begin as early as 1 April, with the aim of the site being cleared by the end of July. Clearance operations are less desirable later in the summer, since after about June there is the chance that juvenile animals will also be present, which as well as being extremely difficult to see and catch, may also significantly increase the number of animals on the site.

[5] It is worth noting that there can be a conflict on sites where there is also an archaeological watching brief: archaeologists usually specify a bladed bucket to produce smearing in which archaeological layers can be seen. A tined bucket makes this much more difficult.

Post-development Monitoring

In addition to the above, we would encourage the developer to put in place a scheme to monitor the effects of the development on the reptiles and to see if the mitigation has been successful. The design of any monitoring exercises should be discussed in advance with the NRW.

APPENDIX 6: TREATMENT OF JAPANESE KNOTWEED

Introduction
Japanese knotweed (*Fallopia japonica*) is a vigorously-growing non-native perennial plant which suppresses other vegetation and can damage riverbank protection works, tarmac surfaces and paving etc. Knotweed infestation can easily be spread by the accidental distribution of soils containing root fragments or rhizomes during earthworks for developments. Under The Wildlife and Countryside Act 1981 it is illegal to deliberately allow the spread of Japanese knotweed. Excavated soil from areas where Japanese knotweed is established must either be disposed of on site, in accordance with the Environment Agency (EA) code of practice, or taken off the site to a licensed landfill site and not re-used in further construction or landscaping.

Measures for Containment & Eradication
Access to an infested site should be via a single designated point, where a hygiene facility for personnel and a wheel-washing facility for vehicles should be provided. Areas of knotweed should be securely fenced-off, preferably with high visibility Netlon fencing, prior to treatment. Effective control measures must be implemented before there is any gross disturbance to the soils of the site.

There are a number of options available for the on-site control of Japanese knotweed. These are as follows:

1. Chemical Control – Early Season
2. Chemical Control – Late Season
3. Mechanical Control
4. Combined Control

These are described in greater detail below.

1) Chemical Control – Early Season
This method usually takes a minimum of 3 years to fully control the growth of Japanese knotweed, and may not result in total eradication. Prior to treatment, stands of the plant should be cut and cleared, and an appropriate and approved herbicide (eg Glyphosate Bioactive) applied to the resulting new growth. All cuttings should be collected and burned[6]. Herbicide treatment should take place from May onwards. A non-persistent herbicide should be used to avoid contaminating any watercourses within or near the site, and the EA consulted over work in close proximity to the watercourse.

Stems must not be pulled, which tends to remove the highly infectious crown material with the stem. Where it is the intention to treat regrowth with a herbicide, cut material should be removed from the treatment area to allow effective spray contact with the emergent growth. It should be policy to chemically treat knotweed, rather than continuously cut the regrowth.

Cut stems should be left in a situation that will encourage drying. This can be achieved by laying the cut stem on the cut stumps of the knotweed (cut at about 200mm), thus preventing contact between the stems and the soil. Once the stems have dried to a deep brown colour, they are dead. This is not the case with crown or rhizome material.

Once the vegetation has died back, all above-ground stems of the plant should be cut and/or collected and burnt. Herbicide should be re-applied when the regrowing shoots reach 0.5m in height.

Japanese knotweed flowers between August and October and is attractive to bees. Herbicide spraying should therefore take place in early morning or evening in the summer months, in order to avoid causing bee mortality. Herbicides can only to be handled and applied by persons holding a current certificate of competence from the National Proficiency Tests Council (NPTC).

2) Chemical Control – Late Season
Recent trials have shown that better results can be achieved by applying a systemic herbicide (eg Glyphosate Bioactive) to uncut foliage and stems at the end of the growing season (eg August to September). The foliage should be comprehensively wetted with herbicide during a period of dry weather, before the first frosts have begun to wilt the foliage, for example using a knapsack sprayer. The herbicide is then translocated down into the rhizomes in large quantities as the plant withdraws nutrients from the above-ground growth, prior to winter die-back, thus killing the rhizome as well.

[6] The EA require 2 weeks notice prior to burning, and the EA and/or the local planning authority may refuse permission for on-site burning.

Trials have shown that when properly applied, this technique can achieve up to 100% kill within the first year, although follow-up monitoring and subsequent treatment of regrowth is advised for at least two years following the initial treatment. There may, however, be problems in achieving adequate access and herbicide application in large stands of knotweed, which may be better treated using one or more of the other options available. Precautions regarding watercourses and herbicide handling are as per Option (1) above.

3) Mechanical Control

To reduce the risk of transferring infestations on vehicles, excavators with caterpillar tracks should be avoided in infested areas. The entire root and stem system should be excavated up to 7m laterally and 2m deep in areas of infestation. On-site burial should be performed to a depth of at least 5m. The contaminated soil material should be laid in layers less than 1m in depth and covered with a geotextile layer (eg LowTrak) or a heavy gauge polythene sheet, prior to infilling. Site managers should check the periphery of the excavation for rhizome, to ensure that an adequate volume of material has been removed to account for all of the infective material.

The on-site disposal area will require a Landfill Tax Exemption for contaminated soil from Customs & Excise, and a registered exemption of the Waste Management Regulations 1994, as it is considered to be a soil contaminant. The local Environment Agency office will require one week's notification prior to burial being carried out.

The location of the burial point should be recorded, as further chemical treatment may be required in the future. All machinery involved with the excavation, transporting and disposing of the Japanese Knotweed should be cleaned thoroughly at the disposal site. Alternatively, contaminated soil material may be taken off-site to a licensed landfill facility utilising vehicles licensed to carry contaminated waste.

4) Combined Control

Combined mechanical and herbicide treatment can be an effective method in reducing the need for subsequent chemical control. Should burial of infested soils not be practical, another option is to create an *in-situ* disposal area. Using an excavator, the plant material should be scraped from an infested area into a pile, together with the upper 50cm of topsoil containing the crowns and rhizomes, and stockpiled separately from other materials.

The majority of Japanese knotweed rhizome exists in the upper layers of topsoil. An excavator may be used to scrape surface crowns and rhizomes into a pile. The exposed ground can then cultivated to a depth of 50cm, and the piled material re-spread over the cultivated area. This process stimulates the rhizome to produce a higher density of stems, which renders it more vulnerable to herbicide treatment. Subsequent herbicide treatment has been observed to eradicate knotweed after only two applications, which may be performed within the same growing season.

Digging can be carried out during the winter months, and regrowth treated during the spring and summer. Extreme care must be taken to ensure that all equipment used on site is free of Japanese knotweed material before leaving the site, to avoid contravention of the Wildlife & Countryside Act, 1981. To reduce the risk of contaminating vehicles, excavators with caterpillar tracks should be avoided.

The infested material should be chemically treated and/or burned in accordance with a registered exemption from the Waste Management Regulations 1994. The Environment Agency require 2 weeks notification prior to the burial/burning activity. Great care must be taken with this method to avoid the accidental spreading of contaminated soils away from the disposal area.

Soil contaminated with knotweed may also be stockpiled on an area of the site that will remain undisturbed. Knotweed regrowth should be regularly treated with herbicide to avoid re-infestation. The upper 50cm of topsoil, which will contain all the crowns and the majority of the rhizome should be stockpiled separately from the other, less infested material. This will avoid burial of the bulk of the rhizome at the bottom of a large stockpile, where it may remain dormant and escape treatment. Regrowth, which will predominantly arise from the stockpile of topsoil, can then be treated until the knotweed is killed. Larger pieces of rhizome and crowns can be isolated and burned where appropriate.

Herbicide Use

Wherever there is a risk of contamination to a watercourse, choice is limited to formulations of Glyphosate and 2,4-D Amine that are approved for use in or near water. Not all herbicides containing these active ingredients are suitable for use in or near water. Use of a herbicide in or near water requires consultation with the Environment Agency. If the site poses no risk to a watercourse, there is a greater choice of herbicide. Where soil is intended for continued use, or immediate reuse, for landscaping purposes, a non-residual herbicide, such as Glyphosate or 2,4-D

Amine would be appropriate. In the event that replanting is likely to be delayed for a period of at least six weeks, a formulation containing triclopyr may be considered. If it is the intention to cover the area in a hard surface, or delay replanting for at least two years, persistent chemicals such as picloram and imazapyr would be appropriate.

Developers are advised to seek the advice of a qualified landscape gardener or BASIS-registered[7] pesticides advisor, prior to commencing a spraying programme. When using a herbicide, always adhere to the advice given on the label.

Herbicide	Affects grasses?	Approved for use in or near water?	Persistency
Glyphosate	Yes	Yes	Non-persistent
2,4-D Amine	No	Yes	1 month
Triclopyr	No	No	6 weeks
Imazapyr	Yes	No	9 months
Picloram	No	No	2 years

Under the Duty of Care[8], persistent chemicals must be included within the description of the waste if the material is being disposed of within the period of activity of that particular chemical. If it is intended to bury knotweed on site, it is essential that non-persistent herbicides, such as glyphosate, be used.

Summary

The best economic control option on any given site will be dependent upon the amount and the location of the Japanese knotweed on site, together with constraints imposed by the construction programme and any implications in relation to areas potentially identified as control or burial sites.

Experience has shown that dealing with the Japanese knotweed on site tends to be more cost-effective than off-site removal. The cost of disposal of contaminated soils to a licensed landfill site at the present time is approximately £30-35/m^3 (2005 costs). On-site disposal is, however, dependent upon the identification of a suitable disposal location within the footprint of the scheme.

[7] BASIS is an organisation committed to ensuring individuals involved in the handling and use of pesticides are competent. BASIS maintain a register of trained advisors, who need to demonstrate an annual programme of continual professional development to maintain their qualification. Details on the BASIS Professional Register are available from 34, St John Street, Ashbourne, Derbyshire DE6 1GH. Tel: 01335 343945.

[8] Section 34 of the Environmental Protection Act 1990 (EPA90) imposes a duty of care on persons concerned with controlled waste. The duty applies to any person who produces, imports, carries, keeps, treats or disposes of controlled waste, or as a broker has control of such wastes. Breach of the duty of care is an offence, with a penalty of an unlimited fine if convicted on indictment.

PHOTOGRAPHS OF SITE (February 2018)


1. Area south of footpath, scrub cleared


2. Area of Japanese knotweed, south of footpath


3. Area south of footpath, looking south-east


4. Area south of footpath, scrub/trees at site edge


5. Entrance to site, north of footpath


6. Cleared scrub, north of footpath


7. Grassland (scrub cleared), north of footpath


8. Marshy grassland north of footpath, looking south


9. Dense bramble scrub along east site boundary


10. Dense scrub to the north of development area

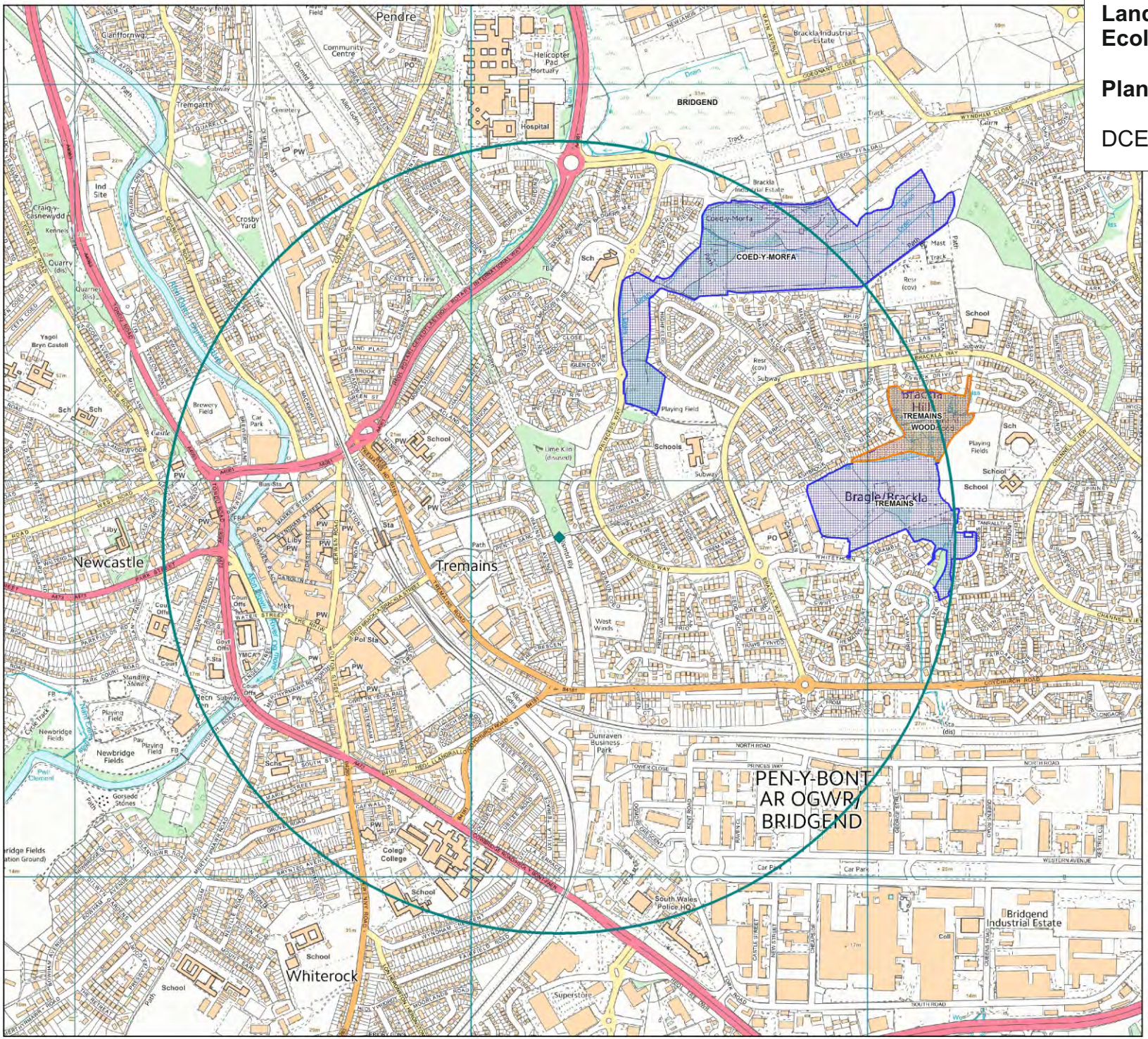

11. Japanese knotweed in north of development area


12. Woodland north of development area

Land off Waunscil Avenue, Brackla
Ecological Assessment

Plan 1: Location

DCE 506 NTS March 2018



Plot produced on 20/02/2018 on behalf of David Clements Ecology Ltd by

SEWBReC
SOUTH EAST WALES BIODIVERSITY RECORDS CENTRE
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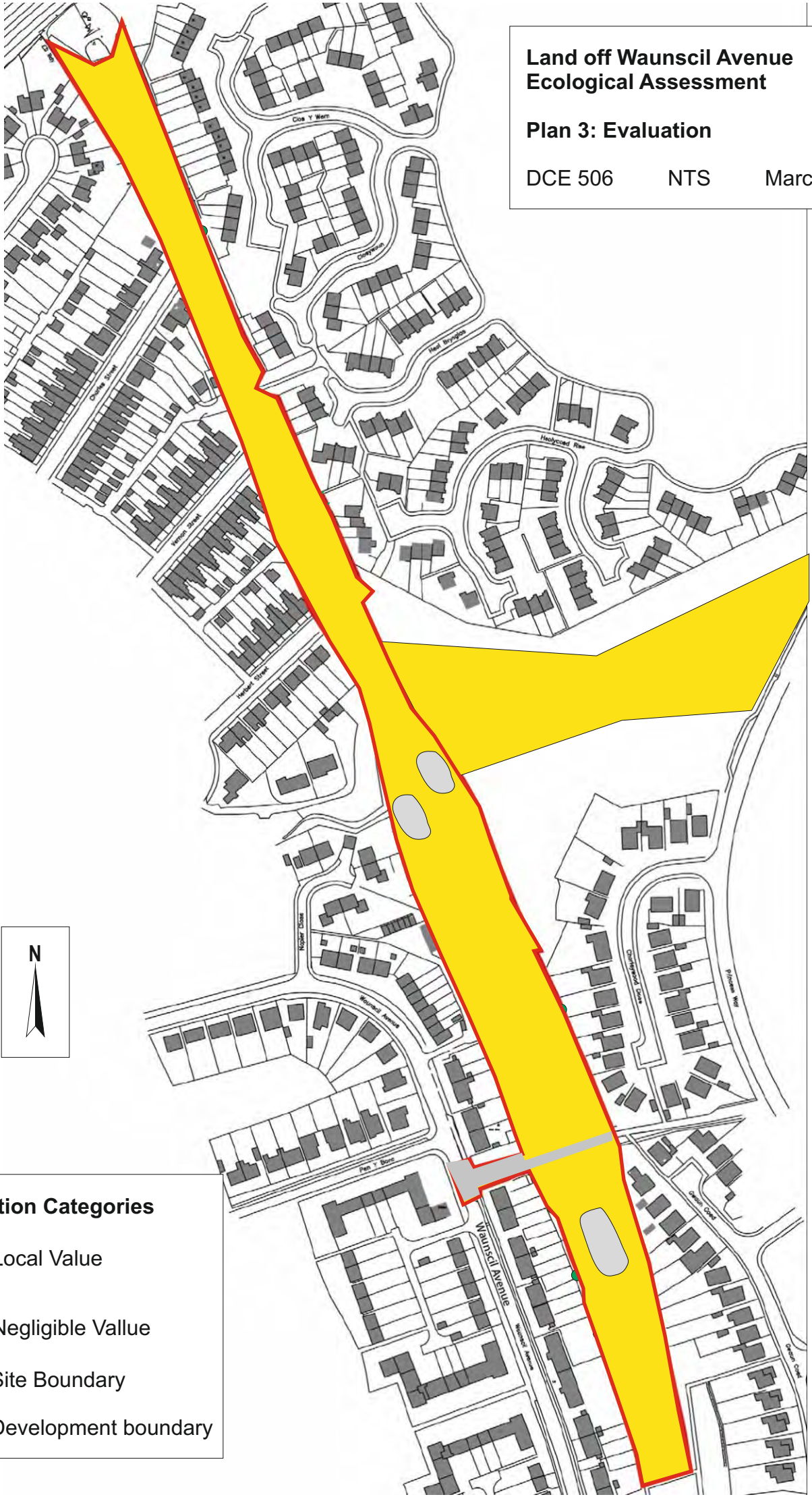
Land off Waunscil Avenue
Ecological Assessment
Plan 2: Habitats and Vegetation
DCE 506
NTS
March 2018
N
Key
Site Boundary
Development boundary
Hardstanding
Japanese Knotweed
Bramble Scrub
Hawthorn Scrub
Dense Mixed Scrub
Marshy Grassland
Semi-improved Neutral Grassland
Scattered shrubs
Large trees
Waunscil Avenue
Clos Y Wern
Hollycoed Rise
Vernon Street
Herbert Street
Napier Close
Pen Y Bonc
Charlywood Close
Pitchcroft Way
Devon Close

Land off Waunscil Avenue
Ecological Assessment

Plan 3: Evaluation

DCE 506 NTS March 2018



Evaluation Categories

- Local Value
- Negligible Vallue
- Site Boundary
- Development boundary