

A4119 Dualling Preliminary Ecological Assessment

September 2016

Quality Management

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Drawings

GC002498-CAP-74-XX-DR-C-0007-P01.1 – Preliminary Proposals with Footways
 GC002498-CAP-74-XX-DR-L00002 – Statutory and Non-statutory Sites
 GC002498-CAP-74-XX-DR-L00001 - Phase 1 Habitat Survey

Appendices

- Appendix A – SEWBRc data
- Appendix B - Phase 1 Survey Species Results
- Appendix C – Additional Target Notes
- Appendix D - Legislation

Non-Technical Summary

Site Location	A section of the A4119 between Ynysmaerdy and Coed Ely. Central British National Grid Reference: ST026849.
Proposed Development	Dualling of the A4119.
Purpose of survey/s	To identify possible ecological constraints to development.
Dates of survey and names of surveyors	<ul style="list-style-type: none"> Holly Lewis (ACIEEM) Senior Ecologist: 7th July 2016. Holly Lewis and Rebecca Howells Graduate Ecologist: 8th August 2016.
Overview of Results	<ul style="list-style-type: none"> Two SSSI's exist within 2 km of the proposed site. The southern end of the scheme runs directly adjacent to the River Ely SINC. Seven additional SINCs exist within 2 km of the site. Habitats recorded on site included: semi-natural broad-leaved woodland, broad-leaved plantation woodland, mixed plantation woodland, scattered trees, dense scrub, poor semi-improved grassland and improved grassland. Bat roosting potential was noted in trees on site and in nearby buildings. Otter potential was identified within the River Ely and other watercourses adjacent to the site. Woodland, scrub and hedgerows have the potential to support low numbers of dormice. Breeding bird potential existed in woodland, trees and scrub habitats on site. Reptile potential was identified within road verges on site. Japanese knotweed, Himalayan balsam and cotoneaster were noted on site.
Further Surveys / Action Required	<ul style="list-style-type: none"> Protection of the River Ely SINC. Hedgerow survey (to inform requirement for Removal Notice). Hedgerow retention/reinstatement. Further bat assessment (buildings, retaining wall, culverts, and trees). Bat activity surveys. Dormouse nut search (to inform need for method statement and/or further survey). Otter survey. Badger survey. Reptile survey. Invasive species mapping and method statement. Maintain habitat connectivity. Avoid night working (where possible) and lighting of watercourses. Sensitive vegetation clearance with respect to dormice, reptiles and breeding birds. Prevent water pollution during and following construction.
Opportunities for enhancement	<ul style="list-style-type: none"> Improvement of habitat connectivity. Enhancement of culverts for otters and bats. Planting of species to benefit wildlife.

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| | <ul style="list-style-type: none">• Additional opportunities will be dependent on the results of further surveys. |
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1. Introduction

Capita was commissioned by Rhondda Cynon Taf County Borough Council (RCTCBC) to undertake Preliminary Ecological Assessment (PEA) for a potential dualling scheme along the A4119, Talbot Green (central Grid Reference (BNG) ST026849). The survey was carried out to identify any ecological constraints to the proposed scheme and to identify the scope for further ecological assessment/surveys.

This report includes details of the survey methodologies, results and discussion and contains recommendations for further survey/mitigation where appropriate.

1.1 Site Description

This section of the A4119 Ely Valley Road runs between at Coedely and Ynysmaerdy.

The vast majority of the surrounding area consists of agricultural land, woodlands and hedgerows. The River Ely runs parallel to the west of the site. The South Wales Fire and Rescue Service, industrial units and car dealerships are located to the south of the site and a caravan dealership to the north.

Figure 1: Site Location (Google Earth, 2016).



The potential development site is shown on Drawing GC002498-CAP-74-XX-DR-C-0007-P01.1.

2. Methodology

2.1 Desktop Study

The following organisations/persons were consulted for ecological information about the site and surrounding areas:

- South East Wales Biodiversity Records Centre (SEWBRc, 2016);
- Multi-Agency Geographic Information System (MAGIC, 2016);
- Rhondda Cynon Taf County Ecologist (*Pers Comm*, 2016a).

A request was made for information on any ecologically designated sites and protected/notable species within a 2km radius of the site (5km for bats) and dated within the last ten years.

2.2 Phase 1 Habitat Survey

Experienced Capita surveyors conducted the survey based on Extended Phase 1 habitat survey techniques (JNCC, 2010) on the 7th July and the 8th August 2016. The survey consisted of a thorough walkover of the survey area, mapping the habitat types present and listing floral species within each habitat type. Species nomenclature follows Stace (2010).

2.3 Constraints

Due to health and safety concerns relating to fast traffic and lack of pavement along the eastern side of the A4119 not all of the habitat was fully assessed. The surrounding habitat to the north of the scheme is privately owned and could also therefore not be accessed. Where this occurred the surveyors used binoculars to identify species from the western side of the road. The overall results of the survey are not expected to have been impacted.

3. Desktop Study Results

3.1 Statutory Sites

3.1.1 Sites of Special Scientific Interest

Two SSSI's exist within 2km of the scheme and are detailed below:

Llantrisant Common and Pastures SSSI is 113.2 ha and is located approximately 670 m south-east of the proposed development site. It is designated for its extensive area of predominantly acidic marshy grassland in a lowland setting and for smaller areas of species-rich neutral and acidic grassland and soligenous flush. It is also of special interest for its populations of the nationally rare liverwort (*Scapania paludicola*) and the nationally scarce cornish moneywort (*Sibthorpia europaea*) plant species.

Rhos Tonyrefail SSSI is 224.7 ha in size and consists of a network of seven groups of fields around Tonyrefail, the nearest of which is located approximately 325 m east of the site. The site is a large lowland site of special interest for its marshy grassland, acid flush, species-rich neutral grassland, acid grassland, wet heath and blanket mire which are associated with areas of woodland. The site is also of special interest for its population of marsh fritillary butterfly (*Euphydryas aurinia*).

3.2 Non-statutory sites

3.2.1 Sites of Importance for Nature Conservation

A total of 8 SINC's were identified within 2 km of the three sites, the nearest and most relevant of which are discussed below:

The River Ely SINC (50.33 ha) lies directly adjacent to the southern end of the site. The River Ely is a prime wildlife corridor and the SINC includes the river, and associated bank side habitats, between Tonyrefail and Talbot Green. The Ely, although previously polluted, has now recovered to generally good water quality. It is a key river for otter (*Lutra lutra*), and it supports kingfisher (*Alcedo atthis*) dipper (*Cinclus cinclus*) and grey wagtail (*Motacilla cinerea*). Brown trout (*Salmo trutta*) and salmon (*Salmo salar*) both breed within its length. The river supports wooded banks, with alder the primary tree and associated areas of wet alder woodland. Monkshood (*Aconitum napellus*), is a speciality of the wooded banks of the River Ely.

Llantrisant Forestry and Craig Melyn SINC (306.928 ha) is located approximately 50 m south of the Ynysmaredy roundabout. Llantrisant Forest is the oldest Forestry Commission conifer forest in Wales. It is an extensive (several hundred hectares) mixed conifer plantation, which includes areas of replanted ancient woodland at Coed Melyn and Coedynysmaerdy. Both woods retain areas of relic semi-natural woodland including oak (*Quercus robur*), alder (*Alnus glutinosa*) and hazel (*Corylus avellana*) woodland with elements of ancient woodland ground floras (bluebell (*Hyacinthoides non-scripta*) and wood anemone (*Anemone nemorosa*)).

Rhiwfelin Fawr SINC (6.912 ha) is located approximately 160 m west of the site. It is a mosaic of marshy grassland and woodland habitat, which lies within the wider complex of the Rhos Tonyrefail SSSI. Although much of the grassland has been modified by agricultural improvement, the site represents an important wet grassland resource. The SINC supports a mosaic of soft rush (*Juncus effusus*) and purple moor-grass (*Molinia caerulea*) dominated

marshy grassland (National Vegetation Classifications M23 and M25) with sharp-flowered rush (*Juncus acutiflorus*), marsh bedstraw (*Galium palustre*), greater bird's-foot trefoil (*Lotus pedunculatus*), tormentil (*Potentilla erecta*), cross-leaved heath (*Erica tetralix*), yellow sedge (*Carex demissa*), and carnation sedge (*Carex panicea*). The SINC supports marsh fritillary (*Euphydryas aurinia*) habitat and devil's-bit scabious (*Succisa pratensis*) is locally common.

Nant Muchudd SINC (28.80 ha) is located approximately 300m to the west of the southern end of the site. The Nant Muchudd is a clean, fast flowing, shallow stream, with gravel shoals, undercut banks, and variously braided channels. The stream supports salmon, brown trout, otter, dipper, and grey wagtail. The stream banks are predominantly wooded. Much of the wooded valley is ancient woodland, including Rhiwfelen-fach Woodland. Typical composition includes alder woodland along the riverbank and valley bottom, and more mixed oak, ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*), wych elm (*Ulmus glabra*) and sycamore (*Acer pseudoplatanus*) on drier valley side. The woodlands have generally good structure, and represent important woodland bird habitat.

Tonyrefail Mountains SINC (198.4 ha) is located approximately 700 m north-east of the northern end of the site. The SINC is an extensive area of un-enclosed upland habitat associated with Mynydd Maendy, Mynydd Hugh and Mynydd Portref, to the south of Tonyrefail. The SINC is a mosaic of wet heath, marshy grassland, acid grassland, acid flush and valley and basin mire. The mosaic of upland wet habitat supports a characteristic upland bird assemblage with meadow pipit (*Anthus pratensis*), skylark (*Alauda arvensis*), stonechat (*Saxicola tortrata*), reed bunting (*Emberiza Schoeniclus*), linnet (*Carduelis cannabina*) and wheatear (*Oenanthe oenanthe*) all recorded. Great crested newt (*Triturus cristatus*) has been recently recorded in ponds on the Coed Ely land reclamation site. Brown hare (*Lepus europaeus*) occur in the mosaics of wetlands and short grassland. Dark green fritillary butterflies (*Argynnis aglaja*) have also been recorded.

The locations of the non-statutory sites are illustrated on GC002498-CAP-74-XX-DR-L00001.

3.3 Tree Preservation Order (TPO)

An individual TPO tree and a mixed woodland TPO area exist immediately north of the Coedely roundabout, alongside the eastern carriageway of the A4119.

3.4 Species

Appendix A lists protected or priority species within a 2km radius of the site (5km for bats) within the last 10 years. A summary of the records is detailed below. Relevant legislation is outlined in Appendix B.

3.4.1 European Protected Species

Bats

The data searched identified 44 records of bats within 2 km and 553 records within 5 km of the site. Records include noctule, serotine (*Eptesicus serotinus*), lesser horseshoe (*Rhinolophus hipposideros*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle, Natterer's (*Myotis nattereri*) and brown long-eared bat (*Plecotus auritus*). The closest record was a whiskered bat found on a wall directly adjacent to site. The record is located towards the north of the site along the western side of carriageway. The nearest confirmed bat roost (species unknown) has been recorded within a property in Stirling Drive located approximately 250 m from the site.

Otters

One otter record was identified in the search area. An otter was recorded swimming within a watercourse located approximately 1.5 km west of the site.

Otters are known to be present within the River Ely (see Section 3.2.1) which runs parallel to the site.

Dormice

Although no records of dormouse exist within the search area several dormouse (*Muscardinus avellanarius*) records exist within Coed Trecastell woodland which is located approximately 2.3 km south of the southern end of the site. There is connectivity, though limited, between this woodland and the woodland mapped along the western carriageway of the site.

3.4.2 UK Protected/Priority Species

Badgers

No records of badgers exist within 2 km of the site.

Reptiles

A total of 32 records of reptiles were identified within 2 km of the site including adder, grass snake (*Natrix natrix*), slow worm and common lizard. The nearest record is of a common lizard located approximately 500m west of the site.

Birds

SEWBRc held 44 records of protected and priority bird species within the 2km radius area of search including Schedule 1 species such as goshawk (*Accipiter gentilis*) hobby (*Falco subbuteo*). The records (Appendix A) are presented as provided by SEWBRc.

Amphibians

Eight records of common frog and one record of palmate newt exist within the search area. The nearest record is for palmate newt which have been recorded within Coedely conservation ponds located approximately 30 m south of Coedely roundabout.

Fish

SEWBRc did not provide any records of protected or priority fish species within 2km in the last 10 years, however the River Ely and Nant Muchadd are known to support protected and priority fish species. Species such as salmon and brown trout are included within the SINC designation descriptions for these habitats (see Section 3.2.1).

Invertebrates

Records of invertebrates identified within the 2km search area include the dingy skipper (*Erynnis tages*) located approximately 500 m west of the northern end of the scheme and white-spotted sable (*Anania funebris*) located approximately 1.1 km south of the site.

Small Mammals

Records of hedgehog (*Erinaceus europaeus*), polecat (*Mustela putorius*), brown hare and weasel (*Mustela nivalis*) exist within the search area. The closest record is of a polecat road traffic causality noted within the site boundary.

Plants and Fungi

There are records of 3 priority and protected plant and fungi species within 2 km of the scheme (bluebell (*Hyacinthoides non-scripta*) violet coral (*Clavaria zollingeri*) and olive earth-tongue (*Microglossum olivaceum*). The nearest record is for bluebells which were recorded approximately 400 m south-west of Ynysmaedy roundabout within Llantrisant Forest.

Invasive Species

A total of nine invasive species have been recorded within 2 km of the three sites including Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and montbrecia (*Crocasmia pottsii* x *aurea* = *C. x crocosmiiflora*).

4. Phase 1 Habitat Survey Results

4.1 Habitats

The results of the site survey are shown on drawing GC002498-CAP-74-XX-DR-L00001. A botanical species list is provided in Appendix B and additional target notes (TN) are detailed in Appendix C.

4.1.1 *Semi-natural broad-leaved woodland*

Semi-natural broad-leaved woodland (TN 1) was mapped within the scheme footprint along the southern carriageways of the A4119 which were connected to larger areas of woodland (e.g. woodland mapped along the River Ely). Sycamore and ash were the dominant canopy species and ancient woodland ground flora species such as hart's-tongue fern (*Asplenium scolopendrium*) and herb Robert (*Geranium robertianum*) were recorded. Alder was present within the canopy towards the wetter habitats associated with the river. Himalayan balsam was locally abundant and Japanese knotweed occasional within woodland that falls within the site boundary.

Semi-natural broad-leaved woodland was also mapped in the wider area (TN 3). Species noted included sycamore, ash, alder, hazel and hawthorn (*Crataegus monogyna*). Large extents of Himalayan balsam and Japanese knotweed were also recorded (particularly along the banks of the River Ely).

4.1.2 *Broad-leaved plantation woodland*

Broad-leaved plantation woodland (TN 2) was mapped along both sides of the A4119. Canopy species included ash, sycamore, hazel, hawthorn and bramble (*Rubus fruticosus agg*) were dominant in the understorey and ground flora species included broad-leaved dock (*Rumex obtusifolius*) and goosegrass (*Galium aparine*). Bracken (*Pteridium aquilinum*) and Himalayan balsam were locally abundant.

Broad-leaved plantation woodland (TN 4) was mapped to the southern end of the scheme (associated with the fire station). Species noted included dogwood (*Cornus sanguinea*), pine (*Pinus* sp.), dog rose (*Rosa canina*), blackthorn (*Prunus spinosa*), silver birch (*Betula pendula*) and bramble.

4.1.3 *Mixed plantation woodland*

A large area of well-established mixed conifer plantation (TN 8) was mapped in the wider area (to the south of the River Ely) which forms part of the Llantrisant Forestry and Craig Melyn SINC. Further detail is included within Section 3.2.1.

Mixed plantation woodland (TN 18) was mapped on Coedly roundabout. Species included pine, hawthorn and bramble.

A small area of mixed plantation woodland (TN 19) was mapped to the southern end of the scheme along the eastern carriageway. Larch (*Larix* sp) was the abundant species and sycamore was common.

4.1.4 *Scattered broad-leaved trees*

Thirteen scattered planted broad-leaved trees (TN 5) were mapped on the eastern side of Coedely roundabout. Species included rowan (*Sorbus aucuparia*), lime (*Tilia x europaea*), horse chestnut (*Aesculus hippocastanum*) and cherry (*Prunus avium*).

A large ash tree (*Fraxinus excelsior*) (TN 23) was mapped along the eastern carriageway adjacent to a small road that leads to farmland buildings.

Three immature silver birch trees (TN 7) were mapped within semi-improved grassland adjacent to the Ynysmaerdy roundabout.

4.1.5 *Scattered coniferous trees*

Pine trees (*Pinus* sp.) (TN 9) were mapped at the back of a plot on the eastern carriageway. The trees were adjacent to a small road that leads to farmland buildings and are likely to have been planted for noise/visual buffering.

4.1.6 *Dense scrub*

A small area of dense scrub (TN 10) was mapped to the south-west of Coed Ely roundabout (adjacent to the western carriageway). Species included rosebay willowherb (*Chamerion angustifolium*), bramble, Japanese knotweed and Himalayan balsam.

An area of dense scrub (TN 11) lined the southern boundary of an improved grassland field to the east of Coed Ely roundabout. Species recorded included bramble, bracken, meadow vetchling (*Lathyrus pratensis*) and field horsetail (*Equisetum arvense*).

Dense scrub (TN 12) was also mapped approximately central to the scheme along the eastern carriageway. Bramble and bracken were the abundant species with hazel and hawthorn common and false oatgrass (*Arrhenatherum elatius*) frequent.

A small area of dense scrub (TN 13) was mapped adjacent to the entrance of the scrap yard located along the western carriageway. Species included buddleia (*Buddleia davidii*), rosebay willowherb, ash and bramble.

4.1.7 *Recently felled mixed woodland*

An area of recently felled mixed woodland (TN 21) was mapped within the Llantrisant Forestry and Craig Melyn SINC (detailed in Section 3.2.1).

4.1.8 *Semi-improved neutral grassland*

A sloped verge of semi-improved neutral grassland (TN 14) was mapped to the south of the Coedely roundabout at the top of the western carriageway. Species included cock's-foot (*Dactylis glomerata*), common knapweed (*Centaurea nigra*), bird's-foot trefoil (*Lotus corniculatus*), tufted vetch (*Vicia cracca*) and mouse ear (*Cerastium fontanum*).

4.1.9 *Poor-semi improved grassland*

Poor-semi improved grassland (TN 6, 15) was mapped along the verges of the A4119 and the Coed Ely and Ynysmaerdy roundabouts. Species included Yorkshire fog (*Holcus lanatus*), dandelion (*Taraxacum agg.*), fescue (*Festuca* sp.), ribwort plantain (*Plantago lanceolata*), yarrow (*Achillea millefolium*) and creeping buttercup (*Ranunculus repens*). These areas appeared to be mown regularly.

4.1.10 *Improved grassland*

A number of improved grassland fields were mapped adjacent to the A4119. Species noted from the perimeter of the fields included creeping buttercup, ribwort plantain and Yorkshire fog. Rush (*Juncus* sp.) species were often occasional but locally dominant.

4.1.11 *Introduced species*

A small section of introduced species (TN 16) were mapped along the western carriageway near to Pantglas house. Leyland Cypress (*Cupressus x leylandii*) dominated but bamboo and cotoneaster (*Cotoneaster* sp.) were also recorded.

4.1.12 *Hedgerows*

Numerous hedgerows were mapped in the wider area bordering agricultural fields adjacent to the A4119. At least some of the hedgerows appeared to be species-rich but could not properly be assessed due to access issues (see Section 2.3).

4.1.13 *Wall*

A stone retaining wall (approximately 6 m high) (TN 17) was mapped near to the southern end of the scheme along the eastern carriageway. Ivy (*Hedera helix*) and buddleia were recorded growing out of the structure and plantation broad-leaved woodland was mapped in front.

4.1.14 *Running water*

The River Ely (TN 22) flows parallel to the western carriageway and two tributaries are culverted underneath the A4119 itself.

4.2 *Species*

4.2.1 *European Protected Species*

Bats

Trees, culverts, buildings and a retaining wall located alongside the A4119 have the potential to support bat roosts within suitable features such as cracks and crevices and behind dense ivy cover.

Woodland, scrub and tall ruderal habitats mapped alongside the road are considered to be suitable for foraging and commuting routes for bats.

Otters

The River Ely is known to support otters (see Section 3.4.1) which runs parallel to the scheme (closest distance is 5 m from the A4119). Otters are highly likely to be present within this section of the river.

Two tributaries of the River Ely pass underneath the road and are also considered to be suitable for otters.

Great crested newts

Conservation ponds exist approximately 30 m south-west of the Coed Ely roundabout where palmate newts and common frogs have been recorded previously (see Section 3.4.1). The

waterbodies could also have the potential to support great crested newts but are separated from the site by the River Ely which would act as a barrier for dispersal of the species.

Dormice

The Mynydd Garth Maelwg woodland located along the western carriageway of the A4119 is a large woodland likely to be suitable for dormouse although the adjacent long established but primarily conifer forest (Llantrisant Forestry and Craig Melyn SINC (approx. 50 m south of the scheme)) reduces the suitability slightly. No records exist within 2km of the scheme (see Section 3.4.1) but is some connectivity to known dormouse population within Coed Trecastell woods (albeit limited).

4.2.2 UK Protected/Priority Species

Birds

There is potential for breeding birds in woodland, scattered trees, scrub and tall ruderal habitats mapped on site.

Reptiles

There was potential in areas of poor semi-improved grassland for small numbers of reptiles.

Invertebrates

There was no potential for specially protected invertebrate species.

4.2.3 Other

Badgers

Woodland and agricultural fields mapped on site may have the potential to support badgers.

Fish

The River Ely and other watercourses adjacent to the A4119 are likely to support fish species such as salmon, brown trout and European eel.

4.2.4 Invasive Species

Japanese knotweed, Himalayan balsam and cotoneaster were recorded during the survey.

5. Discussion

5.1 SINC

The River Ely SINC runs parallel to the western carriageway A4119 and is directly adjacent to the southern end of the scheme (see drawing GC2498-CAP-74-XX-DR-L-0002). The SINC will require protection during the works to avoid pollution and light spillage and habitat loss will need to be kept to a minimum. Further detail can be found in Sections 7.1, 7.11 and 7.14.

5.2 Bats

Habitat on site appears to be suitable for foraging and commuting routes including tree lines, woodland, hedgerows and watercourses. Trees, buildings and culverts in or directly adjacent to the site may also have bat roost potential and further assessment will be required. European legislation relating to bats is detailed in Appendix C.

5.3 Otters

Otters are likely to be present within the section of the River Ely that runs parallel to site as well as associated tributaries that run underneath the A4119.

It will be necessary to avoid impacting on otters during the works and otter surveys will be required to establish if there are any holts nearby.

5.4 Dormice

Hedgerows and woodland exist within the site which could be suitable for low numbers of dormice due to pre-existing records of the species within the wider area and connectivity to larger, more suitable woodlands (see Section 4.2.1). European legislation relating to dormice is detailed in Appendix C.

5.5 Great crested newts

Conservation ponds within 30 m of the scheme are separated from the site by the River Ely. The river would prevent great crested newts from accessing the site and therefore the species will not be considered any further.

5.6 Breeding birds

Suitable bird nesting habitat was noted throughout the site in habitats such as woodland, scrub and scattered trees. Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended) (detailed in Appendix C).

5.7 Reptiles

Semi-improved grassland and scrub habitats located alongside the A4119 are suitable to support low numbers of reptiles such as common lizard and slow worm.

Common reptiles receive protection under the Wildlife and Countryside Act (1981), as amended, from killing and injury, and are considered to be priority species for the Conservation of Biodiversity, the local authority has a duty to consider the conservation of these species.

5.8 Fish

A number of protected fish species are likely to be present in watercourses adjacent to site such as the River Ely.

Measures will need to be undertaken to avoid polluting these watercourses during the works and impacting upon fish (see Section 7.12).

5.9 Invasive species

Japanese knotweed and Himalayan balsam mapped on site are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Further survey and mitigation will be required to avoid spreading the invasive species into the local area.

6. Conclusion

The southern end of the scheme lies directly adjacent to the River Ely SINC which has been designated for the watercourse and its wooded banks.

The site has the potential to support numerous protected species such as bats, otters, dormice, breeding birds, badgers and reptiles.

7. Recommendations

7.1 SINC Protection

The River Ely SINC will require protection throughout the duration of the works. Habitat loss will need to be kept to a minimum, lighting of the river channel restricted (see Section 7.12) and measures will need to be in place to prevent pollution (see Section 7.15).

7.2 Hedgerow survey

It will be necessary to identify the quality of the hedgerows that are likely to be directly affected by the scheme. The hedgerows should be surveyed between May and August. Dependent on the results of the survey and the extent of the works Hedgerow Removal Notices may be required from the Local Planning Authority.

7.3 Hedgerow retention/reinstatement

The loss of potentially species-rich hedgerows which adjoin the habitats along the A4119 (see Section 4.1.12) will need to be kept to a minimum. Where possible hedgerows should be retained and used to maintain connectivity during and after the works are complete. In particular any hazel within the footprint of the scheme should be coppiced and replanted to benefit dormice which may be present on site (see Section 5.4).

7.4 Bat assessment survey

Once the extent of the proposed works has been confirmed an ecologist can assess the level of impact to roosting bats. It is likely that due to the loss of suitable habitat on site (buildings, culverts, retaining wall) further survey and/or mitigation will be required.

An initial assessment can be undertaken at any time of year.

7.5 Bat activity surveys

Bat activity surveys are required along transects within high value habitats throughout the site. The surveys will determine if and how the bats are using the site and the species assemblage across the site.

Two bat activity surveys should be completed per transect each month between May-September in accordance with current guidelines (BCT, 2016) and static recorders will also be set up across the site.

7.6 Dormouse Survey (hazel nut search)

A hazel nut search should be carried out on site. This involves collecting samples of gnawed hazel nuts and checking for tooth marks characteristic of dormice to help determine presence/likely absence.

As the loss of woodland on site suitable for the species is fairly minimal if this survey method produces negative results then a method statement is likely be sufficient for the works to be carried out (*Pers, Comm. 2016b*). The need for further survey will be determined following the collation of the results.

The hazel nut search should be carried out on site between mid-August and December.

7.7 Otter survey

An otter survey will be required to check for otter holts within the vicinity of the scheme as well as other signs of otter presence. Following the survey an ecologist will also be able to advise of any additional constraints that may be posed.

7.8 General Otter Mitigation

- The site compound (and all machines and materials) if required should be located away from the watercourse. A suitable location for the compound should be agreed with an ecologist to ensure that this doesn't conflict with other ecological considerations.
- Materials and machinery should be locked away in the site compound when not in use, day, night or weekends.
- Watercourses should be left open as much as possible during the night. Fencing should not occupy or obstruct the watercourses, leaving a safe passage for otters and bats at all times during the works.
- Any excavations should be securely fenced off and covered over at the end of the working period, at weekends or when not in use.
- If otters or any excavations/holts within the river channel are observed at any time all works must stop immediately and an ecologist must be notified.

7.9 Sensitive vegetation clearance

Sensitive vegetation clearance is likely to be required to avoid impacting on dormice, reptiles and breeding birds. This may involve restrictions on the seasonal timings of clearance (e.g. avoid bird breeding season (March-August inclusive)), 2-stage cutting methods and/or ecological supervision. The requirements can be fully determined following targeted species surveys.

7.10 Reptile Survey

It will be necessary to carry out a series of seven reptile surveys (in accordance with best practice guidelines) between March and September. Artificial Cover Objects (ACO's) will be placed within areas of suitable habitat identified along the route and checked in order to establish presence/likely absence of reptiles.

7.11 Invasive species

Invasive species on site will need to be mapped and a site-specific management plan will be required.

The plan will need to address methods of clearance of invasive species, movement/treatment of soil which may contain Japanese knotweed rhizomes and/or Himalayan balsam seeds and longer-term management of invasive species within the site.

7.12 Lighting

The specification and layout of any new lighting that may be included within the design should be agreed with an experienced ecologist at the design stage.

Night-time working should be avoided and no artificial lighting should be used around River Ely SINC and associated watercourses to avoid disturbing species such as bats, otters and fish.

7.13 Maintaining/enhancing connectivity

Maintaining habitat connectivity along the woodland and hedgerows on site is required during and after the works and should be discussed with the ecologist throughout the feasibility and design stages. This is to ensure bat flight lines and wildlife corridors are retained at all times.

Enhancement could be achieved by reducing gaps within the canopy and planting native and diverse species that would benefit a wide range of species.

7.14 Enhancing culverts for otters and bats

It is likely that culverts on site will be extended/replaced which presents opportunities to enhance them for bats and otters.

Bat boxes could be installed to encourage bats to roost within the structure. Further information can be provided following the targeted surveys (see Section 6.3).

There are also opportunities to enhance the site for otters by incorporating an otter ledges into the design of any new culverts. Otter ledges would aim to encourage otters to still use the culverts in times of spate and deter them from crossing the road above.

7.15 Water Pollution Prevention

Pollution prevention measures should be followed to avoid impacting water quality and prevent impacting species such as otters, fish and freshwater invertebrates.

To avoid polluting the watercourse during the works the following recommendations should be adhered to:

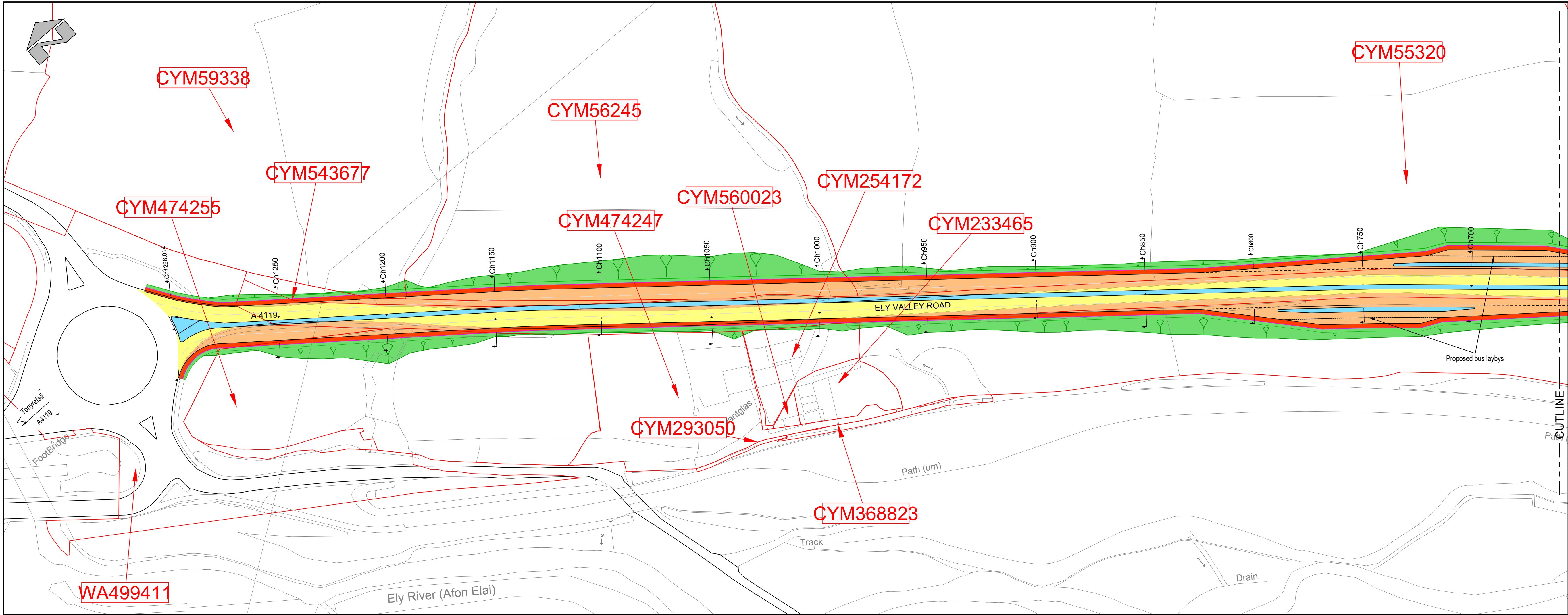
- All materials (especially if hazardous or toxic) should be stored at least 7m away from the watercourse;
- All static machinery should be placed drip-trays or oil absorbent nappies. Trays should be emptied regularly to ensure that they contain any spills.
- Silt fences should be erected where appropriate

8. References

- Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F. (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford.
- JNCC. 2010. Handbook for Phase 1 habitat survey. A technique for environmental audit. Joint Nature Conservation Committee
- Personal Communication (*Pers Comm*, 2016a. Email from Richard Wistow received on 22nd July 2016.
- Personal Communication (*Pers Comm*, 2016b. Email confirmation from Richard Wistow received on 7th September 2016.
- Stace, C. A., (2010). (3rd Edition) New Flora of the British Isles, Cambridge University Press
- Wildlife and Countryside Act 1981 (as amended)

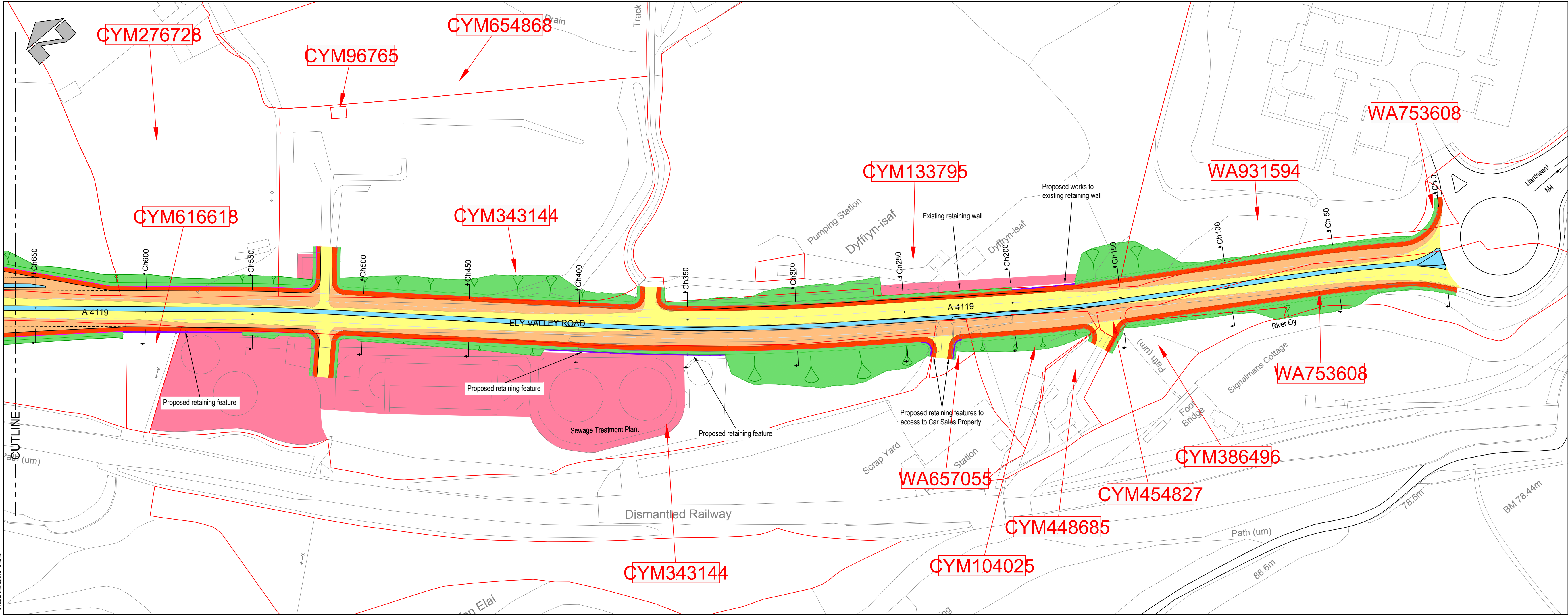
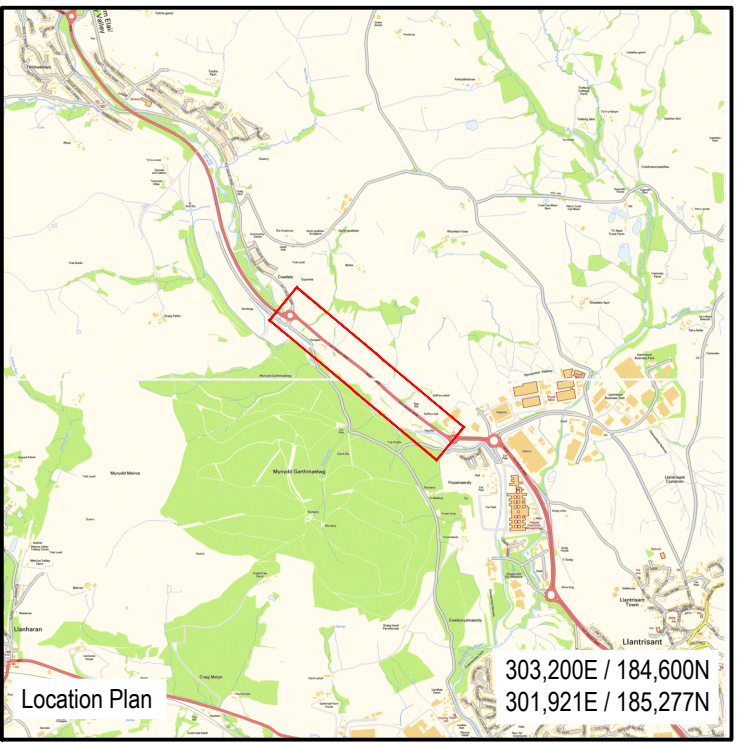
Drawings

- GC002498-CAP-74-XX-DR-C-0007-P01.1 – Preliminary Proposals with Footways
- GC2498-CAP-74-XX-DR-L-0002 – Statutory and Non-Statutory Sites
- GC2498-CAP-74-XX-DR-L-0001 – Phase 1 Habitat Survey



Key

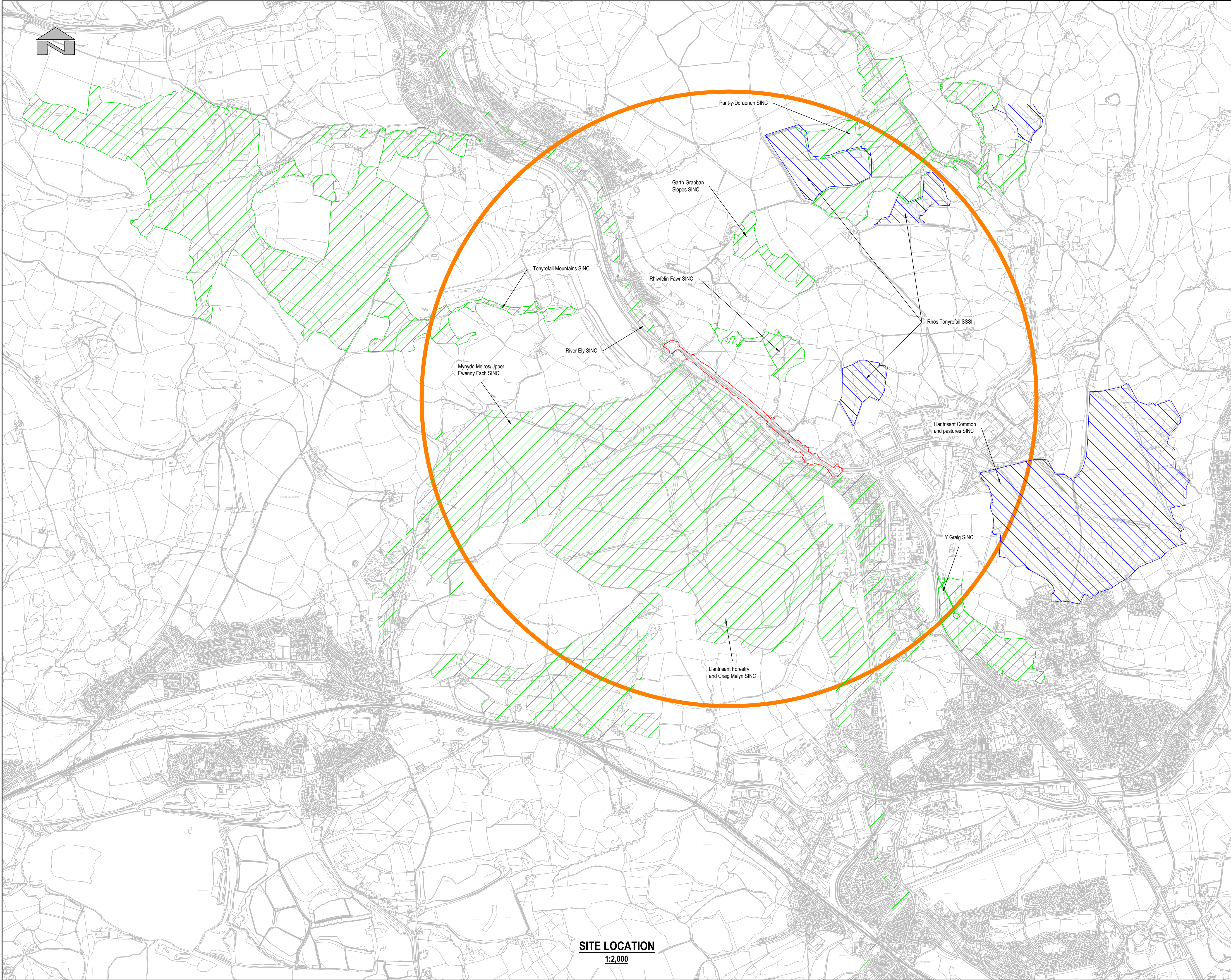
- New road
- Revised/raised road
- New 2m wide footway
- New/revised verge and embankment
- Site Constraints
- Central reservation



Rev	Drawn	Chkd	App'd	Description	Date
Purpose of Issue					
S2 - Suitable for Information					
Classification					
Commercial in Confidence					
Client					
Rhondda Cynon Taf County Borough Council					
Project					
A4119 Ely Valley Road Dualling					
Drawing					
Preliminary Proposals with Footways					
Scale @ A1					
1:1,000					
Drawn					
HT					
Checked					
NM					
Approved					
Project No.					
GC/002498					
Date					
July 2016					
Drawing Identifier					
Project - Originator - Zone - Level - File Type - Role - Number					
GC2498-CAP-76-XX-DR-C-0007					
revision					
P01.1					

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23/08/2016



Key

Non-Statutory Sites

Statutory Sites

2km Buffer Zone

Rev	Drawn	Chkd	App'd	Description	Date
Purpose of Issue					
Reference Plan					
Classification					
Commercial in Confidence					
Client					
Rhondda Cynon Taf County Borough Council					
Project					
A4119 Ely Valley Road Dualling					
Drawing					
Ecology Statutory and Non Statutory Sites					
Scale @ A1					
As Shown		Drawn	Checked	Approved	
		SW	JS	AF	
Project No.				Date	
GC/002498				June 2016	
Drawing Identifier					BS1192 Compliant
Project - Originator - Zone - Level - File Type - Role - Number					revision
GC2498-CAP-74-XX-DR-L-0002					P01

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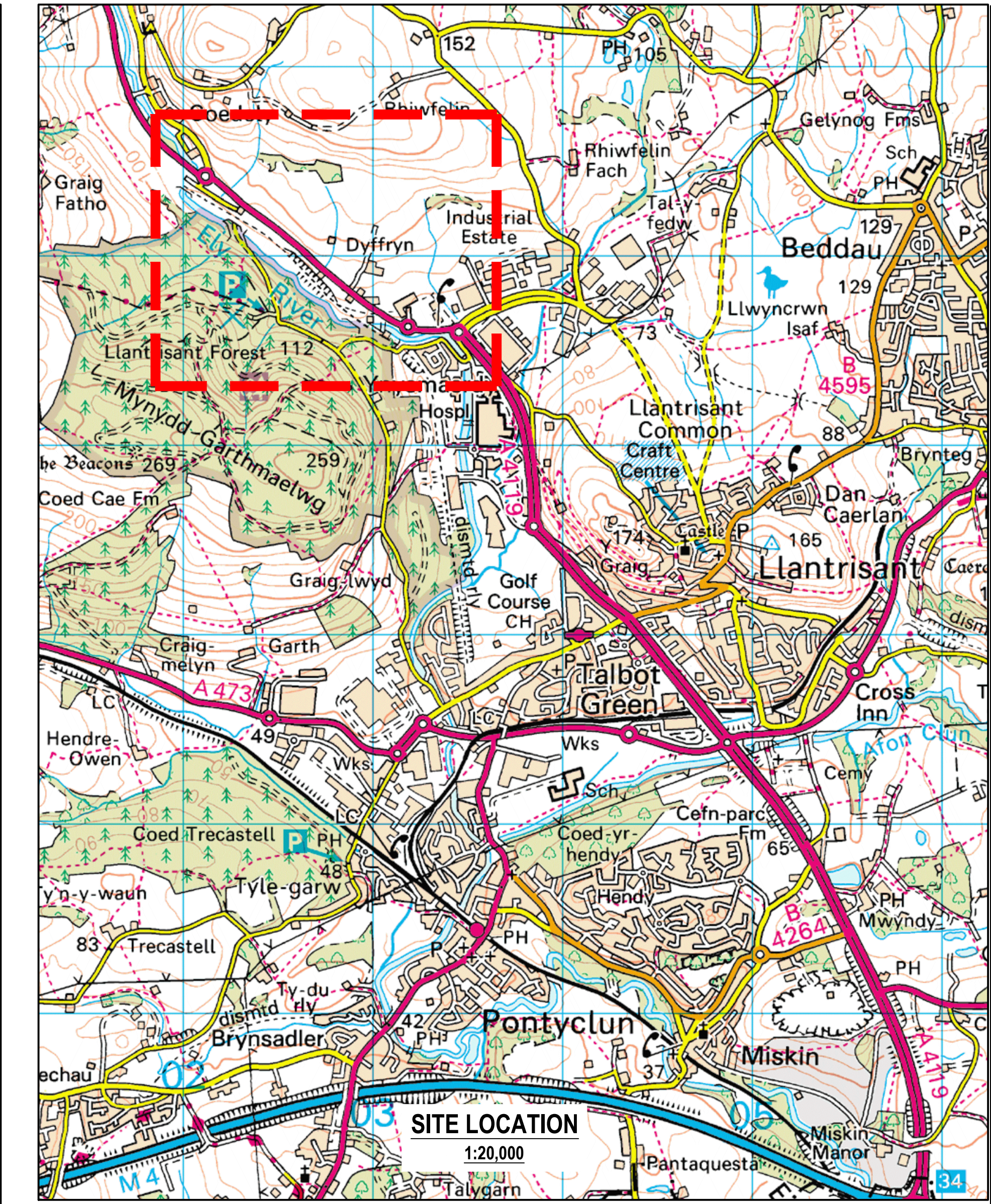
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Key	
	Semi-natural Broad-leaved Woodland
	Plantation Coniferous Woodland
	Dense / Continuous Scrub
	Tall Ruderal
	Buildings / Hard Standing
	Scattered Trees (coniferous)
	Scattered Trees (broad-leaved)
	Marsh / Marshy Grassland
	Poor Semi Improved Grassland
	Improved Grassland
	Plantation Mixed Woodland
	Wall
	Running Water
	Scattered Scrub
	Plantation Broad-leaved Woodland
	Standing Water
	Introduced Shrub
	Spoil
	Recently-Felled Woodland (mixed)
	Target Note

Rev	Drawn	Chkd	App'd	Description	Date
Purpose of Issue					
Reference Plan					
Classification					
Commercial in Confidence					
Client					
Rhondda Cynon Taf County Borough Council					
Project					
A4119 Ely Valley Road Dualling					
Drawing					
Ecology Phase 1 Habitat Plan					
Scale @ A1					
As Shown	Drawn	Checked	Approved		
	GB	JS	AF		
Project No.				Date	
GC/002498				June 2016	
Drawing Identifier					
Project - Originator - Zone - Level - File Type - Role - Number					BS1192 Compliant revision
GC2498-CAP-74-XX-DR-L-0001					P01

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Appendix A- SEWBRReC Data

A.1 Protected and Priority Species within 5 km (bats only)

Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Bats	<i>Chiroptera</i>	EPS, WCA5, S42, LBAP (ANG, DEN, FLI, RCT, SNP, TRA, TRF)	50	June 2015
Serotine	<i>Eptesicus serotinus</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (GWY, POW, TRA, TRF)	4	July 2014
Unidentified Bat	<i>Myotis</i>	EPS, HDir, WCA5, Bonn, Bern, LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	76	July 2014
Daubenton's Bat	<i>Myotis daubentonii</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF)	1	June 2006
Whiskered Bat	<i>Myotis mystacinus</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, DEN, FLI, GWY, POW, SNP, TRA, TRF)	1	September 2015
Natterer's Bat	<i>Myotis nattereri</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF)	1	August 2012
Nyctalus Bat species	<i>Nyctalus</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA)	4	July 2012
Lesser Noctule	<i>Nyctalus leisleri</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	5	October 2011
Noctule Bat	<i>Nyctalus noctula</i>	EPS, HDir, WCA5, S42, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	54	June 2015
Pipistrelle Bat species	<i>Pipistrellus</i>	EPS, WCA5, LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	72	May 2016
Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	9	October 2011
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	EPS, HDir, WCA5, S42, Bonn, Bern, RD2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)	193	September 2015
Pipistrelle	<i>Pipistrellus pipistrellus</i> agg.	EPS, HDir, WCA5, S42, Bonn, Bern, RD2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)	3	October 2012
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	EPS, HDir, WCA5, S42, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, BBNP, CLY, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)	153	July 2015
Brown Long-eared Bat	<i>Plecotus auritus</i>	EPS, HDir, WCA5, S42, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	27	July 2015
Greater Horseshoe Bat	<i>Rhinolophus ferrumequinum</i>	EPS, HDir, WCA5, S42, UKBAP, Bonn, Bern, RD1 (UK), RD2 (UK), LBAP (ANG, BBNP, CER, CLY, CRM, DEN, FLI, MON, PEM, POW, SNP, TRA, TRF, VOG)	3	October 2011
Lesser Horseshoe Bat	<i>Rhinolophus hipposideros</i>	EPS, HDir, WCA5, S42, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, TRA, TRF, VOG, WRE)	12	September 2010
Bats	<i>Vespertilionidae</i>	EPS, WCA5, Bonn, RD2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	34	October 2011

A.2 Protected and Priority Species within 2 km (excluding bats)

Common Name	Scientific Name	Legislation/conservation status	Number of records	Most recent record
Adder	<i>Vipera berus</i>	WCA5, S42, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	6	May 2016
Bluebell	<i>Hyacinthoides non-scripta</i>	WCA8, LBAP (ANG, CLY, CON, FLI, SNP, TRA, TRF)	18	June 2016
Broom Moth	<i>Ceramica pisi</i>	S42, UKBAP, LBAP (GWY, VOG)	4	August 2015
Brown Hare	<i>Lepus europaeus</i>	S42, UKBAP, Bern, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG)	1	June 2016
Brown-banded Carder-bee	<i>Bombus (Thoracobombus) humilis</i>	S42, UKBAP, LBAP (CER, CON, FLI, GWY, PEM, POW, VOG)	1	May 2016
Buff Ermine	<i>Spilosoma lutea</i>	S42, UKBAP, LBAP (GWY, VOG)	1	July 2013
Bullfinch	<i>Pyrrhula pyrrhula</i>	S42, UKBAP, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBR(RSPB), UKBAm(RSPB)	1	April 2014
Common Crossbill	<i>Loxia curvirostra</i>	WCA1.1, Bern, LBAP (CON, POW), LI(VC43)	2	October 2013
Common Frog	<i>Rana temporaria</i>	HDir, WCA5, Bern, LBAP (ANG, CLY, CON, FLI, POW, TRA)	8	February 2016
Common Lizard	<i>Zootoca vivipara</i>	WCA5, S42, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	23	June 2016
Common Toad	<i>Bufo bufo</i>	WCA5, S42, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, TRA, VOG)	2	May 2011
Dingy Skipper	<i>Erynnis tages</i>	S42, UKBAP, RD1 (UK), LBAP (BGW, BRG, CON, FLI, GWY, SWN, VOG), LI(SEWBRc)	2	May 2016
Dunnoek	<i>Prunella modularis</i>	S42, UKBAP, Bern, RD2 (UK), LBAP (CON, POW, VOG), UKBAm(RSPB)	4	May 2014
Goshawk	<i>Accipiter gentilis</i>	WCA1.1, WCA9, Bonn, CITES, LBAP (CLY, CON, POW, VOG)	1	April 2007
Grass Snake	<i>Natrix natrix</i>	WCA5, S42, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, VOG)	2	May 2014
Hawfinch	<i>Coccothraustes coccothraustes</i>	S42, UKBAP, Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	1	May 2013
Hobby	<i>Falco subbuteo</i>	WCA1.1, Bonn, Bern, CITES, LBAP (CON, GWY, POW, VOG), WBAm(RSPB), LI(VC43)	1	June 2014
House Sparrow	<i>Passer domesticus</i>	S42, UKBAP, Bern, LBAP (CLY, CON, FLI, GWY, VOG), WBAm(RSPB), UKBR(RSPB)	1	May 2009
Kestrel	<i>Falco tinnunculus</i>	S42, Bonn, Bern, CITES, WBR(RSPB), LBAP (ANG, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), LI(VC43), UKBAm(RSPB)	2	July 2015

Common Name	Scientific Name	Legislation/conservation status	Number of records	Most recent record
Lesser Redpoll	<i>Acanthis cabaret</i>	S42, UKBAP, WBR(RSPB), LBAP (CON), LBAP (DEN, POW, VOG), UKBR(RSPB), UKBAm(RSPB)	2	October 2013
Linnet	<i>Linaria cannabina</i>	S42, Bern, WBR(RSPB), LBAP (ANG, BBNP, CER, CLY, DEN, FLI, PEM, VOG), LBAP (CON, GWY), UKBR(RSPB)	3	May 2015
Marsh Fritillary	<i>Euphydryas aurinia</i>	EPS, HDir, WCA5, S42, UKBAP, Bern, RD1 (UK), RD2 (UK), LBAP (ANG, BBNP, CER, CON, CRM, GWY, PEM, POW, SNP, TRA, VOG), LI(SEWBRc)	1	April 2006
Merlin	<i>Falco columbarius</i>	BDir1, WCA1.1, Bonn, Bern, CITES, LBAP (CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	1	November 2009
Olive Earthtongue	<i>Microglossum olivaceum</i>	S42, UKBAP, LBAP (BBNP, CER, MON, POW)	3	October 2006
Palmate Newt	<i>Lissotriton helveticus</i>	WCA5, Bern, LBAP (ANG, CLY, CON, DEN, FLI, POW, TRA), LI(BIS)	1	March 2016
Polecat	<i>Mustela putorius</i>	HDir, S42, UKBAP, Bern, RD2 (UK), LBAP (BGW, BRG, CON, FLI, GWY, NEW, POW, SNP, VOG)	1	September 2010
Redwing	<i>Turdus iliacus</i>	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	4	December 2013
Reed Bunting	<i>Emberiza schoeniclus</i>	S42, UKBAP, Bern, LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	2	April 2010
Rustic	<i>Hoplodrina blanda</i>	-	1	July 2013
Slow-worm	<i>Anguis fragilis</i>	WCA5, S42, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, VOG)	1	Summer 2011
Small Pearl-bordered Fritillary	<i>Boloria selene</i>	WCA5, S42, UKBAP, RD1 (UK), RD2 (UK), LBAP (BBNP, CER, CON, DEN, FLI, PEM, POW), LI(SEWBRc), LI(VC43)	5	July 2015
Song Thrush	<i>Turdus philomelos</i>	BDir22, S42, UKBAP, Bern, RD2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG, WRE), WBAm(RSPB), UKBR(RSPB)	9	May 2014
Spotted Flycatcher	<i>Muscicapa striata</i>	S42, UKBAP, Bonn, Bern, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), UKBR(RSPB)	1	May 2014
Starling	<i>Sturnus vulgaris</i>	BDir22, S42, UKBAP, Bern, RD2 (UK), WBR(RSPB), LBAP (BBNP, CON, FLI, GWY, VOG), UKBR(RSPB)	4	May 2014
Tree Pipit	<i>Anthus trivialis</i>	S42, UKBAP, Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	1	May 2014
Violet Coral	<i>Clavaria zollingeri</i>	S42, LBAP (CON, FLI, POW)	1	October 2006
Weasel	<i>Mustela nivalis</i>	NRW, Bern, LBAP (ANG, BGW, BRG, CON, FLI, NEW, POW)	1	April 2008
West European Hedgehog	<i>Erinaceus europaeus</i>	S42, UKBAP, Bern, LBAP (ANG, BGW, BRG, CON, FLI, GWY, NEW, POW, RCT, VOG)	2	September 2015
White-spotted Sable	<i>Anania funebris</i>	S42, UKBAP, RD2 (UK)	5	May 2014

Common Name	Scientific Name	Legislation/conservation status	Number of records	Most recent record
Wood Warbler	<i>Phylloscopus sibilatrix</i>	S42, UKBAP, WBR(RSPB), LBAP (CON, GWY, SNP, VOG), UKBR(RSPB), UKBAm(RSPB)	4	May 2014

A.3 Other species of conservation concern

Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Monk's-hood	<i>Aconitum napellus</i>	RD2 (UK), LBAP (CDF, RCT, VOG), LI(BIS), LI(SEWBRReC), WVP	1	14 th August 2015
Long-tailed Tit	<i>Aegithalos caudatus</i>	WBAm(RSPB)	6	10 th February 2016
Mallard	<i>Anas platyrhynchos</i>	BDir21, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	1	26 th February 2016
Meadow Pipit	<i>Anthus pratensis</i>	Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	7	31 st March 2016
Little Thorn	<i>Cepphis advenaria</i>	RD2 (UK), LBAP (BGW, CLY)	1	16 th May 2014
Dipper	<i>Cinclus cinclus</i>	Bern, LBAP (BRG, CLY, CON, MTR, POW, RCT, TRA), WBAm(RSPB)	3	31 st May 2013
House Martin	<i>Delichon urbicum</i>	Bern, LBAP (BRG, CON, POW, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)	3	5 th October 2013
Alder Kitten	<i>Furcula bicuspis</i>	RD2 (UK), LBAP (NPT), LI(BIS)	1	21 st May 2014
Common Snipe	<i>Gallinago gallinago</i>	BDir21, Bonn, LBAP (ANG, CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	2	March 2001 - May 2011
Snipe	<i>Gallinago gallinago</i>	BDir21, Bonn, LBAP (ANG, CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	3	28 th June 2014
Petty Whin	<i>Genista anglica</i>	RD1 (UK), LBAP (GWY), LI (VC43)	1	11 th January 2014
Sedge Fanner	<i>Glyptotendix forsterella</i>	RD2 (UK)	1	4 th June 2012
Crane	<i>Grus grus</i>	BDir1, WCA9, Bonn, Bern, CITES, RD2 (UK), UKBAm(RSPB)	1	19 th April 2015
Swallow	<i>Hirundo rustica</i>	Bern, LBAP (ANG, CON, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)	8	26 th September 2015
Devon Carpet	<i>Lampropteryx otregiata</i>	RD2 (UK), LBAP (BRG, CLY, NPT), LI(BIS)	1	21 st May 2014
Lesser Black-backed Gull	<i>Larus fuscus</i>	BDir22, Bonn, Bern, LBAP (CON, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	1	30 th May 2015
Brown Birch Bolete	<i>Leccinum scabrum</i>	RD1 (UK)	1	9 th September 2015
Grey Wagtail	<i>Motacilla cinerea</i>	Bern, RD2 (UK), LBAP (CLY, CON, POW, TRA), UKBAm(RSPB)	1	27 th October 2010
Double-line	<i>Mythimna turca</i>	RD2 (UK), LBAP (BBNP, CER, POW)	1	13 th July 2013
Overleaf Pellia	<i>Pellia epiphylla</i>	RD2 (UK)	7	18 th June 2016
Coal Tit	<i>Parus ater</i>	Bern, LBAP (CON, POW), WBAm(RSPB)	15	17 th March 2016
Willow Warbler	<i>Phylloscopus trochilus</i>	WBR(RSPB), LBAP (CON), UKBAm(RSPB)	6	4 th May 2015
Green Woodpecker	<i>Picus viridis</i>	Bern, LBAP (CLY, CON, DEN, FLI, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	5	11 th March 2016
Goldcrest	<i>Regulus regulus</i>	Bern, LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	7	5 th October 2013
Stonechat	<i>Saxicola rubicola</i>	Bern, RD2 (UK), LBAP (ANG, DEN, FLI, PEM, POW), LBAP (CON, GWY), UKBAm(RSPB)	3	3 rd May 2016
Cornish Moneywort	<i>Sibthorpia europaea</i>	RD2 (UK), LBAP (BGW, CDF, CLY, RCT), LI(SEWBRReC)	1	11 th January 2014
Whitethroat	<i>Sylvia communis</i>	LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	2	4 th May 2015
Mistle Thrush	<i>Turdus viscivorus</i>	BDir22, Bern, RD2 (UK), UKBAm(RSPB)	9	16 th May 2014

Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Ivy-leaved Bellflower	<i>Wahlenbergia hederacea</i>	RD1 (UK), LBAP (DEN)	1	11 th January 2014

A.4 Species of local conservation concern

Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Short-winged Cone-head	<i>Conocephalus dorsalis</i>	LBAP (BRG, TRF), LI(SEWBRcC)	3	27 th August 2015
Golden-ringed Dragonfly	<i>Cordulegaster boltonii</i>	LBAP (CLY, SNP), LI(BIS), LI(SEWBRcC)	1	8 th August 2013
Many-stalked Spike-rush	<i>Eleocharis multicaulis</i>	LBAP (BGW), LI(SEWBRcC), LI(VC47)	2	9 th June 2012 – 11 th June 2012
Alder Buckthorn	<i>Frangula alnus</i>	LBAP (GWY, NEW), LI(SEWBRcC), LI(VC47)	3	21 st July 2015
Emerald Damselfly	<i>Lestes sponsa</i>	LBAP (CLY, SNP), LI(SEWBRcC)	1	16 th August 2013
Bee Orchid	<i>Ophrys apifera</i>	CITES, LBAP (CLY, GWY, TRA, TRF), LI(SEWBRcC), LI(VC47)	1	2 nd June 2008
Keeled Skimmer	<i>Orthetrum coerulescens</i>	LBAP (BGW, BRG, CLY, SNP), LI(BIS), LI(SEWBRcC)	2	10 th August 2015
Royal Fern	<i>Osmunda regalis</i>	LI (VC43), LI(SEWBRcC), LI(VC47), LI(VC52)	1	21 st July 2015

Appendix B – Botanical Species List

Common Name	Scientific Name	ACFOR
Plantation woodland (TN 2)		
Ash	<i>Fraxinus excelsior</i>	A
Bramble	<i>Rubus fruticosus</i> agg	F
Hart tongue fern	<i>Asplenium scolopendrium</i>	O
Hawthorn	<i>Crataegus monogyna</i>	A
Ivy	<i>Hedera helix</i>	C
Sycamore	<i>Acer pseudoplatanus</i>	A
Broad-leaved dock	<i>Rumex obtusifolius</i>	O
Broad-leaved willowherb	<i>Epilobium montanum</i>	R
False oatgrass	<i>Arrhenatherum elatius</i>	F
Male fern	<i>Dryopteris filix-mas</i>	O
Common knapweed	<i>Centaurea nigra</i>	R
Colt's-foot	<i>Tussilago farfara</i>	R
Yarrow	<i>Achillea millefolium</i>	R
Hogweed	<i>Heracleum sphondylium</i>	O
Hazel	<i>Corylus avellana</i>	C
Herb Robert	<i>Geranium robertianum</i>	O
Holly	<i>Ilex aquifolium</i>	O
Cotoneaster	<i>Cotoneaster</i> sp.	R
Oak	<i>Quercus robur</i>	R
Dog rose	<i>Rosa canina</i>	R
Elder	<i>Sambucus nigra</i>	R
Nettle	<i>Urtica dioica</i>	R
Himalayan balsam	<i>Impatiens glandulifera</i>	OLA
Goosegrass	<i>Galium aparine</i>	O
Bracken	<i>Pteridium aquilinum</i>	R
Field horsetail	<i>Equisetum arvense</i>	R
Cow parsley	<i>Anthriscus sylvestris</i>	R
Goat willow	<i>Salix caprea</i>	R
Male fern	<i>Dryopteris filix-mas</i>	R
Blackthorn	<i>Prunus spinosa</i>	R
Alder	<i>Alnus glutinosa</i>	R
Japanese knotweed	<i>Fallopia japonica</i>	R
Broad-leaved woodland (TN 1)		
Ash	<i>Fraxinus excelsior</i>	C
Hart tongue fern	<i>Asplenium scolopendrium</i>	F
Bramble	<i>Rubus fruticosus</i>	O
Cleavers	<i>Galium aparine</i>	R
Foxglove	<i>Digitalis purpurea</i>	R
Bracken	<i>Pteridium aquilinum</i>	C
Hawthorn	<i>Crataegus monogyna</i>	O
False oatgrass	<i>Arrhenatherum elatius</i>	O

Holly	<i>Ilex aquifolium</i>	O
Ivy	<i>Hedera helix</i>	F
Broad-leaved willowherb	<i>Epilobium montanum</i>	R
Himalayan balsam	<i>Impatiens glandulifera</i>	OLA
Sycamore	<i>Acer pseudoplatanus</i>	A
Oak	<i>Quercus robur</i>	R
Hogweed	<i>Heracleum sphondylium</i>	O
Herb Robert	<i>Geranium robertianum</i>	O
Laurel	<i>Lauraceae sp.</i>	R
Common nipplewort	<i>Lapsana communis</i>	O
Poor semi improved grassland roundabout (TN 15)		
Bird's-foot trefoil	<i>Lotus corniculatus</i>	-
Red clover	<i>Trifolium pratense</i>	-
Creeping buttercup	<i>Ranunculus repens</i>	-
Ragwort	<i>Senecio jacobea</i>	-
Field horsetail	<i>Equisetum arvense</i>	-
Daisy	<i>Bellis perennis</i>	-
Dandelion	<i>Taraxacum agg.</i>	-
Self-heal	<i>Prunella vulgaris</i>	-
Common mouse-ear	<i>Cerastium fontanum</i>	-
Spear thistle	<i>Cirsium vulgare</i>	-
Red fescue	<i>Festuca rubra</i>	-
Ribwort plantain	<i>Plantago lanceolata</i>	-
Yorkshire fog	<i>Holcus lanatus</i>	-
Sedge	<i>Carex sp.</i>	-
Tufted vetch	<i>Vicia cracca</i>	-
Annual meadowgrass	<i>Poa annua</i>	-
Semi-improved neutral grassland bank (south-west of Coedely roundabout) (TN 14)		
Rosebay willowherb	<i>Chamelion angustifolium</i>	-
Cock's-foot	<i>Dactylis glomerata</i>	-
Bird's-foot trefoil	<i>Lotus corniculatus</i>	-
Creeping buttercup	<i>Ranunculus repens</i>	-
Yorkshire fog	<i>Holcus lanatus</i>	-
Tufted vetch	<i>Vicia cracca</i>	-
Dandelion	<i>Taraxacum sp.</i>	-
Mouse ear	<i>Cerastium fontanum</i>	-
Common knapweed	<i>Centaurea nigra</i>	-
Hedge bedstraw	<i>Galium album</i>	-
Broad-leaved dock	<i>Rumex obtusifolius</i>	-
False oatgrass	<i>Arrhenatherum elatis</i>	-
Self-heal	<i>Prunella vulgaris</i>	-
Bramble	<i>Rubus fruticosus</i>	-
Silverweed	<i>Argentina anserina</i>	-
Common bent	<i>Agrostis capillaris</i>	-
Zig-zag clover	<i>Trifolium medium</i>	-
Dense scrub (south-west of Coedely roundabout) (TN 10)		

Rosebay willowherb	<i>Chamerion angustifolium</i>	A
Bramble	<i>Rubus fruticosus</i>	F
Himalayan balsam	<i>Impatiens glandulifera</i>	C
Hogweed	<i>Heracleum mantegazzianum</i>	O
Nettle	<i>Urtica dioica</i>	O
Creeping thistle	<i>Cirsium arvense</i>	F
Square-stemmed St. John's-wort	<i>Hypericum tetrapterum</i>	R
Ash	<i>Fraxinus excelsior</i>	O
Japanese knotweed	<i>Fallopia japonica</i>	O
Oak	<i>Quercus robur</i>	R
Hazel	<i>Corylus avellana</i>	R
Hemp agrimony	<i>Eupatorium cannabinum</i>	R
Willowherb sp	<i>Epilobium sp.</i>	R
Bracken	<i>Pteridium aquilinum</i>	R
Hedge bindweed	<i>Calystegia sepium</i>	R
Field horsetail	<i>Equisetum arvense</i>	R
Introduced species (TN 16)		
Leyland cypress	<i>Cupressus x leylandii</i>	A
Cotoneaster	<i>Cotoneaster sp.</i>	C
Bamboo	Bambusoideae sp	O
Broad-leaved scattered trees (adjacent to Coed Ely roundabout) (TN 5)		
Sycamore	<i>Acer pseudoplatanus</i>	F
Horse chestnut	<i>Aesculus hippocastanum</i>	F
Cherry	<i>Prunus avium</i>	R
Rowan	<i>Sorbus aucuparia</i>	R
Lime	<i>Tilia x europaea</i>	O
Wall (TN 17)		
Buddleia	<i>Buddleia davidii</i>	O
Ivy	<i>Hedera helix</i>	O
Dense scrub (along eastern carriageway) (TN 12)		
Hazel	<i>Corylus avellana</i>	C
Bramble	<i>Rubus fruticosus</i>	A
Hawthorn	<i>Crataegus monogyna</i>	C
False oatgrass	<i>Arrhenatherum elatis</i>	F
Ragwort	<i>Senecio jacobea</i>	O
Bracken	<i>Pteridium aquilinum</i>	A
Hogweed	<i>Heracleum mantegazzianum</i>	O
Ash	<i>Fraxinus excelsior</i>	O
Common vetch	<i>Vicia sativa</i>	O
Poor semi-improved grassland (along A4119) (TN 6)		
Ribwort plantain	<i>Plantago lanceolata</i>	F
Herb Robert	<i>Geranium robertianum</i>	R
Dog violet	<i>Viola rivinana</i>	R
Ivy	<i>Hedera helix</i>	O
Hogweed	<i>Heracleum mantegazzianum</i>	O
Red fescue	<i>Festuca rubra</i>	C

Semi-natural broad-leaved woodland (along River Ely) (TN 3)		
Ash	<i>Fraxinus excelsior</i>	F
Hawthorn	<i>Crataegus monogyna</i>	O
Himalayan balsam	<i>Impatiens glandulifera</i>	OLA
Alder	<i>Alnus glutinosa</i>	F
Oak	<i>Quercus robur</i>	O
Hazel	<i>Corylus avellana</i>	F
Japanese knotweed	<i>Fallopia japonica</i>	OLA
Dense scrub (eastern side of Coedely roundabout) (TN 11)		
Bracken	<i>Pteridium aquilinum</i>	C
Bramble	<i>Rubus fruticosus</i>	C
Hedge bindweed	<i>Calystegia sepium</i>	F
Hogweed	<i>Heracleum mantegazzianum</i>	O
Ash	<i>Fraxinus excelsior</i>	O
Great willowherb	<i>Epilobium hirsutum</i>	O
Bird's-foot trefoil	<i>Lotus corniculatus</i>	O
Ragwort	<i>Senecio jacobea</i>	O
Nettle	<i>Urtica dioica</i>	O
Meadow vetchling	<i>Lathyrus pratensis</i>	O
Field horsetail	<i>Equisetum arvense</i>	O
Tufted vetch	<i>Vicia cracca</i>	O
Creeping thistle	<i>Cirsium arvense</i>	O
Plantation woodland (surrounding fire station) (TN 4)		
Dogwood	<i>Cornus sanguinea</i>	A
Silver birch	<i>Betula pendula</i>	C
Pine	<i>Pinus</i> sp.	O
Bramble	<i>Rubus fruticosa</i> agg.	F
Ash	<i>Fraxinus excelsior</i>	F
Hazel	<i>Corylus avellana</i>	O
Blackthorn	<i>Prunus spinosa</i>	C
Dog rose	<i>Rosa canina</i>	R
Hawthorn	<i>Crataegus monogyna</i>	R
Nettle	<i>Urtica dioica</i>	O
Creeping thistle	<i>Cirsium arvense</i>	R
Bracken	<i>Pteridium aquilinum</i>	O
Cherry	<i>Prunus</i> sp.	R
Scattered Broad-leaved trees (TN 7)		
Silver birch	<i>Betula pendula</i>	O
Mixed plantation woodland (TN 8)		
Conifers	-	A
Sycamore	<i>Acer pseudoplatanus</i>	O
Oak	<i>Quercus robur</i>	O
Mixed plantation woodland (TN 19)		
Larch	<i>Larix</i> sp	A
Sycamore	<i>Acer pseudoplatanus</i>	C
Ash	<i>Fraxinus excelsior</i>	O
Bramble	<i>Rubus fruticosa</i> agg.	O

Coniferous scattered trees (TN 9)		
Pine	<i>Pinus</i> sp.	O
Mixed plantation woodland (on Coedely roundabout) (TN 18)		
Pine	<i>Pinus</i> sp	C
Hawthorn	<i>Crataegus monogyna</i>	F
Cherry	<i>Prunus</i> sp.	O
Bramble	<i>Rubus fruticosus</i> agg.	O
Blackthorn	<i>Prunus spinosa</i>	O

Appendix C – Additional Target Notes

TN 20 – Colliery spoil
TN 21 – Recently felled conifer plantation
TN 22 – River Ely
TN 23 – Large ash tree
TN 24 - Pond

Appendix D Legislation

European Protected Species

European Protected Species are species listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended). The list includes many species, including all species of bats, dormouse, great crested newts and otter. The species listed on Schedule 2 are afforded protection against:

- deliberate capture, injury or killing;
- deliberate disturbance;
- deliberate taking or destruction of the eggs;
- damage or destruction of a breeding site or resting place of such an animal.

Where a European protected species is present, a development may only proceed, under a licence issued by Natural Resources Wales. The above species are fully protected under the Wildlife and Countryside Act 1981 (as amended).

UK Protected Species: Birds

All naturally occurring British bird species are protected under the Wildlife and Countryside Act 1981 (as amended). The legislation protects all birds, their nests and eggs and it is an offence to:

- intentionally kill, injure and take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- intentionally take or destroy the egg of any wild bird.

Birds listed on Schedule 1 of the above legislation (e.g. barn owl) are afforded further protection and it is an offence to:

- intentionally or recklessly disturb the bird while nest building or while at (or near) a nest with eggs or young; or
- disturb the dependent young of such a bird.

UK Protected Species: Reptiles

All common reptiles (e.g. common lizard, grass snake, slow worm and adder) receive partial protection under the Wildlife and Countryside Act 1981 (as amended). This legislation protects these species from intentional killing or injury, however does not extend to the protection of habitats used by reptiles.

UK Protected Species: Badger

Badgers and their setts are protected under the Protection of Badgers Act 1992; the Act makes it an offence to:

- Kill, injure, take or attempt to kill, injure or take a badger; or
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett, or disturb a Badger whilst it is occupying a sett.

Any works which directly affect badgers setts can only be carried out under a licence issued by Natural Resources Wales.