



ECOLOGYSOLUTIONS

Part of the ES Group

COED DARCY,
LLANDARCY, NEATH

Ecological Assessment The Tip

November 2023
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CONTENTS

1	INTRODUCTION	3
2	SURVEY METHODOLOGY	5
3	ECOLOGICAL FEATURES	11
4	WILDLIFE USE OF THE APPLICATION SITE	16
5	ECOLOGICAL EVALUATION	27
6	PLANNING POLICY CONTEXT	40
7	SUMMARY AND CONCLUSIONS	45

PLANS

PLAN ECO1	Application Site Location and Ecological Designation
PLAN ECO2	Ecological Features
PLAN ECO3	Breeding Bird and Wintering Bird Survey Results
PLAN ECO4	GCN Pond Survey Results

APPENDICES

APPENDIX 1	Information Downloaded from MAGIC
APPENDIX 2	Relevant Extracts from Submitted ES Chapter 2021
APPENDIX 3	Crymlyn Tip Landscaping Plan

1. INTRODUCTION

1.1. Background & Proposals

- 1.1.1. Ecology Solutions Limited were commissioned by St. Modwen properties in April 2020 to undertake Ecological Assessment work of wider land at Coed Darcy, Llandarcy, Skewen, Neath.
- 1.1.2. Specific surveys for a range of species groups have been undertaken within the 'Tip' area since 2020, in order to facilitate the remediation of this area. The Tip area is shown on Plan ECO1, hereafter referred to as the Application Site.
- 1.1.3. The remediation of the Application Site is required to reduce on-going potential risk of contaminations into the adjacent Crymlyn Bog Special Area of Conservation (SAC), Ramsar and Site of Special Scientific Interest (SSSI) and Crymlyn Bog and Pant Y Sais National Nature Reserve (NNR) (as shown on Plan ECO1).
- 1.1.4. In addition, the Application Site will form part of the wider Outline Planning Permission (OPP) area and is proposed to form an integral part of the dedicated ecology mitigation area (planning application ref: P2021/1193).

1.2. Site Characteristics

- 1.2.1. As shown on Plan ECO2, the Application Site consists of predominantly an area of secondary woodland, wet grassland, compacted clay soils with a mosaic of recolonising vegetation, as a result of historic and on-going regular disturbance, dense mixed scrub and a number of waterbodies that are primarily utilised for the collection of hydrocarbons.
- 1.2.2. It is located approximately 4.7km south-west of Neath, and is surrounded by the wider Coed Darcy site, which was a former oil refinery. As discussed above, much of the northern and western boundary is directly adjacent to Crymlyn Bog SAC, Ramsar and SSSI (as shown on Plan ECO1). Much of the southern and south-western boundary is formed partially by an area designated as Coed Darcy GCN SINC, and consists of woodland, wetland area and a number of waterbodies, of which was utilised as a receptor area for historic GCN translocation.
- 1.2.3. The Application Site measures approximately 14.18Ha and is located around the central grid reference: SS703955, and lies in the borough of Neath Port Talbot County Borough Council.

1.3. Ecological Assessment

- 1.3.1. This document assesses the ecological interest of the Application Site as a whole. The importance of the habitats present is evaluated

with regard to current guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)¹.

- 1.3.2. The report also sets out the existing baseline conditions for the Application Site, setting these in the correct planning policy and legal framework, and assessing any potential impacts which may occur from the proposed development. Appropriate mitigation, where necessary, is identified such that it will offset any negative impacts and where possible provide for ecological enhancement, in accordance with relevant planning policy.

¹ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1*. Chartered Institute of Ecology and Environmental Management, Winchester.

2. SURVEY METHODOLOGY

2.1. The methodology utilised for the survey work was split into three areas. Namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

2.2.1. In order to compile background information on the Application Site and its immediate surroundings, Ecology Solutions contacted South East Wales Biodiversity Records Centre (SEWBRc). Once records are received, they will be referenced within this report where appropriate.

2.2.2. Additional survey work has been undertaken by Atkins. This includes habitat surveys carried out in 2018, and a series of species specific surveys, which are referenced where appropriate.

2.2.3. Information regarding designated sites is also shown where appropriate on Plan ECO1.

2.2.4. Further information on designated sites from a wider search area was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)² database. This information is reproduced at Appendix 1 and where appropriate on Plan ECO1.

2.3. Habitat Survey Methodology

2.3.1. Initial habitat surveys were carried out by Ecology Solutions in June 2020 to ascertain the general ecological value of the land contained within the boundaries of the Application Site, and to identify the main habitat types and associated plant species.

2.3.2. Further habitat survey work was undertaken at the Application Site in July 2021 in order to ascertain any significant baseline changes since 2020 surveys. In addition, the Application Site has been regularly visited in 2022 and 2023 and it is considered that specific habitat survey works from 2021 remains accurate.

2.3.3. The Application Site was surveyed with regard to extended Phase 1 methodology³, as recommended by the Joint Nature Conservation Committee (JNCC), whereby the habitat types were identified and mapped, together within an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas can then be examined in more detail.

2.3.4. Using the above method, the Application Site was classified into areas of similar botanical community types, with a representative

² <http://magic.defra.gov.uk>

³ Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted, JNCC, Peterborough.

species list compiled for each habitat identified. The habitats within the Application Site are illustrated on Plan ECO2.

- 2.3.5. All the species which occur in each habitat would not necessarily be detected during survey work carried out at any given time of the year, since different species are apparent during different seasons. However, noting 2020 and 2021 survey work was undertaken at an optimal time, with regular site visits undertaken to date, it is considered that an accurate high level habitat assessment has been made.

2.4. Faunal Survey

- 2.4.1. General faunal activity observed during the course of the survey, whether visually or by call, was recorded. Specific attention was paid to the potential presence of any protected, rare, notable or Priority Species. In addition, specific surveys were undertaken for Badgers *Meles meles*, Hazel Dormice *Muscardinus avellanarius*, bats, reptiles, birds, and Great Crested Newts (GCN) *Triturus cristatus*.
- 2.4.2. **Badgers.** Badger surveys were undertaken by Ecology Solutions from June 2020 to date to search for evidence of Badgers. The surveys comprised two main elements. The first of these was a thorough search for evidence of Badger setts. For any setts encountered each sett entrance would be recorded and plotted, even if the entrance appeared disused. The following information was recorded if appropriate:
- i) The number and location of well used or very active entrances; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.
 - ii) The number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance, or have plants growing in or around the edge of the entrance.
 - iii) The number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole once was, and the remains of the spoil heap.
- 2.4.3. Secondly, Badger activity such as well-worn paths and run-throughs, snagged hair, footprints, latrines and foraging signs were searched for in order to build up a picture of the use of the Application Site by Badgers.
- 2.4.4. **Hazel Dormice.** A specific survey to ascertain the presence or absence of Hazel Dormice *Muscardinus avellanarius* commenced in August 2020 and ran through to August 2021. The survey technique entailed the installation of nest tubes within all hedgerows, scrub and

treelines considered to be species-rich or of potential value to Dormice. A total of 315 nest tubes and 101 footprint tunnels were placed within suitable habitat (such as scrub and woodland) within the Application Site and wider Coed Darcy site.

- 2.4.5. Nest tubes were placed in accordance with the guidance provided by the Mammal Society and Natural Resources Wales (NRW) and as recommended in the Dormouse Conservation Handbook. Tubes were placed within hedgerows at approximately 10 metre intervals where suitable locations were identified. The nest tubes were attached with wire ties underneath suitably sturdy horizontal branches and positioned on average at approximately 1.5 metres above ground level.
- 2.4.6. **Bats.** Any buildings and trees within the Application Site were subject to inspection to assess their potential to support roosting bats. Bat activity (transect and automated) surveys were undertaken on a monthly basis between April and October 2020 to identify the species utilising the Application Site and assess the significance of the Site for bats.
- 2.4.7. Field surveys were undertaken with regard to best practice guidelines issued by Natural England (2004⁴), the Joint Nature Conservation Committee (2004⁵) and the Bat Conservation Trust (2016⁶).
- 2.4.8. No buildings with potential suitability for bat roosting were located within the Application Site.
- 2.4.9. All trees to be affected by the proposals within the site were assessed for their potential to support roosting bats in June 2020 and again in August 2021. Features typically favoured by bats were searched for, including:
- Obvious holes, e.g. rot holes and old Woodpecker holes;
 - Dark staining on the tree, below the hole;
 - Tiny scratch marks around a hole from bat claws;
 - Cavities, splits and or loose bark from broken or fallen branches, lightning strikes etc.; and
 - Very dense covering of mature Ivy over trunk.
- 2.4.10. Features identified to offer potential for roosting bats were subjected to further work, in the form of evening emergence and dawn re-entry surveys, to establish the presence or absence of any roosts.
- 2.4.11. Survey work was undertaken in light of the relevant survey guidelines to ensure appropriate survey effort (proportionate to the

⁴ Mitchell-Jones, A. J. (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.

⁵ Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3rd edition. Joint Nature Conservation Committee, Peterborough.

⁶ Bat Conservation Trust (2016). *Bat Surveys for Professional Ecologists – Good Practice Guidelines (3rd Edition)*. Bat Conservation Trust, London.

level of bat potential), and to ensure a sufficient number of surveyors were present to observe all potential roosting features.

- 2.4.12. In addition to roost assessments, surveyors also undertook dusk and/or dawn transect surveys across the Site, on a monthly basis between June and October 2020. Surveyors were equipped with Echometer Touch 2 (EM2) bat detectors to record data, which was subsequently analysed with Kaleidoscope software. Evening bat transect surveys commenced approximately 15 minutes before sunset and continued for a minimum of 2 hours after sunset. Dawn activity surveys commenced approximately 2 hours before sunrise and continued until sunrise.
- 2.4.13. This survey method aimed to identify the level of foraging, and the species present foraging and commuting within the Application Site and, moreover, to identify any habitats/features of comparatively higher value to bats within the Site.
- 2.4.14. In addition to the completion of activity transects across the Application Site, static detectors (Song Meter 4 and Song Meter Mini detectors) were deployed at strategic locations across the Application Site for extended periods (minimum 5 nights). The locations of the detectors can be seen at Appendix 2.
- 2.4.15. **Reptiles.** Specific surveys to identify the presence or absence of reptiles were undertaken at the wider Coed Darcy site between June and September 2021. The methodology utilised principally derived from guidance given in the Herpetofauna Workers Manual⁷.
- 2.4.16. Following an initial assessment to identify areas of suitable reptile habitat within the wider site, refugia surveys were undertaken. It was considered, given the size of the site, that a complete tinning exercise would be impractical, on this basis a sampling survey was utilised, as was discussed and agreed in principle with NPTC Biodiversity Officers. A total of 375 'tins' (0.5 x 0.5 metre squares of heavy roofing felt which are often used as refuges by reptiles) were distributed within specific areas of suitable reptile habitat within the wider Coed Darcy site in order to provide a representative sample of the use of these habitats by reptiles.
- 2.4.17. The tins provide shelter, and heat up quicker than the surroundings in the morning, and can remain warmer than the surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask under and so raise their body temperature, which allows them to forage earlier and later in the day.
- 2.4.18. **Birds.** Surveys were carried out with due regard to the Common Bird Census (CBC) technique. The CBC involves walking transect routes through the area being studied, and recording and plotting all bird species observed or heard, and their behaviour.

⁷ Herpetofauna Groups of Britain and Ireland. 1998. Evaluating Local Mitigation / Translocation Programmes: Maintaining Best Practice and Lawful Standards. HGBI Advisory Notes for Amphibian and Reptile Groups (ARGs)

- 2.4.19. The transect route is chosen so the entire site is covered and all features likely to support breeding birds are surveyed. Routes and directions are varied between visits so there is no tendency to visit a particular part of the plot later or earlier in the day.
- 2.4.20. To ascertain the breeding status of birds using the Application Site, the following criteria was applied, following the methodology used in the 'Atlas' surveys of 1988 to 1991 (Gibbons et al, 1993). This accepts the following activities as denoting breeding (including those probably breeding, but without definite proof).
- Birds apparently holding territory, including courtship and display.
 - Nest building (including excavating a nest hole).
 - Distraction display or feigning injury.
 - Adult entering or leaving apparently occupied nest site.
 - Adult carrying faecal sac or food.
 - Nest with eggs or eggshells found, or bird sitting but not disturbed.
 - Nest with young; or recently fledged young, including downy young of ducks, game-birds, waders and other nidifugous species.
- 2.4.21. A full suite of three visits were carried out in April, May and June 2020, with these covering the Application Site as part of the wider Coed Darcy site. Moreover, update check surveys, targeted at key ground nesting bird species (such as Little Ringed Plover *Charadrius dubius*, Ringed Plover *Charadrius hiaticula* and Lapwing *Vanellus vanellus*), were undertaken within the Application Site in April 2020 and July 2021.
- 2.4.22. **Great Crested Newts (GCN).** Specific surveys to ascertain the presence or absence of Great Crested Newts were conducted within both the Site and throughout the wider Coed Darcy site between 2021 and 2023.
- 2.4.23. Site wide environmental DNA (eDNA) surveys were conducted on the 27th April 2021. Pond water sampling kits supplied by SureScreen Scientifics were utilised for the eDNA survey work, with the sampling methodology undertaken fully according with that recommended by the supplier. Water samples were subsequently sent to SureScreen Scientifics for laboratory analysis.
- 2.4.24. Population Size Class Assessment surveys were undertaken in 2021, 2022 and 2023 with most recent surveys undertaken between March and April 2023. All surveys were undertaken in suitable weather conditions in accordance with the best practice guidelines, primarily as set out in English Nature's (now NE) GCN Mitigation Guidelines and as agreed with both NPT Council and NRW.
- 2.4.25. Surveys undertaken by Ecology Solutions utilised at least three methods per visit (torch survey, egg searches, refuge checks),

where possible. Given the nature of many waterbodies (many of which comprise near vertical excavations or flooded tanks remaining from the Site's refinery past), full access to each waterbody was not possible in some instances for reasons of health and safety, and therefore bottle trapping was not undertaken. The locations of waterbodies can be seen within Plan ECO2.

- 2.4.26. Suitable survey weather conditions are deemed to be those nights when the night air temperature is more than 5°C, with little or no wind, and no rain. Surveys are to be conducted during such conditions.
- 2.4.27. Torch counting involves the use of high powered torches to find and, if possible, count the number of adults of each amphibian species. As recommended in English Nature's guidance, the entire margin of each waterbody is to be walked once, slowly checking for GCNs.
- 2.4.28. In addition, egg searches are undertaken of any aquatic vegetation, to search for any evidence of breeding GCN.
- 2.4.29. **Invertebrates.** Specific invertebrate surveys were undertaken at the Application Site by Richard Wilson Ecology Limited, to assess the importance of the Site for a range of invertebrates. A total of nine surveys were undertaken in 2020, with this allowing for a majority seasonal coverage of the Application Site and wider study area.
- 2.4.30. During the period April to early May 2020 surveys did not take place due to COVID19 restrictions. Whilst surveys in this period would inevitably identify additional species, and possibly more Key Species, it is not considered such findings would result in the overall value of the Application Site being altered (up or down) in regard its nature conservation interest.
- 2.4.31. A variety of techniques were used to sample invertebrates following Drake et al. (2007), including sweeping of vegetation and aerial netting, using a light-weight butterfly net and heavy duty sweep-net, for flying invertebrates. Vacuum sampling was undertaken by use of a modified, commercially available garden blow-van. Sieving of leaf-litter, searching under refugia, direct observations, and limited pitfall trapping was also undertaken. Full details are included in Appendix 2.

3. ECOLOGICAL FEATURES

- 3.1. Habitat survey work was initially undertaken across the Application Site by Ecology Solutions in June 2020, with updated work carried out in July 2021 as well as regular verification visits made on Site to date.
- 3.2. The following main habitat/vegetation types were identified within the Application Site during the survey undertaken:
- Compact Clay Soils with a Mosaic of Recolonising Vegetation;
 - Wet Grassland and Mixed Scrub;
 - Secondary Woodland;
 - Dense Scrub;
 - Waterbodies / Ponds;
 - Unsealed Hardstanding; and
 - Ruderal Vegetation.
- 3.3. The locations of these habitats are shown on Plan ECO2, and described individually below.
- 3.4. **Compacted Clay Soils with a Mosaic of Recolonising Vegetation**
- 3.4.1. Large areas, within the centre of the Application Site consist of recolonising vegetation present on clay soils remaining from previous remediation. The extent of vegetative colonisation varies across the Application Site, and extends into the wider Coed Darcy site.
- 3.4.2. Within the Application Site, these areas are dominated by large soil and aggregate bunds remaining from previous remediation works, some of which have been subject to recent disturbance as part of on-going Site remediation. Bunds predominantly comprising soil typically supported species of a ruderal nature, including Hieracium (Hawkweed) sp., Spear Thistle *Cirsium vulgare*, Pineapple Weed *Matricaria discoidea*, Rosebay Willowherb *Chamaenerion angustifolium*, Weld *Reseda luteola*, Black Mustard *Rhaphospermum nigrum*, False Fox-sedge *Carex otrubae*, Great Mullein *Verbascum thapsus*, Tufted Vetch *Vicia cracca*, and American Willowherb *Epilobium ciliatum*.
- 3.4.3. Vegetation within aggregate mounds was primarily limited to recolonising scrub within which Buddleia *Buddleja davidii*, Willows *Salix*, and Birches *Betula* predominated, with Dog-rose *Rosa canina* and Gorse *Ulex* occasional. A stand of Japanese Knotweed *Reynoutria japonica* was also recorded within the Site.
- 3.4.4. Between the mounds, the vegetation cover was frequently reflective of sparse, dry grassland of modest species diversity, including for regular Yorkshire Fog *Holcus lanatus*, Oxeye Daisy *Leucanthemum vulgare*, Meadow Foxtail *Alopecurus pratensis*, Meadow Vetchling *Lathyrus pratensis*, Yarrow *Achillea millefolium*, Horsetail *Equisetum* sp., Herb Robert *Geranium robertianum*, Bracken, Alsike Clover *Trifolium hybridum*, Forget-me-not *Myosotis*, Viper's Bugloss

Echium vulgare, Hairy Tare *Vicia hirsuta*, Silverweed *Potentilla anserina*, Swine Cress *Lepidium coronopus*, Yellow Sedge *Carex demissa* and Kidney Vetch *Anthyllis vulneraria*.

3.5. Wet Grassland and Mixed Scrub

- 3.5.1. Two areas of wet grassland are located within the Application Site. These habitats are generally interspersed with areas of dense scrub. Frequently these areas of grassland are on slopes or graded banks, with drier communities present at higher levels.
- 3.5.2. **WG2.** Yorkshire Fog typically dominates the grass component of the sward, albeit with Hard and Soft Rush locally dominating. Also recorded was Purple Moor Grass *Molinia caerulea*, Common Bent *Agrostis capillaris*, Creeping Bent *Agrostis stolonifera*, alongside occasional Tufted Hairgrass *Deschampsia cespitosa* and, rarely, Common Cottongrass *Eriophorum angustifolium*. The wettest elements included for an increased prevalence of species such as Remote Sedge *Carex remota*, Hairy Sedge *Carex pilosa*, Glaucous Sedge *Carex flacca*, Field Horsetail *Equisetum arvense*, Coltsfoot *Tussilago farfara*, localised Phragmites, Marsh Thistle *Cirsium palustre*, Marsh Bedstraw *Galium palustre*, Purple Loosestrife *Lythrum salicaria*, Sharp-flowered Rush *Juncus acutiflorus*, Water Mint *Mentha aquatica*, Yellow Loosestrife *Lysimachia vulgaris*, and Yellow Flag Iris *Iris pseudacorus*. Also recorded, primarily in drier elements, was Creeping Thistle *Cirsium arvense*, Ribwort Plantain *Plantago lanceolata*, Wild Carrot *Daucus carota*, Wild Parsnip *Pastinaca sativa*, Red Clover *Trifolium pratense*, Selfheal *Prunella vulgaris*, Horseshoe Vetch *Hippocrepis comosa*, Common Fleabane, Spear Thistle *Pulicaria dysenterica*, Wild Strawberry *Fragaria vesca*, Common Centaury *Centaureum erythraea*, Purple Toadflax *Linaria purpurea*, Viper's Bugloss, Ragwort *Jacobaea vulgaris*, Bush Vetch *Vicia sepium*, and Meadow Vetchling *Lathyrus pratensis*.
- 3.5.3. **WG3** comprises an area of generally flat grassland, albeit with a central area which appears to be seasonally inundated, and includes for a high proportion of rushes, including Hard Rush, Soft Rush, and Sharp-flowered Rush, alongside frequent Common Reed Phragmites. There are regular areas of disturbed ground within which a range of early successional species are present, including Scarlet Pimpernel *Anagallis arvensis*, Coltsfoot, Broad-leaved Everlasting Pea *Lathyrus latifolius*, Nipplewort *Lapsana communis*, Lucerne, Evening Primrose *Oenothera biennis*, and Creeping Thistle. Otherwise, the sward component is comparable to other wet grassland habitats on Site.

3.6. Secondary Woodland

- 3.6.1. An area of woodland is located to the east of the Application Site. The canopy layer of the woodland includes for Pedunculate Oak *Quercus robur*, Silver Birch *Betula pendula*, Alder *Alnus glutinosa* and Grey Willow *Salix cinerea*, with Hawthorn *Crataegus monogyna* and Blackthorn *Prunus spinosa* occasional in the shrub layer. The

field layer is generally dominated by Bramble and Ivy, with Common Nettle *Urtica dioica*, Bracken, and Pendulous Sedge occasional to frequent. Also occasional was Hart's-tongue Fern *Asplenium scolopendrium* and Broad Buckler Fern *Dryopteris dilatata*.

3.7. Dense Scrub

- 3.7.1. Extensive areas of scrub are present across the Application Site, both adjoining areas of established woodland and colonising within central areas of the Site.
- 3.7.2. The majority of scrub is of a similar age and structure, generally comprising early semi-mature woody vegetation, alongside frequent areas dominated by dense Bramble. Scrub succession is evident across the Application Site, with scrub encroachment evident in the majority of open, early successional habitats.
- 3.7.3. With the exception of where Bramble dominates, areas of scrub comprise a limited range of woody species, typically dominated by Silver Birch, Willows *Salix sp.*, within which Grey Willow dominates, Gorse and Buddleia. Also recorded, albeit less frequently, were Cotoneaster, Rhododendron, Rowan *Sorbus aucuparia*, Sycamore *Acer pseudoplatanus*, Alder, Pedunculate Oak, Turkey Oak *Quercus cerris*, and Broom *Cytisus scoparius*.

3.8. Waterbodies / Ponds.

- 3.8.1. A total of ten waterbodies are located within the Site. Each of the on site waterbodies generally support a modest range of aquatic vegetation, generally limited to Water Plantain *Alisma plantago-aquatica*, Broad-leaved Pondweed *Potamogeton natans*, and Typha. Bankside vegetation surrounding each waterbody is dominated by a range Rush species.
- 3.8.2. Waterbody PB is a steep sided, trench supporting clear water to a depth of approximately 2m. It has a surface of approximately 60m².
- 3.8.3. Waterbody PC is a steep sided, artificial ditch understood to be utilised in on-going Site remediation. It is comparable to PD below, with turbid, polluted water. It has a surface area of approximately 170m².
- 3.8.4. Waterbody PD comprises a 4m wide, steep sided ditch which extends for approximately 240m in length. It is understood to provide a function in on-going Site remediation, and supports heavily polluted and turbid water, with oils and hydrocarbons evident. The ditch was largely devoid of vegetation, albeit occasional Typha and Common Reed was noted.
- 3.8.5. Waterbody PE is an excavated pit utilised for remediation. It supports heavily contaminated and turbid water with no aquatic vegetation. It is approximately 380m² in surface area.

- 3.8.6. South Bay comprised of a large waterbody (approximately 4200m²) of unknown depth. It is densely vegetated with scrub and trees at its perimeter. Aquatic vegetation including broad-leaved pondweed accounts for approximately 20% of the surface area, with narrow margins colonised by *Typha* and Common Reed.
- 3.8.7. West Bay comprises a waterbody approximately 1400m² of unknown depth, with aquatic and marginal vegetation as per Crymlyn Lagoon East, with dense scrub and trees at much of its perimeter.
- 3.8.8. Crymlyn Lagoon East comprised of a large waterbody (approximately 7200m²) of unknown depth. It is densely vegetated with scrub and trees at much of its perimeter. Aquatic vegetation including broad-leaved pondweed accounts for approximately 25% of the surface area, with margins colonised by extensive emergent vegetation including *Typha latifolia*, *Scirpus* sp. and Common Reed.
- 3.8.9. Crymlyn Lagoon West comprised a large waterbody (Approximately 11000m²) of unknown depth, with aquatic and marginal vegetation as per Crymlyn Lagoon East, with dense scrub and trees at much of its perimeter.
- 3.8.10. Proto 1 (measuring approximately 165m² in area) and Proto 2 (measuring approximately 285m² in area) are of approximately 2m in depth and were created as trial ponds in autumn 2022, in order to ascertain the areas suitability for pond creation. They are surrounding by recolonising vegetation.

3.9. Unsealed Hardstanding

- 3.9.1. Areas of crushed concrete/tarmac, as well as degraded hardstanding, are present within the Site, and generally support scant recolonising vegetation.

3.10. Ruderal

- 3.10.1. Ruderal vegetation fringes areas of denser scrub, particularly in the west of the Site, and includes for Horsetails, Bracken, Cock's Foot, Greater Willowherb *Epilobium hirsutum*, Hard Rush, Coltsfoot, Curled Dock *Rumex crispus*, Foxglove *Digitalis purpurea* and Phragmites.

3.11. Background Information

- 3.11.1. The desk study information collected from SEWBRc returned a total of 2,913 records for plants within a 2km search radius of the Application Site boundary. A significant portion of these species are associated with the Crymlyn Bog SSSI, situated to the west of the Application Site.
- 3.11.2. Species of note are Bee Orchids *Ophrys apifera*, the closest of which was recorded on Site in 2001, and most recently 1.4km away, in 2020. There are 7 records of notable species (LBAP or WCA

Schedule 8) recorded within the wider Coed Darcy site including Bluebell and Blunt-flowered Rush *Juncus subnodulosus*, all recorded in 2001.

- 3.11.3. Information received from SEWBRc returned 477 records of invasive species, including three records within the Site. These all relate to Japanese Knotweed. Additional records of invasive species are also returned from points within the wider Coed Darcy site, including records of Rhododendron.

4. WILDLIFE USE OF THE APPLICATION SITE

- 4.1. General observations were made during the surveys of any faunal use of the Application Site and within the wider Coed Darcy site, with specific attention paid to the potential presence of protected species. In addition, specific surveys were undertaken for Badgers, Dormice, bats, reptiles, birds, GCN, and invertebrates.

4.2. Badgers

- 4.2.1. Specific Badger surveys were carried out within both the Application Site and the wider Coed Darcy site as part of the habitat survey work by Ecology Solutions between 2020 and 2021, as well as regular site visits in the intervening time to date.
- 4.2.2. No evidence of Badgers has been recorded during the extensive survey work at the Application Site to date. However, suitable foraging and sett building habitat is present in the form of areas of woodland, scrub, and more established areas of grassland. It is noted that some areas of dense woodland and/or scrub which have colonised on steep gradients were inaccessible and could feasibly support unrecorded setts. Nonetheless, noting the lack of any Badger activity recorded during nocturnal survey work, as well as an absence of mammal paths, latrines, or foraging signs, it is deemed unlikely the Application Site is of potential significance to this faunal group.
- 4.2.3. Evidence of active Badger setts was recorded in the wider Coed Darcy site, albeit at locations significantly distanced from the site boundary (>500m south) by both Ecology Solutions and Atkins.
- 4.2.4. **Desk Study.** Information received from SEWBRc returned 26 records of Badger dating from 1977 to 2016. No records have been made from the Application Site itself, however, several have been made within the Wider Coed Darcy area. The closest, most recent record of Badgers to the Application Site is returned from a point approximately 0.46km southwest, and was made in 2002.

4.3. Dormice

- 4.3.1. Previous survey work for Hazel Dormice was carried out in 2009 during which no evidence of the species was found.
- 4.3.2. Notwithstanding an absence of any historic records of Dormice within the wider Coed Darcy site, noting the age of previous survey work (2009), an updated suite of Dormouse surveys was undertaken between August 2020 and August 2021.
- 4.3.3. On the basis the surveys followed the methodology as set out in Section 3, the survey effort allowed a score of 25 points, and noting historical surveys, it can be reasonably assumed Dormouse are absent from the Application Site. As such, no further consideration is given to this species and the species are not considered a constraint on development.

4.4. Bats

- 4.4.1. Detailed bat surveys were carried out between April 2020 and October 2020. These surveys consisted of investigations into any suitable roosting features within the Site. Further survey work included a series of walked transect activity surveys, and long term surveys utilising automated static detectors.
- 4.4.2. Any buildings and trees within both the Site, and the Wider Coed Darcy Area were surveyed for their suitability to support roosting bats. No roosting features were identified within the Site.

Activity Surveys

- 4.4.3. Transect surveys were carried out on a monthly basis between June 2020 and October 2020. While route of each transect varied between surveys, it was ensured that the Site was covered in its entirety. Surveys assessed the wider Coed Darcy Area (included the Site), as opposed to the Site specifically. Given the comparable habitats present within the wider Coed Darcy Site, and their close proximity to the Site, this data is considered to provide useful context and so is included within this Assessment.

24th and 25th June 2020

- 4.4.4. During this survey low levels of activity were recorded within both the Site and the wider Coed Darcy Area, with the majority of registrations associated to Common Pipistrelle *Pipistrellus pipistrellus* (306 registrations) and Soprano Pipistrelle *Pipistrellus pygmaeus* (161 registrations), and the main activity focused along the north-east of the wider Coed Darcy Area associated with the hedgerows and the treeline north of the railway. In addition, increased activity was associated with north-west and west boundaries in the wider Coed Darcy. Heightened activity is primarily associated with linear features and substantial waterbodies such as the North and South Site Reservoirs, within the wider Coed Darcy Area. Bat activity was considerably lower in areas of bare ground. Other species recorded include Nathusius' Pipistrelle *Pipistrellus nathusii* (11 registrations), Noctule *Nyctalus noctula* species (56 registrations) and Myotis species (28 registrations), albeit at much lower numbers.

29th July 2020

- 4.4.5. The transect surveys undertaken on 29 July 2020 recorded a low number of registrations, with the majority of registrations associated with Common Pipistrelle (290 registrations) and Soprano Pipistrelle (153 registrations), again with the main activity focused along the north-east of the wider Coed Darcy Area associated with the hedgerows and treeline north of the railway. Increased activity was found close to South Site Reservoir, and in the south-east of the Site associated with South Bay waterbody. Bat activity was again considerably lower in areas of bare ground. Other species recorded include Nathusius' Pipistrelle (1 registration), Noctule species (3

registrations), *Myotis* species (20 registrations), Brown Long-eared Bat *Plecotus auritus* (4 registrations), and Lesser Horseshoe Bat *Rhinolophus hipposideros* (1 registration).

21st August 2020

- 4.4.6. The transect surveys undertaken on 21 August 2020 recorded a very low number of registrations, with a majority of registrations again associated with Common Pipistrelle (102 registrations) and Soprano Pipistrelle (88 registrations), and the majority of the activity focused in the north-west of the wider Coed Darcy Area associated with the hedgerows to the north of the railway. A higher level of activity was also recorded along the main access route to the west of the wider Coed Darcy Area. Bat activity was again considerably lower in areas of bare ground. Other species recorded include Nathusius' Pipistrelle (1 registration), Serotine (1 registration), Noctule species (4 registrations) and *Myotis* species (8 registrations).

29th September 2020

- 4.4.7. The transect surveys undertaken on 29 September 2020 recorded a low number of registrations, with a majority of registrations again associated with Common Pipistrelle (375 registrations) and Soprano Pipistrelle (144 registrations). Bat activity was focused in the north-west of the wider Coed Darcy Area, associated with the linear vegetation to the north of the railway. A higher level of activity was also recorded around W2 in the south-west of the Site, and in the far south of the wider study area associated with hedgerows and woodland. Bat activity was again considerably lower in areas of bare ground. Other species recorded include Nathusius' Pipistrelle (1 registration), Noctule species (30 registrations), *Myotis* species (23 registrations) and Brown Long-eared Bat (2 registrations).

15th October 2020

- 4.4.8. The final transect survey undertaken on 15 October 2020 recorded a very low number of registrations, with a majority of the registrations again associated with Common Pipistrelle (82 registrations) and Soprano Pipistrelle (80 registrations), and a majority of the activity focused in the north of the wider Coed Darcy Area associated with scrub features to the south of the site reservoir, balancing ponds, and the railway bridge. A higher level of activity was also recorded around W2. Bat activity was again considerably lower in areas of bare ground. Other species recorded include Noctule species (1 registration), *Myotis* species (2 registrations) and Lesser Horseshoe Bat (1 registration).

Automated Detector Surveys

- 4.4.9. Automated surveys were carried out between June 2020 and October 2020. These surveys were carried out in tandem of the wider Coed Darcy Area survey. However, for simplicity only automated detectors deployed within the Application Site or in close proximity have been included here.

24th June 2020 to 30th June 2020

- 4.4.10. Static detector SD4 recorded a low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (303 registrations) and Soprano Pipistrelle (218 registrations). Nathusius' Pipistrelle (1 registration), Noctule species (85 registrations), Myotis species (16 registrations), and Brown Long-eared Bat (2 registrations) were all recorded in low numbers.

30th July 2020 to 6th August 2020

- 4.4.11. Due to a mechanical fault, static detector SD11 failed to record any data. This was deployed in the west of the Application Site.

20th August 2020 to 26th August 2020

- 4.4.12. Static detector SD19, close to the southern boundary of the Site, just south of the model village, recorded a moderate level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (1568 registrations) and Soprano Pipistrelle (445 registrations). Noctule species (11 registrations), Myotis species (90 registrations), Brown Long-eared Bat (6 registrations) and Serotine (1 registration) were all recorded in low numbers.

29th September 2020 to 4th October 2020

- 4.4.13. Static detector SD26, located in the north-east of the Site recorded a moderate level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (1002 registrations), Soprano Pipistrelle (1323 registrations) and Myotis species (503 registrations). Noctule species (2 registrations) was recorded in low numbers.

15th October to 21st October

- 4.4.14. Static detector SD35, located in the south-east of the Site, recorded a very low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. All species were recorded in low numbers, consisting of Common Pipistrelle (6 registrations), Soprano Pipistrelle (7 registrations), Brown Long-eared Bat (2 registrations), Noctule species (6 registrations) and Myotis species (10 registrations).

Bat Survey Summary

- 4.4.15. No bat roosts were identified within the Site during the course of the survey work undertaken.

- 4.4.16. Bat activity surveys have confirmed the Site to be subject to a low level of activity, with this overwhelmingly pertaining to widespread and common bat species such as Common Pipistrelle and Soprano Pipistrelle.
- 4.4.17. Unsurprisingly relatively higher levels of bat activity are associated with linear features and woodland, including the Crescent Woodland in the Wider Coed Darcy Site, as well as within the larger waterbodies. Relatively higher levels of activity were also recorded along some of the wider study area's vegetated boundaries, particularly the southern edge of the Site. Typically, low levels of bat activity were recorded within the sparser, open habitats elsewhere within the Site.
- 4.4.18. **Desk Study.** The data search undertaken by SEWBRc returned several records of bat species within the 2km search radius, many of which are located within the wider Coed Darcy Site. No records were returned from within the Site. The closest records to the Site are of Common Pipistrelle, Noctule, unidentified Long-eared species, and an unidentified bat. These records were all returned from a point approximately 0.04km east of the Site, and were made in 2008 and 2009.

4.5. Reptiles

- 4.5.1. Extensive previous clearance works across the wider Coed Darcy Site (including the Site) resulted in the removal of a vast majority of suitable reptile habitat between 2008 and 2015. This clearance work (undertaken in support of the consented OPP) was supplemented by a considerable capture and translocation effort in regards reptiles (amongst other species). Noting this previous work, and whilst the Coed Darcy Site was previously known to support populations of all four common reptile species, it can be concluded the vast majority (if not all), of the Site was clear of reptiles as recently as 2015.
- 4.5.2. Given the on-going re-establishment of suitable habitat, and noting the potential for reptiles to re-colonise the Site from off-site habitats, (such as the railway embankment), or alternatively for potentially remnant (un-trapped) populations to re-establish, Ecology Solutions undertook reptile surveys from June 2021 to September 2021, in various locations (see Appendix 2) within the wider Coed Darcy Site. The results of the surveys can be seen in Table 1 below.

Survey Number	Date	Temperature °C	Weather	Results
1	22 June 2021	16	Clear	2UCL, 2MCL, 1FCL
2	30 June 2021	20**	50% Cloud	3UCL, 1FCL, 2JGS, 1UGS
3	13 July 2021	18	20% Cloud	2UCL, 4UGS
4	16 July 2021	18	Clear	1UCL

5	12 August 2021	14	75% Cloud	4UCL, 1JCL, 5UGS, 1JGS
6	31 August 2021	17	70% Cloud	7UCL, 8UGS, 3JGS
7	3 September 2021	16	10% Cloud	1UCL, 8UGS
8	15 September 2021	18	30% Cloud	8UCL, 1UGS
* MCL/FCL/JCL/UCL: Male/Female/Juvenile/Unsexed Common Lizard <i>Zootoca vivipara</i>. * MGS/FGS/JGS/UGS – Male / Female / Juvenile / Unsexed Grass Snake. ** Survey conditions sub-optimal				

- 4.5.3. The reptile surveys conducted within the wider Coed Darcy site have identified a peak count of 11 Grass Snakes and eight Common Lizard. No other reptile species have been recorded. It is noted, given the survey methodology utilised, these findings are reflective of a sample of the supported reptile populations associated with the habitats in question.
- 4.5.4. The location of the reptiles recorded within the wider Coed Darcy site were generally in habitats of Compacted Clay Soils with Recolonising Vegetation, and within or adjacent Dense Scrub habitats. It can therefore be concluded that the Application Site would also support small populations of Grass Snake and Common Lizard.
- 4.5.5. In order to ascertain the relative importance of common reptile populations recorded within the wider Coed Darcy site, the tinning density has been taken into account, alongside guidance and population size estimates set out by the Herpetofauna Groups of Britain and Ireland (HGBI). On this basis it can be concluded from the surveys that the population size for all reptiles found on Site is low.
- 4.5.6. **Desk Study.** Information received from SEWBRc returned no records of reptiles within the Site. Several records of Common Lizard, Slow-worm *Anguis fragilis*, and Adder *Vipera berus* have been returned from within the 2km search radius. The closest and most recent

4.6. Birds

- 4.6.1. Given the size of the wider Coed Darcy site and the presence of a range of habitats, a series of three breeding bird surveys were undertaken to assess the value of the wider site. At the time of these surveys in 2020, Ecology Solutions was instructed to survey the wider Coed Darcy site including areas outside of the Outline Planning Permission area (OPP). A summary of the results for within

the Site itself are shown below, with full results of the 2020 survey shown in Appendix 2.

- 4.6.2. A total of 23 species were recorded within the Application Site during the three surveys, of which 21 were considered breeding or probably breeding (i.e. suitable habitat to support the species is present). The remaining 2 species were represented by non-breeding individuals.
- 4.6.3. A summary of observations is detailed below in Table 2, and as shown in Plan ECO3.

Species and BTO Species Code	RSPB Listed	Notes
Blackcap (BC) <i>Sylvia atricapilla</i>	Green	Predominantly in wooded habitats.
Bullfinch (BF) <i>Pyrrhula pyrrhula</i>	Amber	Found in dense scrub.
Blue Tit (BT) <i>Cyanistes caeruleus</i>	Green	
Carrion Crow (C.) <i>Corvus corone</i>	Green	
Coot (CO) <i>Fulica atra</i>	Green	Found on lagoons.
Cetti's Warbler (CW) <i>Cetti cetti</i>	Sch. 1	Predominantly recorded around western wetland
Dunnock (D.) <i>Prunella modularis</i>	Amber	
Greenfinch (GR) <i>Carduelis chloris</i>	Green	
Great Tit (GT) <i>Parus major</i>	Green	
Garden Warbler (GW) <i>Sylvia borin</i>	Green	Found in scrub habitats.
Little Grebe (LG) <i>Tachybaptus ruficollis</i>	Green	Found on lagoons.
Lesser Redpoll (LR) <i>Acanthis cabaret</i>	Red	Found in scrub and wooded habitats.
Long-tailed Tit (LT) <i>Aegithalos caudatus</i>	Green	
Pheasant (PH) <i>Phasianus colchicus</i>	Feral	
Reed Bunting (RB) <i>Emberiza schoeniclus</i>	Amber	Found primarily in wetland habitats.

Reed Warbler (RW) <i>Acrocephalus scirpaceus</i>	Green	Predominantly recorded around western wetland.
Song Thrush (ST) <i>Turdus philomelos</i>	Red	
Sedge Warbler (SW) <i>Acrocephalus schoenobaenus</i>	Green	Predominantly recorded around western wetland.
Whitethroat (WH) <i>Sylvia communis</i>	Green	In scattered scrub.
Wren (WR) <i>Troglodytes troglodytes</i>	Green	Found in all vegetated areas.
Willow Warbler (WW) <i>Phylloscopus trochilus</i>	Amber	Abundant

- 4.6.4. These surveys confirmed that Application Site supports a relatively small number of species in comparison to the wider Coed Darcy site, primarily on account of the diversity and extent of habitats present in the wider area.
- 4.6.5. The greatest interest was associated with the wetland habitats (Coed Darcy GCN SINC) to the west of the Application Site, and scrub habitats. The vast majority of the species recorded are RSPB Green listed with a lesser extent Amber listed, with only few examples of RSPB Red listed species including Song Thrush and Lesser Redpoll. Four records included for Cetti's Warbler (which is included in Schedule 1 of the 1981 Wildlife and Countryside Act), the majority of which are associated with wetland habitats in the west.
- 4.6.6. In addition to the surveys undertaken in 2020, two dawn transects for ground nesting birds were undertaken in 2021 in the wider Coed Darcy site (as shown in Appendix 2).
- 4.6.7. No ground nesting birds were recorded within the Application Site.
- 4.6.8. **Desk Study.** Information received from SEWBrEC returned a total of 107 protected or notable bird species within 2km search radius. Many of these records were returned from within the wider Coed Darcy site. A single record of Lapwing *Vanellus vanellus* was returned from the Application Site itself, recorded in 2002. Birds recorded as breeding within the wider Coed Darcy site include Swallow *Hirundo rustica*, Kestrel *Falco tinnunculus*, Linnet *Linaria cannabina*, Dunnock *Prunella modularis*, Garden Warbler *Sylvia borin*, Lesser Redpoll *Acanthis cabaret*, Snipe *Gallinago gallinago*, Mistle Thrush *Turdus viscivorus*, Ringed Plover *Charadrius hiaticula*, Skylark *Alauda arvensis*, and Wheater *Oenanthe oenanthe*, dating from 2001 to 2020.

4.7. Wintering Birds

- 4.7.1. A suite of wintering bird surveys were carried out on the Application Site and wider Coed Darcy site were undertaken between December 2021 and February 2022.
- 4.7.2. The surveys recorded a small number of species including Cetti's Warbler, Kingfisher *Alcedo atthis*, Mallard *Anas platyrhynchos*, Reed Bunting, Teal *Anas crecca* and Tufted Duck *Aythya fuligula*.
- 4.7.3. The vast majority of these recordings relate to the Coed Darcy GCN SINC, located west of the of the Application Site (as shown on Plan ECO3). This would indicate that the main Tip area is not of any raised interest for wintering birds, and the Coed Darcy GCN SINC will be retained in full.

4.8. Amphibians (GCN)

- 4.8.1. A suite of amphibian surveys were undertaken at the Application Site in 2021, 2022 and 2023, in addition to the wider Coed Darcy Site.
- 4.8.2. Given the Application Sites' history, and actively requires remediation, the majority of waterbodies and ponds within the site are unsuitable to support amphibians.
- 4.8.3. Surveys carried out in 2021 highlighted the presence of a medium sized population of GCN within Waterbody (PB). A peak count of 35 individuals were recorded on 19th May 2021. GCN were found to be absent from the remaining waterbodies (as shown in Plan ECO4). In addition to GCN, Palmate Newts *Lissotriton helveticus* were also recorded on a number of occasions. A summary of the peak counts recorded during the 2021 surveys can be found in Table 3.

Waterbody ref	GCN counts	Peak	Palmate Newt Peak counts
PB	35		5
PC	0		0
PD	0		0
PE	0		0
Crymlyn Lagoon West	0		0
Crymlyn Lagoon East	0		0
South Bay	0		0
West Bay	0		0
Ditch	0		0

Table 3: Summary of 2021 GCN surveys

- 4.8.4. Updated survey work for GCN was undertaken in waterbodies within the Application Site in 2022. A peak count of 26 individuals were recorded on the 13th of April 2022. GCN were found to be absent from the remaining waterbodies. In addition, Palmate Newts were also recorded on a number of occasions. A summary of the Peak counts recorded during the 2022 survey is shown below in Table 4.

Waterbody ref	GCN counts	Peak	Palmate Peak counts	Newt
PB	26		2	
PC	0		0	
PD	0		0	
PE	0		0	
Crymlyn Lagoon West	0		0	
Crymlyn Lagoon East	0		0	
South Bay	0		0	
West Bay	0		0	
Ditch	0		0	

Table 4: Summary of 2022 GCN Surveys

- 4.8.5. Updated GCN Surveys were also undertaken of at Application Site in 2023. Due to flooding, Crymlyn Lagoon East and West, and West Bay were not surveyed due to the access road being severely flooded. In addition, due to heavy rain, waterbody PD was not surveyed due to unsafe access conditions. Two additional waterbodies were also created during autumn 2022, in order to facilitate a GCN licence application. These Waterbodies were also subject to GCN Surveys (Proto 1 and Proto 2) as shown on Plan ECO4. During these surveys, a peak count of 15 GCN were recorded on 20th March 2023. In addition to GCN, Palmate Newts were also recorded during the course of the surveys. A summary of the peak counts recorded during the 2021 surveys can be found in Table 5.

Waterbody	GCN maximum counts	Palmate maximum counts	Newt
PB	15	3	
PC	0	0	
PE	0	0	
Ditch	0	0	
South Bay	0	0	
Proto 1	3	2	
Proto 2	5	7	

Table 5: Summary of 2023 GCN surveys

- 4.8.6. As above, the peak count of GCN was 35 individuals, of which relate to waterbody PB (as shown on Plan ECO4). Whilst GCN were recorded in other waterbodies within the Application Site, impacts will only occur on the Ditch, waterbody PB, PC, PD and PE. No other waterbodies will be impacted from the proposals.
- 4.8.7. **Desk Study.** Information returned from SEWBrEC returned a total of 63 common amphibian records from within the 2km search radius. Species recorded include, Common Frog *Rana temporaria*, Common Toad *Bufo bufo*, Palmate Newt, and Smooth Newt *Lissotriton vulgaris*. The closest, most recent record to the Application Site is of GCN, which has been recorded approximately 0.08km south of the Site, within the wider Coed Darcy site.

Information obtained from SEWBSReC returned no records from within the Application Site.

4.9. Other Species

- 4.9.1. No observations indicating the presence of any other protected species was recorded over the course of any of the survey work carried out.
- 4.9.2. Habitats within the Application Site are considered to provide suitable opportunities for Brown Hare *Lepus europaeus* and Hedgehog *Erinaceus europaeus*, should either species be present in the local area. Again, however, the limited habitat diversity, management of the Site, and lack of appropriate cover would greatly temper opportunities in this regard.
- 4.9.3. The vast majority of the Application Site, is considered to be unsuitable for both Otter *Lutra* or Water Voles *Arvicola amphibius*. There is an absence of larger waterbodies, capable of supporting either species. Additionally, the ditches within both the Application Site and wider Coed Darcy site are of relatively recent origin and, again, considered highly unsuitable.
- 4.9.4. **Desk Study.** The information provided by SEWBSReC returned several records of Otter and Water Vole, none of which relate to either the Application Site, or the wider Coed Darcy site. The closest, most recent of Otter is returned from a point approximately 0.55km southwest of the Application Site, made in 2012. The closest, most recent record of Water Vole is returned from a point approximately 1.46km southwest of the Site, made in 2003.

5. ECOLOGICAL EVALUATION

5.1. The Principles of Site Evaluation

- 5.1.1. The latest guidelines for ecological evaluation produced by CIEEM propose an approach that involves professional judgement but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.
- 5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe⁸. These are broadly used across the United Kingdom to rank sites so priorities for nature conservation can be attained. For example, current Site of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.
- 5.1.3. In general terms these criteria are size, diversity, naturalness, rarity, and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history, and the position within the ecological/geographical units are also incorporated into the ranking procedure.
- 5.1.4. Any assessment should not judge sites in isolation from other since several habitats may combine to make it worthy of importance to nature conservation.
- 5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment, and therefore additional factors need to be taken into account, e.g. a woodland type with comparatively poor species diversity, common in the south of England, may be of importance at its northern limits, say in the border country.
- 5.1.6. In addition, habitats of local importance are often highlighted within a local Biodiversity Action Plan (BAP). Opportunities to contribute towards biodiversity, in accordance with these documents are identified where relevant within this report.
- 5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality, through to the international level.
- 5.1.8. The legislative and planning policy context are also important considerations, and have been given due regard throughout this assessment.

⁸ Ratcliffe, D A (1977). *A Nature Conservation Review: the Selection of sites of Biological National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

5.2. Habitat Evaluation

Designated Sites

- 5.2.1. **Statutory sites.** There are no statutory designated sites of nature conservation interest within the Site. However, Crymlyn Bog SAC, Ramsar and SSSI is located adjacent to the north and north-west boundary of the Application Site (see Plan ECO1). Part of the Crymlyn Bog is further designated as Crymlyn Bog and Pant-y-Sais NNR.
- 5.2.2. Crymlyn Bog SAC is designated primarily for the Annex 1 habitats it supports including:
- 7140 transition mire and quaking bogs which supports Bottle Sedge *Carex rostrata* and Bogbean *Menyanthes trifoliata* with Common Cottongrass *Eriophorum angustifolium*, Water Horsetail *Equisetum fluviatile*, Star Sedge *Carex echinate* and locally rare Mud Sedge *Carex limosa*.
 - 7210 Calcareous fens with *Cladium mariscus* and species of *Caricion davallianae*, with the SAC supporting the largest area of *Cladium*-dominated vegetation in south Wales.
- 5.2.3. Additionally, the site supports the following Annex 1 habitat as a qualifying feature:
- 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion*)
- 5.2.4. Crymlyn Bog Ramsar is designated under Ramsar Criterion 1, 2A and 2B on account of its diverse wetland habitats, with these identified to be of international importance. The site qualifies under Ramsar Criterion 1 on account of it supporting an extensive inter-estuarine complex, forming the largest valley floodplain mires in Wales. The site includes the adjacent Pant-y-Sais Fen and consists of a complex mosaic of vegetation communities that are characteristic of both nutrient-rich and nutrient-poor conditions. This Criterion recognises the diverse swamp, tall-herb fen, fen meadow, and carr communities present.
- 5.2.5. The Crymlyn Bog qualifies under Ramsar Criterion 2A on account of it supporting a substantial population of the nationally rare Slender Cottongrass *Eriophorum gracile* community, as well as for its rich invertebrate fauna, including nationally rare or highly localised species associated with mires.
- 5.2.6. The Crymlyn Bog qualifies under Ramsar Criterion 2B on account of the range of vascular plants it supports, including 199 species of which 17 are regionally uncommon, as well as notable summer populations of Reed Warblers *Acrocephalus scirpaceus* and Sedge Warblers *A. schoenobaenus*.

- 5.2.7. Similar to the SAC and Ramsar designations, Crymlyn Bog SSSI is designated for its fen communities, wet woodland, associated invertebrate assemblages, a substantial population of nationally rare Slender Cottongrass, and a population of the nationally scarce Hornet Robberfly *Asilus crabroniformis*. The site is also part of the large inter-estuarine complex including Pant-y-Sais SSSI and the Neath floodplain. The site supports a complex mosaic of vegetation types including communities of both rich and poor fen, swamp, Alder carr and acidic grassland, in addition to plant species and communities usually characteristic of East Anglian fens.
- 5.2.8. Crymlyn Bog and Pant-y-Sais NNR Is designated as one of the largest lowland fens in Wales, supporting a range of wetland plants, birds, and insects such as Cetti's Warbler *Cettia cetti*, Water Rail *Rallus aquaticus*, Royal Fern *Osmunda regalis* L., Yellow Iris *Iris pseudacorus* and Fen Raft Spider *Dolomedes fimbriatus*. Pant-y-Sais is of similar nature to Crymlyn Bog but on a much smaller scale.
- 5.2.9. It is noted the above referenced sites will be subject to further consideration in the separate 'information for Habitat Regulations Assessment' (iHRA) which will be prepared in support of the Development Proposals, and will be submitted alongside the ES.
- 5.2.10. Pant-y-Sais SSSI is located approximately 1.44km south-east of the Application Site at its closest point. It is designated as an area of predominantly lowland fen that supports a range of fenland communities including Sphagnum, *Molinia Caerulea* communities, swamp areas with abundant *Typha Latifolia*, and fen carr. The Tennant Canal section functions as a refuge for aquatic plants such as county rare Flowering Rush *Butomus umbellatus*.
- 5.2.11. All other statutory designated sites (as designated on nature conservation grounds) are well separated from the Application Site, with the next closest biological SSSI being Crymlyn Burrows SSSI is located approximately 2.1km south of the Application Site at its closest point and Six Pit, Swansea Vale and White Rock SSSI, located approximately 2.3km to the north-west of the Site at its closest point. There are no other sites of European/international importance within a 10km radius of the Site.
- 5.2.12. **Non-statutory sites.** Coed Darcy GCN Area SINC is partially within the Application Site within the south of the Site. The site is designated on account of it supporting GCN, and was a receptor site for GCN translocation as part of the former Coed Darcy development, with a total of 9,560 GCN being translocated between 2011 and 2016. The site contains a number of varying sized ponds, mixed scrub, semi-improved grassland, acid grassland, fen, wet woodland and broadleaved woodland.
- 5.2.13. In addition, much of the wider Coed Darcy Site is designated as NPT Watercourses SINC, a designation for which no formal citation has been provided, and which appears to cover extensive areas of existing development, in addition to semi-natural habitats. It is understood the citation reflects the broad locations of watercourses in the borough.

Habitats

- 5.2.14. The Application Site supports a component of a wider habitat resource which is deemed to be of value at the local level. Habitats of heightened value include areas of wet grassland, secondary woodland and vegetated waterbodies (as shown on Plan ECO2).
- 5.2.15. It is proposed that all habitats within the Coed Darcy GCN Area SINC (as shown on Plan ECO1) will be fully safeguarded. In addition, it is anticipated that the majority of secondary woodland located in the perimeter and eastern boundary of the Application Site will be fully retained.
- 5.2.16. Notwithstanding the value of some of these habitats (outside of the Coed Darcy GCN Area SINC), they are not afforded any direct legal protection. There are no specific requirements identified at this stage for targeted construction safeguards or mitigation measures to be deployed as part of the remediation scheme.
- 5.2.17. As detailed in Appendix 3, the proposals seek for the remediation of much of the Application Site, with exception of the Coed Darcy GCN Area SINC. Post remediation, this area will be uplifted and utilised as a dedicated Ecology area in line with the OPP application planning application ref: P2021/1193).
- 5.2.18. Therefore, it is concluded that proposals will deliver enhanced habitats, including for species rich grassland, and mixed scrub, and two high-value ponds (enhancement of the two proto ponds created in 2022) and allow for enhanced opportunities for a range of flora and fauna.

5.3. Faunal Evaluation

Badgers

- 5.3.1. **Legislation.** The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status.
- 5.3.2. As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage, or obstruction of a Badger sett an offence. A sett is defined as “*any structure or place, which displays signs indicating current use, by a Badger*”. ‘Current use’ is defined by NE as any use within the preceding 12 months.
- 5.3.3. In addition, the intentional elimination of a sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting ‘cruel ill treatment’ of a Badger.
- 5.3.4. Local authorities are therefore obliged to consult NE over any application that is likely to adversely affect Badgers.

- 5.3.5. Any work that disturbs Badgers is illegal without a licence granted by NE. Unlike the general conservation legislation, the Badgers Act 1992 makes specific provision for the granting of licenses for development purposes, including for the destruction of setts.
- 5.3.6. Guidance produced by NE in 2002 developed guidelines on the types of activity it considers should be licensed within certain distances of sett entrances. For example, using heavy machinery within 30m of any entrance to an active sett, and lighter machinery within 20m, or light work such as hand digging within 10m, all may require a licence.
- 5.3.7. 'Interim guidance' issued by NE in September 2007 specifically states *"it is not illegal, and therefore a licence is not required, to carry out disturbing activities in the vicinity of a sett if no badger is disturbed and the sett is not damaged or obstructed."*
- 5.3.8. The guidance goes on to state, *"Where interference with a sett showing signs of use cannot be avoided during the development, a licence should be sought from Natural England"*.
- 5.3.9. This guidance does not make reference to any 30m/20m/10m radius as a threshold for whether a licence would be required. Nonetheless, it is stated that tunnels may extend for 20m so care needs to be taken when implementing excavating operations within the vicinity of a sett, and to take appropriate precautions with vibrations and noise, etc. Fires/chemicals within 20m of a sett should specifically be avoided.
- 5.3.10. This interim guidance allows greater professional judgement as to whether an offence is likely to be committed by a particular development activity, and therefore whether a licence is required or not. For example, if a sett clearly orientates southwards into an embankment it may be somewhat redundant to have a 30m exclusion zone to the north.
- 5.3.11. It should be noted that a licence cannot be issued until the site is in receipt of a full and valid planning permission, and that generally licenses are not granted between December and June inclusive to avoid disruption to the Badger breeding cycle.
- 5.3.12. **Site Usage.** No evidence of Badger activity was found adjacent or within the Application Site. It is also noted that no evidence of Badger activity was found.
- 5.3.13. **Mitigation and Enhancements.** Noting the absence of Badger activity, no impacts are considered to arise as part of the proposals and therefore no mitigation is considered.
- 5.3.14. In line with best practice, and noting Badgers are a mobile species which can rapidly excavate new setts, an updated survey should be undertaken if construction works are not commenced within 12 months of the previous surveys.

- 5.3.15. The long-term OPP proposals will provide optimal foraging resource for Badger populations, should they be present within the local area. Given these Proposals it is considered enhanced opportunities will exist for Badgers in the long-term.

Bats

- 5.3.16. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as Amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (“the Habitats Regulations”). These include provisions making it an offence to:

- Deliberately kill, injure or take (capture) bats;
- Deliberately disturb bats in such a way as to significantly affect:-
 - (i) be likely to impair their ability to survive, to breed or rear or nurture their young; or to hibernate or migrate; or
 - (ii) to affect significantly the local distribution or abundance of the species to which they belong;
- Damage or destroy any breeding or resting place used by bats;
- Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).

- 5.3.17. The words ‘deliberately’ and ‘intentionally’ include actions where a court can infer the defendant knew the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.

- 5.3.18. The offence of damaging (making it worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.

- 5.3.19. In accordance with the Habitats Regulations, the licensing authority (NE) must apply the three derogation tests as part of the process of considering a licence application. These tests are:

1. the activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
2. there must be no satisfactory alternative; and
3. the favourable conservation status of the species concerned must be maintained.

- 5.3.20. Licences can usually only be granted if the development is in receipt of full planning permission.

- 5.3.21. **Site Usage.** No trees present within the Application Site that may be impacted were identified as suitable to support roosting bats.

- 5.3.22. The Application Site offers a component of the wider habitat resource which supports those bat population recorded within the

Wider Coed Darcy Site (as shown in Appendix 2). The habitats present within the Application Site will offer suitable foraging and commuting opportunities for bats, albeit extensive and more naturalistic features are present in the wider area.

- 5.3.23. Regarding the Application Site, areas of greater interest for bats are areas that are to be retained, namely the largely waterbodies within the Coed Darcy GCN Area SINC and the boundary secondary woodland. Regarding habitats within the Tip area, these are deemed to be of relatively low ecological interest noting that these areas comprise predominantly recolonising vegetation.
- 5.3.24. **Mitigation and Enhancements.** As detailed above, no potential roosting features have been identified which have potential to be adversely impacted by the proposals and therefore no avoidance or mitigation measures are required.
- 5.3.25. In terms of potential impacts on foraging and commuting bats, and noting the proposals (i.e. remediation of the Tip area and delivery of dedicated ecology area in OPP application), potential impacts are considered to be limited to short term losses of low value foraging habitats. Given the retention of the boundary woodland parcels, and the habitats within the Coed Darcy GCN Area SINC, no significant impacts are predicted in relation to commuting or navigational opportunities. For clarity, there will be no losses to areas of habitat of potentially raised value to foraging and commuting bats.
- 5.3.26. No lighting is proposed within the operational phase of the development. Should light be required during construction, this will be restricted to the minimum necessary footprint, ensuring light spill onto boundary habitats and the Coed Darcy GCN Area SINC is avoided.
- 5.3.27. Given the low value of the habitats to be impacts, combined with the presence of extensive optimal habitat in the immediate area (noting adjacent Crymlyn Bog), short term habitat losses are not considered to be of significance for local bat populations, nor impact their Favourable Conservation Status (FCS).

Invertebrates

- 5.3.28. **Site Usage.** Invertebrate surveys of the Wider site in 2020 identified a large number of invertebrates within the wider Coed Darcy (as shown in Appendix 2), however it is noted that much of the Application Site to be impacted comprised of soils heavily contaminated with hydrocarbons.
- 5.3.29. In addition, habitats of heightened interest (namely the larger waterbodies within the Coed Darcy GCN Area SINC) will be retained, or in the case of recolonising vegetation, exist in the wider area. Areas of heightened interest exist in the wider landscape, noting the adjacent Crymlyn Bog.

- 5.3.30. Reflecting the above, the Application Site is not considered to comprise an area of heightened interest in the context of wider landscape to invertebrate populations.
- 5.3.31. **Enhancements.** As detailed above, the proposals for the Application Site comprise of the remediation of the Tip area. This Application Site will form part of the dedicated Ecology Area as detailed in the OPP in the long-term, which will seek to achieve a diversification of habitat resources and qualitative enhancements of value to a wide range of invertebrate fauna.
- 5.3.32. Great Crested Newts
- 5.3.33. **Legislation.** All British amphibian species receive a degree of protection under the Wildlife and Countryside Act 1981 (as Amended). The level of protection varies from sale or trade only, as is the case with species such as Smooth Newt and Common Toad, to more rigorous protection afforded to GCN.
- 5.3.34. GCN are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as Amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (“the Habitats Regulations”). These include provisions making it an offence to:
- Deliberately kill, injure or take (capture) GCN;
 - Deliberately disturb GCN in such a way as to:-
 - (i) be likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or to hibernate or migrate; or
 - (ii) affect significantly the local distribution or abundance of the species to which they belong;
 - Damage or destroy any breeding or resting place used by GCN;
 - Intentionally or recklessly to obstruct access to any place used by GCN for shelter or protection.
- 5.3.35. The words ‘deliberately’ and ‘intentionally’ include actions where a court can infer the defendant knew the action taken would almost inevitably result in an offence, even if that were not the primary purpose of the act. European Protected Species licences are available from NRW in certain circumstances, and permit activities which would otherwise be considered an offence.
- 5.3.36. **Site Usage.** On the basis of surveys undertaken over multiple years, a single pond (waterbody PB) is considered to have a medium population class size (peak count of 35 GCN recorded in 2021). In addition, the two new proto ponds 1 & 2 (as shown on Plan ECO4) also recorded small numbers of GCN.
- 5.3.37. For clarity, Ponds Proto 1 and Proto 2 will be safeguarded from development and not impacts will arise. Waterbody PB will require removal to facilitate remediation works.

- 5.3.38. In addition, much of the Application is considered to be a terrestrial habitat resource for GCN and therefore a Protected Species Licence will be required to enable a translocation of all newts within the Application Site.
- 5.3.39. **Mitigation and Enhancements.** The proposals will allow for the remediation of the Application Site, which will form part of the dedicated Ecology area in the emerging OPP (as detailed above), and will allow for landscape scale creation and enhancements of the Application Site. Amongst other things, this will include a considerable net increase in suitable GCN terrestrial habitat and aquatic resources (as shown in Appendix 3).
- 5.3.40. Moreover, long term aspirations of the Application Site include an expansion of the existing Coed Darcy GCN Area SINC, once the OPP Ecology Area has been delivered. It is also anticipated that this will form part of the network of suitable terrestrial and aquatic habitat leading northwards into the wider Coed Darcy Site (with reference to the OPP).
- 5.3.41. Notwithstanding the above, it is acknowledged that the construction works in the short term would have the potential to give rise to adverse impacts on GCN in the absence of an effective avoidance and mitigation strategy being implemented. As such, it is proposed for the Application Site to be subject to a capture and translocation exercise under an NRW GCN Licence.
- 5.3.42. Whilst a detailed licence methodology and approach would need to be determined and agreed with NRW in due course, It is anticipated that the translocation effort would involve the translocation of GCN into the adjacent Coed Darcy GCN Area SINC (as shown on Plan ECO1).

Breeding Birds

- 5.3.43. **Legislation.** Section 1 of the Wildlife & Countryside Act is concerned with the protection of wild birds. With certain exceptions, all wild birds and their eggs are protected from intentional killing, injuring, and taking, and their nests, whilst being built or in use, cannot be taken, damaged or destroyed.
- 5.3.44. Schedule 1 of the Wildlife & Countryside Act 1981 is a list of nationally rarer and uncommon breeding birds for which all offences carry special (i.e. greater) penalties. These species also have additional protection whilst breeding, as it is also an offence to disturb adults or their dependant young when at the nest.
- 5.3.45. **Site Usage.** The Application Site of which will be subject to development is not assessed to be of raised potential interest for breeding bird assemblages, with reference to habitats with higher suitability in the immediate vicinity.
- 5.3.46. Moreover, on the basis of the habitats present within the area of impact, there is nothing to indicate the Application Site would be of

potential breeding value for any of the qualifying birds' species/assemblages within the Crymlyn Bog designated sites complex, namely the breeding populations of Reed and Sedge Warblers. Whilst both Reed and Sedge Warbler were recorded within the Application Site, these were in low numbers and in the Coed Darcy GCN Area SINC of which will be fully safeguarded and retained from development.

- 5.3.47. With regards to foraging, and as above, areas of heightened interest for breeding birds are located within the areas to be retained, with areas to be impacted comprising predominantly of recolonising vegetation and dense scrub.
- 5.3.48. **Mitigation and Enhancements.** As all species of birds receive general protection whilst nesting, to avoid a nesting habitat (including grassland) is undertaken outside the breeding season (March to August inclusive) or, alternatively, checks for nesting birds be made by an ecologist immediately prior to any vegetation removal.
- 5.3.49. As detailed in Appendix 2, on a highly precautionary basis noting the presence of multiple ground nesting bird species within the Wider Coed Darcy site, it is proposed for a pre-commencement check survey to be undertaken, prior to works commencing on bare ground / unsealed surfaces. Moreover, all construction personnel will receive a tool-box talk which, amongst other matters, will identify the potential for ground nesting birds to be present, even within habitats typically assessed to be of very low suitability.
- 5.3.50. In the unlikely event there is a temporary cessation in construction works during the main bird breeding season (March to August), a monitoring check survey will be undertaken by an ecologist prior to works recommencing. As an additional safeguard, it would be appropriate for bird prevention techniques to be implemented, as have previously been undertaken at the wider Coed Darcy site. This may include vegetation management, regular walked transects of the Site, or the use of visual deterrents. Any such measures would be directly agreed with the Ecological Clerk of Works (ECoW).
- 5.3.51. The implementation of appropriate construction safeguards to avoid temporary impacts (including monitoring checks of habitats and pre-commencement nesting bird checks as required) will be sufficient to ensure potential impacts are avoided during construction. These measures may be appropriately secured within a Construction Environmental Management Plan (CEMP) for the scheme.
- 5.3.52. Post-development, the Proposals for habitat creation will enhance the value of the Site for assemblages reliant on wetland and open habitats. Indeed, the creation of a dedicated ecology area (as detailed in the OPP) can be expected to be of particular value to a wide range of notable bird species recorded locally, not least ground nesting species such as Lapwing. Wetland grassland

seeding would also offer a complementary habitat resource to that present within the nearby Crymlyn Bog, and therefore has the potential to benefit breeding and wintering bird populations primarily sustained within that site.

Wintering Birds

- 5.3.53. **Site Evaluation.** A suite of wintering bird surveys was carried out on the Application Site and on the wider areas between 2021 and 2022, with the results shown on Plan ECO3. The surveys found a small number of species utilising the site, including Tufted Duck, Teal, Mallard, Cetti's Warbler, Reed Bunting and Kingfisher. The majority of these records relate to within the Coed Darcy GCN Area SINC of which will be fully retained, with the remaining record (one) Cetti's Warbler recorded within the Tip area. Therefore, overall the Application Site was concluded to not be a resource of raised interest for Wintering Bird Assemblages.
- 5.3.54. **Enhancements.** As above, given the low stability of the Tip area within the Application Site to support wintering bird assemblages, no specific mitigation would be required.
- 5.3.55. As detailed above for breeding birds, habitat creation into a dedicated ecology area will enhance the value of the Site for assemblages reliant on wetland and open habitats, offering an enhancement for wintering birds post-development.
- 5.3.56. In summary, the proposals can therefore be expected to avoid any long-term adverse impacts on wintering birds and indeed secure enhancements post-development.

Reptiles

- 5.3.57. **Legislation.** All six British reptiles species receive a degree of legislative protection that varies depending on their conservation importance.
- 5.3.58. Rare, endangered, or declining species receive full protection under the Wildlife & Countryside Act 1981 (as Amended), as well as protection under the Conservation of Habitats and Species Regulations 2017. Species that are fully protected are Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis*. It is illegal to:

- Deliberately kill, injure or take (capture) these reptiles;
 - Deliberately disturb these reptiles in such a way as to be likely:–
 - i. to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or to hibernate; or
 - ii. to affect significantly their local distribution or abundance;
 - Damage or destroy any breeding or resting place used by these reptiles;
 - Intentionally or recklessly obstruct access to any place used by these reptiles for shelter or protection (even if the reptiles are not present at the time);
 - Sell, offer for sale, possess, or transport for purposes of sale these reptiles (live or dead animal, part or derivative).
- 5.3.59. Owing to their abundance in Britain, Common Lizard *Zootoca vivipara*, Slow Worm, Grass Snake and Adder *Vipera berus* are only 'partially protected' under the Wildlife & Countryside Act 1981 (as Amended) and as such only receive protection from:
- Intentional killing and injuring; and
 - Being sold or other forms of trading.
- 5.3.60. The habitat of common reptiles is therefore not directly protected. However, because of their partial protection, disturbing or destroying their habitat whilst they are present may lead to an offence.
- 5.3.61. All reptile species are listed as a Species of Principal Importance under Section 41 of the NERC 2006. The NERC Act places responsibility upon public bodies to have regard for the conservation of biodiversity in England.
- 5.3.62. **Site Evaluation.** Whilst no specific surveys for reptiles have been undertaken within the Application Site it is noted that various habitats are suitable to support reptiles, namely areas of dense scrub and wet grassland and to some degree the recolonising vegetation. In addition, reptiles were present to the north-east of the Application Site (as shown in Appendix 2).
- 5.3.63. Given the presence of reptiles within the immediate surrounding of the Application Site, their presence is assumed, on a precautionary basis.
- 5.3.64. **Mitigation and Enhancements.** Where losses to suitable reptile are required to facilitate the proposals, it will be necessary to adopt an appropriate avoidance and mitigation strategy to avoid impacts on common reptiles.
- 5.3.65. Noting a GCN translocation is proposed within all suitable habitat (to be impacted) within the Application Site, it is expected any reptile relocation in this instance will also involve active trapping. In this regard, it is proposed trapping for reptiles will last the full duration of the GCN translocation, to be determined by an NRW

Protected Species Licence. It is anticipated that captured reptiles would be translocated to the closest suitable terrestrial habitat within retained areas, namely in the boundaries of the Application Site and within the retained Coed Darcy GCN Area SINC.

Other Species

- 5.3.66. The survey works of the Application Site and wider Coed Darcy Site (as detailed in Appendix 2) have not identified the presence of any other notable or protected species within the Site. As such, and with reference to historic ecological survey work across the Coed Darcy site, the Application Site is not considered likely to provide any significant opportunities for any other protected or notable species.

6. PLANNING POLICY CONTEXT

- 6.1. Planning policy for development in Coed Darcy, Llandarcy, Neath is administrated at two principal levels; nationally through the National Planning Policy Framework (NPPF), and locally through Neath Port Talbot Borough County Council Development Plan documents.
- 6.2. Any proposed development will be judged in relation to the policies contained within these documents.

Planning Policy Wales

- 6.2.1. Planning Policy Wales (Edition 11, February 2021) (PPW) sets out guidance with regard to nature conservation in Chapter 6; 'Distinctive and Natural Place'. It provides guidance for local planning authorities, and relates to biodiversity and safeguarding statutory designated sites, non-statutory designated sites, and protected species and their habitats. It also recognises the importance of trees, woodlands, and hedgerows.
- 6.2.2. PPW requires local authorities to fully consider the effect of planning decisions on natural heritage, inclusive of biodiversity and geological conservation in Wales, ensuring development 'contributes to meeting international responsibilities and obligations for biodiversity and habitats', and that appropriate weight is attached to statutory nature conservation designations, protected species, and biodiversity within the wider environment.
- 6.2.3. PPW also considers the potential biodiversity and geological conservation gains which can be secured within developments, including the use of planning obligations.
- 6.2.4. National policy therefore implicitly recognises the importance of biodiversity and that, with sensitive planning and design, development and conservation of the natural heritage can co-exist, and benefits can, in certain circumstances, be obtained.

Technical Advice Note 5: Nature Conservation and Planning

- 6.2.5. The Technical Advice Note (Wales) 5: Nature Conservation and Planning (TAN 5) was produced to supplement the information provided in PPW, insofar as it relates to nature conservation.
- 6.2.6. TAN 5 reiterates biodiversity as a material consideration in the planning process, and advocates a step-wise approach to avoiding, mitigating, and compensating for biodiversity impacts.
- 6.2.7. It requires local planning authorities (LPAs) to fully consider the effect of planning decisions on biodiversity, and ensure appropriate weight is attached to statutory and non-statutory nature conservation designations, protected and notable (Priority) species, as well as biodiversity and geological interests within the wider environment. It also considers the potential biodiversity and

geological conservation gains which can be secured within developments, including through the use of planning conditions or obligations.

Future Wales (National Plan 2040)

- 6.2.8. Future Wales (National Plan 2040) is a framework which seeks to guide development in Wales up until 2040. Building upon the Well Being of Future Generations (Wales) Act 2015, sustainable development forms a guiding principle of the Plan, with Future Wales striving 'to find solutions which maximise our contribution to the goals of well-being objectives' whilst recognising that, in achieving sustainable development, 'a balance often has to be found between competing priorities'.
- 6.2.9. Regarding biodiversity and nature conservation, the Plan seeks to ensure development promotes ecological connectivity and resilience and reverses biodiversity declines.
- 6.2.10. A Key policy aspiration (Policy 9) expands on these nature conservation ambitions and targets. Policy 9 requires 'action towards securing the maintenance and enhancement of biodiversity (to provide a net benefit), the resilience of ecosystems and green infrastructure assets must be demonstrated as part of proposed development through innovative, nature-based approaches to site planning and the design of the built environment'.
- 6.2.11. In particular, the Plan identifies the importance for 'large-scale resilient and functional ecological networks and green infrastructure' to be secured such that landscape scale networks exist 'to enable species and habitats to adapt to disturbance and change'. The Plan emphasises potentially important components of ecological networks should be safeguarded such that their ecological functionality is not compromised. The Plan emphasises 'safeguarding does not prohibit development, but sets out a requirement to consider both the longterm land needs of the habitats and species it is intended to protect and improve...'
- 6.2.12. Future Wales further makes reference to ecological mapping resources produced by NRW, as well as Area Statements.
- 6.2.13. In summary, the Plan seeks opportunities to create, enhance and strengthen ecological networks on a national scale such that ecological functionality can be maximised, ecosystem services retained, and net benefits for biodiversity secured.

Local Policy

Neath Port Talbot County Borough Council Local Development Plan (2011-2026) (Adopted 2016)

- 6.2.14. Planning policy at the local level is detailed within the Neath Port Talbot County Borough Council Local Development Plan [NPTCBC LDP] (2011 to 2026). The LDP was adopted on 27 January 2016,

and includes for a number of policies of relevance to ecology and nature conservation.

- 6.2.15. Strategic Policy SP14: The Countryside and the Undeveloped Coast is an overarching policy which seeks to protect open countryside and undeveloped coast through the control of inappropriate development. Amongst other matters it also relates to the designation and protection of Special Landscape areas and Green Wedges.
- 6.2.16. This strategic policy is underpinned by a series of detailed policies. Of relevance to biodiversity and nature conservation at the Site, Policy EN3 identifies designated Green Wedges, some of which (i.e. at Crymlyn Bog and Llandarcy) border the wider Coed Darcy site. Whilst primarily landscape designations, the opportunities for Green Wedges to support biodiversity are noted.
- 6.2.17. Strategic Policy SP15: Biodiversity and Geodiversity is the primary overarching policy of relevance to biodiversity and nature conservation. It identifies the need to protect, conserve, enhance, and manage important habitats, species, and sites of geological interest through the identification of international, national, and county designated sites including SACs, Ramsar, SSSIs and NNRs. Also, through the identification and protection of sites of regional and local importance, and the protection of important natural heritage features.
- 6.2.18. This strategic policy is again underpinned by a series of more detailed policies. Those of relevance to biodiversity and nature conservation at the Site are considered below.
- 6.2.19. Policy EN6: Important Biodiversity and Geodiversity Sites relates to Proposed Development that would affect Regionally Important Geodiversity Sites (RIGS), LNR's, SINC's, sites meeting SINC criteria, or sites supporting Local Biodiversity Action Plans (LBAP), and S42 habitats or species, and will only be permitted where they conserve and, where possible, enhance the natural heritage importance of the site. In addition, proposed development will only be permitted where the development could not reasonably be located elsewhere, and the benefits of the development outweigh the natural heritage importance of the site. It also states that mitigation and/or compensation measures will need to be agreed where adverse effects are unavoidable. It is noted, Policy EN6 relates to 'both identified SINC's and sites that meet SINC criteria' but which are not currently designated.
- 6.2.20. Policy EN7: Important Natural Features relates to proposed development that would adversely affect ecologically or visually important natural features such as trees, woodlands, hedgerows/field boundaries, watercourses, or ponds, and which will only be permitted where full account has been taken of the relevant features in the design of the development, with measures put in place to ensure they are retained and protected wherever possible, or where the biodiversity value and role (function) of the relevant

feature has been taken into account and, where removal is unavoidable, mitigation measures are agreed.

- 6.2.21. Policy EN8: Pollution and Land Stability concerns pollution and land instability. Amongst other matters, it identifies proposals likely to have an adverse impact on biodiversity, as a result of pollution or land instability, will not be permitted.
- 6.2.22. Policy BE1: Design identifies development schemes should be designed to a high quality, including with reference to retaining and enhancing biodiversity features and ecological connectivity.
- 6.2.23. Policy SRA1 specifically relates to the wider Coed Darcy site, identifying it as a Strategic Regeneration Area within which a sustainable urban village is proposed.

Biodiversity And Geodiversity Supplementary Planning Guidance
(May 2018)

- 6.2.24. The LDP is additionally supported by a suite of supplementary planning guidance (SP) which provide further clarity on the intentions of local policy. In particular, the Biodiversity and Geodiversity SPG (May 2018) is of relevance to biodiversity and nature conservation.
- 6.2.25. The SPG provides information and guidance setting out the expectations on all proposed development to protect, conserve, enhance, and manage important habitats, species, and sites of geological interest. The document focuses on the full range of biodiversity and geodiversity features and interests within Neath Port Talbot, and sets out the measures that will be taken through the planning system to meet the relevant objectives set out in the LDP; namely the Strategic Policy SP15, and policies EN6 and EN7 as described above.

6.3. Discussion

- 6.3.1. Recommendation have been put forward in this report which would allow the Development Proposals to fully safeguard the existing ecological interest of the Application Site. Where possible measures to enhance biodiversity value have been clearly indicated, with these giving regard to the setting of the Application Site, not least the proximity of the nearby Crymlyn Bog.
- 6.3.2. Based on the surveys undertaken, and the assessment for the presence and potential presence of protected species, due regard to the necessary measures to enhance the Application Site for such species have been put forward in this report.
- 6.3.3. Noting the low value of the losses, and that in any event new landscaping and/or habitat management is proposed to off-set these impacts, and secure enhancements for the Application Site, no net losses of significance to biodiversity are predicted as part of the Proposals.

- 6.3.4. In conclusion, implementation of the measures set out in this report enable the Proposals to fully accord with existing and emerging planning policy for ecology and nature conservation at all administrative levels.

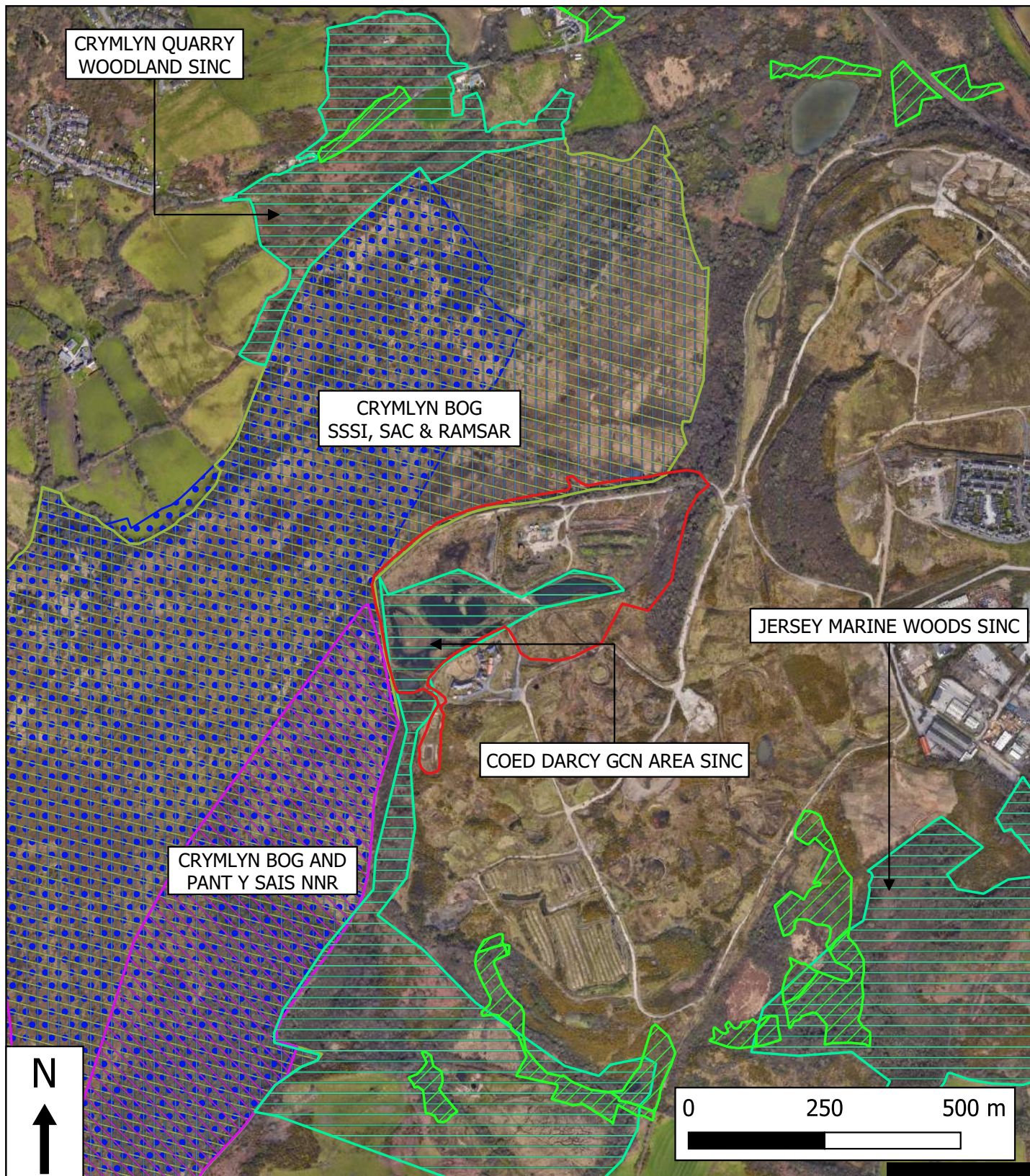
7. SUMMARY AND CONCLUSIONS

- 7.1. Ecology Solutions was commissioned on behalf of St Modwen Developments Limited to undertake an Ecological Assessment of the Tip, Coed Darcy, Llandarcy, Neath (the Application Site).
- 7.2. The aim of this ecological assessment was to determine any potential ecological constraints associated with the Application Site, and to identify a suite of appropriate avoidance, mitigation, and enhancements such that an ecological positive, policy compliant scheme can come forward.
- 7.3. The Application Site is not identified to support habitats of raised ecological significance, whilst opportunities for protected and notable faunal species are also limited with exception of Great Crested Newts. On the basis of the emerging technical studies and assessments, it is considered potential adverse impacts on the nearby Crymlyn Bog designated sites complex can be avoided and indeed safeguarded (relevant to a no remediation scenario).
- 7.4. As such, it is concluded the emerging proposals would not be likely to result in impacts of raised ecological significance in the local area. Where there is potential for ecological impacts to arise, appropriate mitigation and enhancement measures can be readily secured.
- 7.5. Noting the above, and subject to the adoption of measures set out in the report, it is considered emerging proposals may come forward in accordance with adopted legislation and planning policy insofar as this concerns matters of nature conservation.

PLANS

PLAN ECO1

Application Site Location
and Ecological Designations



Key:

- Application Site
- Ancient Semi-natural Woodland
- National Nature Reserve (NNR)
- Special Area of Conservation (SAC)
- Ramsar Site
- Site of Special Scientific Interest (SSSI)
- Site of Importance for Nature Conservation (SINC)



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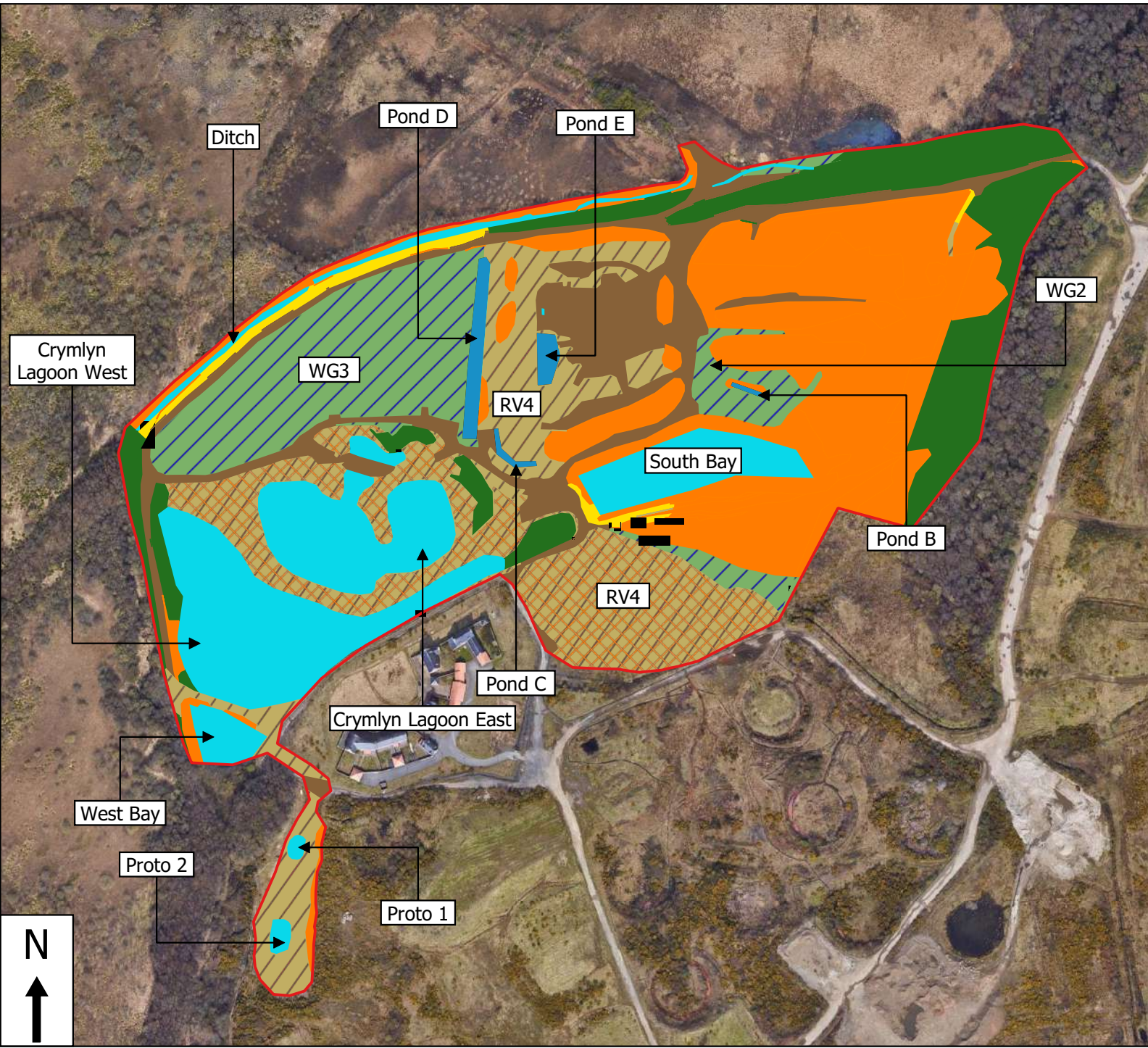
PLAN ECO1: APPLICATION
SITE LOCATION AND
ECOLOGICAL DESIGNATIONS

Rev: A

Nov 23

PLAN ECO2

Ecological Features



Key:

- Application Site
- Waterbody / Pond
- Ruderal
- Compacted Clay Soils With a Mosaic of Recolonising Vegetation
- Compacted Clay Soils With a Mosaic of Recolonising Vegetation and Scrub
- Dense Scrub
- Unsealed Hardstanding
- Wet Grasland
- Secondary Woodland
- Oil Recovery Waterbody



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9011M: COED DARCY, LLANDARCY, NEATH	
PLAN ECO2: ECOLOGICAL FEATURES	Rev: A Nov 23

PLAN ECO3

Breeding Bird and Wintering Bird Survey Results



- Blackcap (BC) *Sylvia atricapilla*
Bullfinch (BF) *Pyrrhula pyrrhula*
Blue Tit (BT) *Cyanistes caeruleus*
Carrion Crow (C.) *Corvus corone*
Coot (CO) *Fulica atra*
Cetti's Warbler (CW) *Cetti cetti*
Dunnock (D.) *Prunella modularis*
Greenfinch (GR) *Carduelis chloris*
Great Tit (GT) *Parus major*
Garden Warbler (GW) *Sylvia borin*
Kingfisher (KF) *Alcedo atthis*
Little Grebe (LG) *Tachybaptus ruficollis*
Lesser Redpoll (LR) *Acanthis cabaret*
Long-tailed Tit (LT) *Aegithalos caudatus*
Mallard (MA) *Anas platyrhynchos*
Pheasant (PH) *Phasianus colchicus*
Reed Bunting (RB) *Emberiza schoeniclus*
Reed Warbler (RW) *Acrocephalus scirpaceus*
Song Thrush (ST) *Turdus philomelos*
Sedge Warbler (SW) *Acrocephalus schoenobaenus*
Teal (T.) *Anas crecca*
Tufted Duck (TU) *Aythya fuligula*
Whitethroat (WH) *Sylvia communis*
Wren (WR) *Troglodytes troglodytes*
Willow Warbler (WW) *Phylloscopus trochilus*

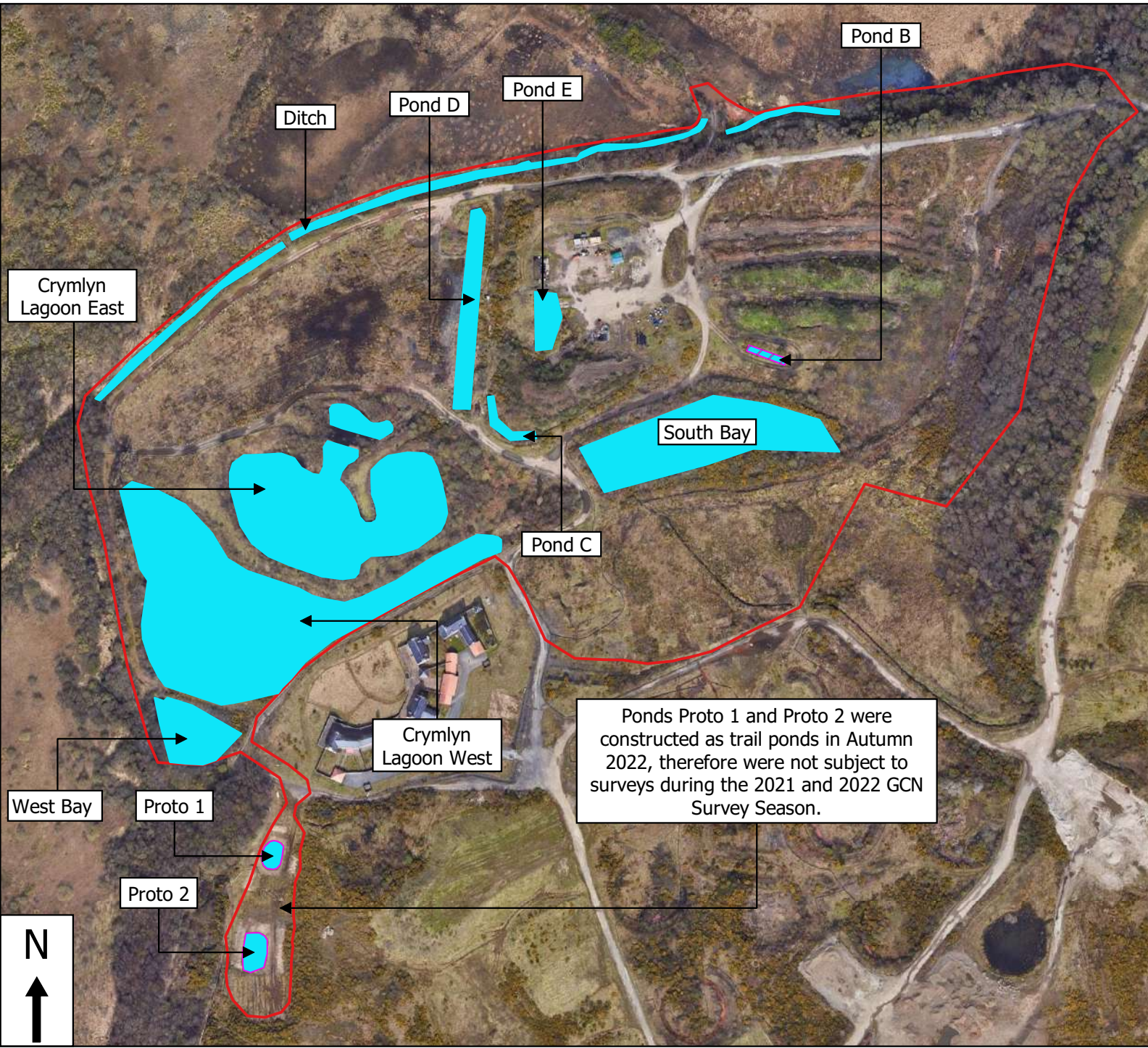
Key:

- Application Site
- Wintering Bird Record
- Green Conservation Status
- Amber Conservation Status
- Red Conservation Status

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PLAN ECO3: BREEDING BIRD AND WINTERING BIRD SURVEY RESULTS	Rev: A Nov 23

PLAN ECO4

GCN Pond Survey Results



Key:

- Application Site
- Waterbody / Pond with no GCN Present
- GCN Present during 2021, 2022 and 2023 Surveys
- GCN Present during 2023 Survey



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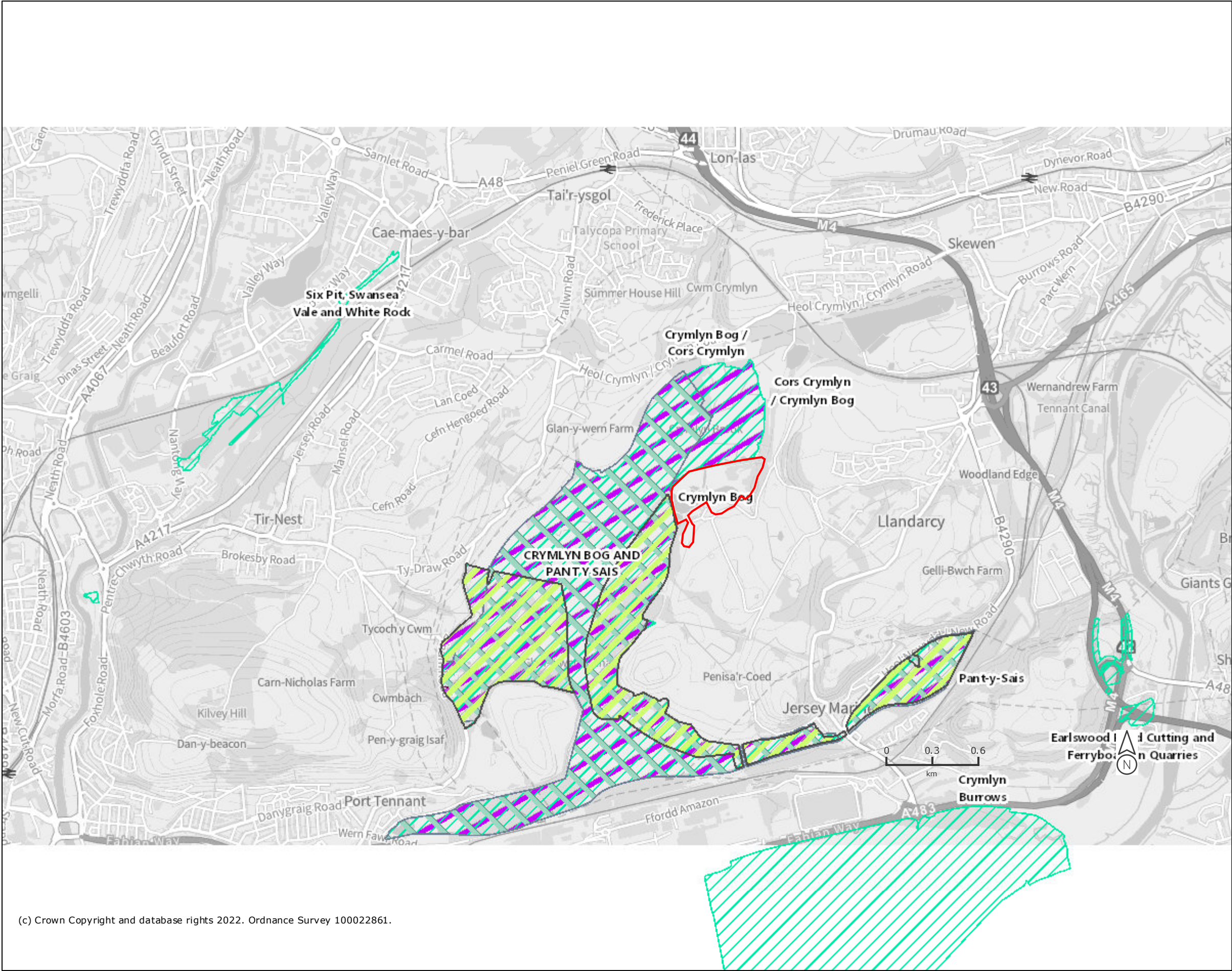
PLAN ECO4: GCN POND
SURVEY RESULTS

Rev: A
Nov 23

APPENDICES

APPENDIX 1

Information Downloaded from MAGIC



Legend

- National Nature Reserves (Wales)
- Ramsar Sites (Wales)
- Sites of Special Scientific Interest (Wales)
- Special Areas of Conservation (Wales)
- Special Protection Areas (Wales)

Projection = OSGB36
xmin = 264600
ymin = 193200
xmax = 274800
ymax = 197800

Map produced by MAGIC on 9 November, 2023.
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APPENDIX 2

Relevant Extracts from Submitted ES Chapter 2021

ecological value of the land contained within the boundaries of the Site, and to identify the main habitats and associated plant species, with notes on fauna utilising the Site.

10.2.9. Extended Phase 1 Habitat Survey. The Site was initially surveyed in June 2020, with the survey effort adopted based on an extended Phase 1 survey methodology³, as recommended by the Joint Nature Conservation Committee (JNCC), whereby the habitat types present were identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail.

10.2.10. Using the above method, the Site was classified into areas of similar botanical community types, with a representative sample of those species present at the time of the surveys being described.

10.2.11. Further habitat survey work was also undertaken at the Site in July 2021 in order to ascertain any significant baseline changes since 2020 surveys, and again followed the extended Phase 1 methodology set out above. These update surveys focused primarily on the recolonising vegetation and ephemeral/short perennial habitats within the Site, noting the potential for early successional habitats to develop or succeed in relatively short periods of time. Ad-hoc habitat survey work was further undertaken during the course of faunal surveys.

10.2.12. As detailed previously, a series of historic habitat surveys of the Site (as part of a wider study area), have been undertaken between 1998 and 2018. Notwithstanding that extensive remediation and re-profiling works have resulted in considerable changes to the baseline habitats documented in previous reporting, with the vast majority of the Site subject to extensive vegetation clearance between 2008 and 2016, this pre-existing data provides useful contextual information.

10.2.13. Of the previous work undertaken, the documentation obtained and reviewed by Ecology Solutions has included for the following, which are of particular pertinence:

10.2.14. Coed Darcy ES Chapter 16, February 2005 (extracts) as prepared by Parsons Brinckerhoff Limited. This document included the results of ecological survey work undertaken between 2001 and 2005, whilst also giving regard to earlier survey work undertaken by Cresswell Associates in 1998. This document is provided at Appendix 10.3 of this ES.

10.2.15. Ecological Management Plan (April 2012 – Rev 8) as prepared by Atkins, with this including a summary of ecological findings and constraints from previous assessment work, details on mitigation works completed to date, and further detail on mitigation approaches to be adopted during on-going construction. This document is again provided at Appendix 10.3 of this ES.

Faunal Survey Methodology

10.2.16. General faunal activity, such as birds or mammals observed visually or by call during the course of the surveys, was recorded. Specific attention was paid to any potential use of the study area by protected

³ Joint Nature Conservation Committee (2010). Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit. JNCC, Peterborough

species, Priority Species (also known as Biodiversity Action Plan (BAP) species), or other notable or rare species. In addition, specific surveys were undertaken for:

- Badgers (in June 2020 and July 2021);
- Hazel Dormice *Muscardinus avellanarius* (August 2020 to July 2021)
- Bats (between April 2020 and August 2021);
- Reptiles (between June and September 2021);
- Breeding birds (between April 2020 and July 2021);
- GCN (April to June 2021); and
- Invertebrates (between May and September 2020).

10.2.17. Surveys were undertaken by experienced and, where necessary, licensed ecologists, following established best practice and guidance. As detailed above, the scope of the above surveys was discussed and agreed with NPT Council Officers.

10.2.18. It is pertinent to note the majority of faunal survey work undertaken extended beyond the Site boundary, including land within the wider Coed Darcy Site, as was consistent with the previous OPP for the wider site. In all instances, the survey work allowed for a comprehensive assessment of faunal assemblages within the Site itself.

Badgers

10.2.19. Specific surveys were undertaken to search for evidence of Badgers within the Site in June 2020 and July 2021.

10.2.20. The surveys comprise two main elements. The first of these is a thorough search for evidence of Badger setts. If any setts are encountered each sett entrance is noted and plotted, even if the entrance appears disused. The following information is recorded:

- The number and location of any well used or very active entrances; these are clear of any debris or vegetation, and are obviously in regular use and may, or may not, have been excavated recently.
- The number and location of any inactive entrances; these are not in regular use, and have debris, such as leaves and twigs, in the entrance, or plants growing in or around the edge of the entrance.
- The number of any disused entrances; these have not been in use for some time, are partly or completely blocked, and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole once was, and the remains of the spoil heap.

10.2.21. Secondly, Badger activity such as well-worn paths and run-throughs, snagged hair, footprints, latrines, and foraging signs is recorded so as to build a picture of the use of the Site by Badgers.

10.2.22. Due regard was also had to Badgers during the completion of nocturnal survey work at the Site, with any additional evidence/activity recorded.

Hazel Dormice

10.2.23. The wider Coed Darcy survey area, including the Site, was subject to a suite of presence/absence (nest tube) surveys and footprint surveys. The methodology of these surveys accords with the guidance provided by the Mammal Society and Natural England (NE), and is as recommended in the Dormouse Conservation Handbook. A total of 315 tubes and 101 footprint tunnels were placed within suitable habitat (such as scrub and woodland), at 10m intervals, as shown in Figure 10-6. The nest tubes and footprint tunnels were attached with wire ties under suitably sturdy horizontal branches, and positioned, on average, approximately 1.5m above ground level.

10.2.24. Dormouse nesting tubes were initially deployed in late July 2020, and were subject to monthly checks in August, September, October and November 2020, as well as May, June, July and August 2021. Dormouse footprint tunnels were deployed in August 2020 and were subject to checks on the following dates:

- 21 August 2020
- 3 September 2020
- 29 September 2020
- 5 October 2020
- 15 October 2020
- 21 October 2020

10.2.25. The nest tube survey has been scored for effort according to the method developed by the South West Dormouse Project (Chanin and Woods 2003). The system used provides an overall score that reflects the chances of Dormice being discovered if present, and thus provides an indicator of the 'thoroughness' of a survey. This score is calculated based on the number of tubes used and the number of months the tubes were in place.

10.2.26. The months of the year are weighted according to the likelihood of recording dormice as set out below in Table 10.1.

Table 10.1 – Monthly Score Weighting (Chanin & Woods 2003)

Month	Weighting
April	1
May	4
June	2

Month	Weighting
July	2
August	5
September	7
October	2
November	2

10.2.27. A score of 20 (or above) is deemed a thorough survey, and a score of 15 to 19 may be regarded as adequate where circumstances do not permit more time or more tubes (particularly if other survey methods have also proved negative).

10.2.28. The survey effort allowed for checks to be undertaken within each calendar month of the survey season, with the exception of April, allowing an overall score of 25 to be achieved.

Bats

10.2.29. Field surveys were undertaken with regard to best practice guidelines issued by NE⁴, the JNCC⁵ and the Bat Conservation Trust⁶.

Tree Assessment

10.2.30. Trees within and immediately adjacent to the Site were appraised in June 2020, and again in August 2021, for their likely potential to support bat roosts.

10.2.31. For a tree to be identified as having potential to support roosting bats it needs to exhibit one or more of the following characteristics:

- Frost cracks;
- Trunk and branch splits;
- Woodpecker *Picidae* sp. holes;
- Rot holes where branches have been removed;
- Hollow sections of trunk, branches, and roots;
- Loose bark;
- Cavities beneath old root buttresses and coppice stools;

⁴ Mitchell-Jones, A. J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough

⁵ Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). Bat Workers' Manual. 3rd edition. Joint Nature Conservation Committee, Peterborough

⁶ Bat Conservation Trust (2016). Bat Surveys – Good Practice Guidelines. Bat Conservation Trust, London

- Dense epicormic growth (growth originating from the centre of branches);
- Dense covering of Ivy *Hedera*; and
- Presence of bat or bird boxes.

10.2.32. In addition, noting the presence of potential roosting features, and its context within an area of Proposed Development, two trees (T1 and T2 – see Figure 10-3) within the Site were subject to a tree climbing survey in September 2021. The survey involved trained climbers accessing the tree with ropes, and using endoscopes and torches to search potential roosting features for past or present use by roosting bats.

10.2.33. No past or present evidence of roosting was recorded as part of this work, and the trees are not deemed to represent bat roosts.

External Building Surveys

10.2.34. All buildings within the Site were subject to external surveys between June 2020 and September 2021. The surveys utilised ladders, mirrors, endoscopes, torches, and binoculars where necessary. In addition, B1 (as shown in Figure 10-2) was subject to internal inspections in both August and September 2021.

10.2.35. Evidence of the presence of bats was searched for, with particular attention paid to the loft voids and gaps between rafters and beams. Specific searches were made for bat droppings, which can indicate present or past use, and extent of use, as well as other signs to indicate the possible presence of bats e.g. feeding remains, presence of stained areas, or areas that are cobweb free.

10.2.36. The probability of a building being used by bats as a summer roost site increases if it:

- Is largely undisturbed;
- Dates from pre-20th century;
- Has a large roof void with unobstructed flying spaces;
- Has access points for bats (though is not too draughty);
- Has wooden cladding or hanging tiles; and/or
- Is in a rural setting and close to woodland or water.

10.2.37. Conversely, the probability decreases if a building is of a modern or pre-fabricated design/construction, is in an urban setting, has small or cluttered roof voids, has few gaps at the eaves, or is a heavily disturbed premises.

10.2.38. The main requirements for a winter/hibernation roost site are it maintains a stable (cool) temperature and humidity. Sites commonly utilised by bats as winter roosts include cavities/holes in trees,

underground sites, and parts of buildings. Whilst different species may show a preference for one of these types of roost site, none are solely dependent on a single type.

Bat Emergence/Re-entry Surveys

10.2.39. The vast majority of buildings within the Site were deemed unsuitable to support roosting bats, or otherwise are to be retained unimpacted as a result of the Proposed Development.

10.2.40. However, four buildings within the Site (B3, B4, B5 and B6 as shown in Figure 10-2), identified to have at least low bat roosting potential, with the potential to be subject to adverse impacts as a result of the Proposed Development.

10.2.41. These buildings were each subject to emergence and re-entry surveys in August and September 2021. Surveyors were positioned at strategic vantage points to enable full building coverage. Emergence surveys commenced approximately 30 minutes before sunset, until 2 hours after sunset. Re-entry surveys commenced 90 minutes before sunrise, and extended for 15 minutes after sunrise. Surveyors were equipped with Echometer Touch 2 (EM2) bat detectors to record the data, which was subsequently analysed using Kaleidoscope software.

10.2.42. The timing and weather conditions of the survey is detailed in Table 10.2 below.

Table 10.2 – Dates, Timings and Weather Conditions for Bat Emergence/Re-entry Surveys at the Site

Survey Date	Building Number	Survey Start/Finish	Temperature and Weather Conditions
4 August 2021	B3	20:30 / 23:00	18C, dry, calm
19 August 2021	B4	20:15 / 22:30	17C, light drizzle between 20:55 to 21:50
20 August 2021	B5, B6	04:04 / 5:50	16C, drizzle for majority of survey
14 September 2021	B5, B6	19.24 / 21.00	16C, light breeze, light cloud cover
15 September 2021	B4	04.50 / 6.50	12C, light breeze and light cloud cover

Bat Activity Surveys

10.2.43. In addition to roost assessments, surveyors also undertook dusk and/or dawn transect surveys across the Site, on a monthly basis between April and September 2020. Surveyors were equipped with Echometer Touch 2 (EM2) bat detectors to record the data, which was subsequently analysed using Kaleidoscope software. Evening bat transect surveys commenced approximately 15 minutes before sunset and continued for a minimum of 2 hours after sunset. Dawn activity surveys commenced approximately 2 hours before sunrise and continued until sunrise.

10.2.44. This survey method aimed to identify the level of foraging, and the species present foraging and commuting within the Site and, moreover, to identify any habitats/features of comparatively higher value to bats within the Site.

10.2.45. The dates, timing and weather conditions of surveys is detailed in Table 10.3 below.

Table 10.3 – Dates, Timings and Weather Conditions for Bat Activity Transect Surveys at the Site.

Survey Number	Survey Date	Survey Start/Finish	Temperature and Weather Conditions
1	24 June 2020 and 25 June 2020 (two transects per night)	21:24 / 23:47 21:23 / 23:25	25C, 0% cloud 22C, 40% cloud, heavy rain from 23.10
2	29 July 2020	20:53 / 23:08	16C, 85% cloud, dry, light breeze
3	21 August 2020	20:10 / 22:25	17C, 100% cloud, brief heavy rain, moderate wind
4	29 September 2020	18:53 / 20:57	13C, 30% cloud, dry, light breeze
5	15 October 2020	18:06 / 20:21	12C, 5% cloud, dry, light breeze

10.2.46. In addition to the completion of activity transects across the Site, static detectors (Song Meter 4 and Song Meter Mini detectors) were deployed at strategic locations across the Site for extended periods (minimum 5 nights). The locations of the detectors can be seen on Figure 10-3. The dates of deployment, as well as the prevailing weather conditions, are detailed in Table 10.4 below.

Table 10.4 – Detector Numbers, Deployment Periods and Prevailing Weather Conditions for Static Detector Surveys

Survey No	Number of Detectors Deployed	Deployment Period	Prevailing Weather Conditions
1	6	23 June 2020 to 1 July 2020	Dry, some cloud, light wind
2	6	29 July 2020 to 11 August 2020	Dry, light wind
3	8	20 August 2020 to 26 August 20	Dry, moderate wind
4	8	29 September 2020 to 6 October 20	Dry, light wind
5	8	14 October 2020 to 22 October 2020	Dry, light wind

Reptiles

10.2.47. Specific surveys to identify the presence or absence of reptiles were undertaken at the Site between June and September 2021. The methodology utilised principally derived from guidance given in the Herpetofauna Workers Manual⁷.

10.2.48. Following an initial assessment to identify areas of suitable reptile habitat within the wider site, refugia surveys were undertaken. It was considered, given the size of the site, that a complete tinning exercise would be impractical, on this basis a sampling survey was utilised, as was discussed and agreed in principle with NPTC Biodiversity Officers. A total of 375 ‘tins’ (0.5 x 0.5 metre squares of heavy roofing felt which are often used as refuges by reptiles) were distributed within specific areas of suitable reptile habitat within the site, in order to provide a representative sample of the use of these habitats by reptiles. (see Figure 10-4).

10.2.49. The tins provide shelter, and heat up quicker than the surroundings in the morning, and can remain warmer than the surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask under and so raise their body temperature, which allows them to forage earlier and later in the day.

⁷ Herpetofauna Groups of Britain and Ireland. 1998. Evaluating Local Mitigation / Translocation Programmes: Maintaining Best Practice and Lawful Standards. HGBI Advisory Notes for Amphibian and Reptile Groups (ARGs)

10.2.50. The dates, timing, weather conditions and findings of the surveys are detailed in Table 10.11 (see Section 10-3 below). A total of seven surveys were undertaken at the Site. All surveys were undertaken in optimal survey conditions. Tin locations are shown at Figure 10-4.

Breeding Birds

10.2.51. Surveys were carried out with due regard to the Common Bird Census (CBC) technique. The CBC involves walking transect routes through the area being studied, and recording and plotting all bird species observed or heard, and their behaviour.

10.2.52. The transect route is chosen so the entire site is covered and all features likely to support breeding birds are surveyed. Routes and directions are varied between visits so there is no tendency to visit a particular part of the plot later or earlier in the day.

10.2.53. To ascertain the breeding status of birds using the Site, the following criteria was applied, following the methodology used in the 'Atlas' surveys of 1988 to 1991 (Gibbons et al, 1993). This accepts the following activities as denoting breeding (including those probably breeding, but without definite proof):

- Birds apparently holding territory, including courtship and display.
- Nest building (including excavating a nest hole).
- Distraction display or feigning injury.
- Adult entering or leaving apparently occupied nest site.
- Adult carrying faecal sac or food.
- Nest with eggs or eggshells found, or bird sitting but not disturbed.
- Nest with young; or recently fledged young, including downy young of ducks, game-birds, waders and other nidifugous species.

10.2.54. A full suite of three visits were carried out in April, May and June 2020, with these covering the Site as part of the wider Coed Darcy Site. Moreover, update check surveys, targeted at key ground nesting bird species (such as Little Ringed Plover *Charadrius dubius*, Ringed Plover *Charadrius hiaticula* and Lapwing *Vanellus vanellus*), were undertaken within the Site in April 2020 and July 2021. The dates and weather conditions of these surveys are detailed in Table 10.5 below.

Table 10.5 – Dates and Weather Conditions for Breeding Bird Surveys Undertaken at the Site

Survey Visit	Date	Weather Conditions
1	30 April 2020	8/8 cloud, wind SW2-3, 7°C, showers
2	17 May 2020	7/8 cloud, still, 10°C
3	14 June 2020	6-7/8 cloud, wind E1, 12°C
4	28 April 2021*	8/8 cloud, wind NE4, 9°C, drizzly
5	4 July 2021*	8/8 cloud, still, 9°C

*These represent targeted surveys for Lapwing, Ringed Plover and Little Ringed Plover.

Nightjar

10.2.55. A churring Nightjar *Caprimulgidae* was recorded during the course of a GCN survey on 8 June 2021, and seen in flight in the north-east corner of the Site. Nightjars are well known to wander during the summer and can turn up at random locations. The Coed Darcy Site does not appear to be particularly suitable for Nightjars, and none was recorded during previous surveys in May and June 2020, both of which started pre-dawn. Moreover, no other evidence of Nightjar was recorded during any other night time work undertaken by or on behalf of Ecology Solutions between 2020 and 2021.

10.2.56. Notwithstanding the above, and on a precautionary basis, a further specific Nightjar survey was undertaken in June 2021. This survey comprised a dusk and dawn transect of the Site. The dusk survey took place on the 22 June 2021, commencing at sunset (21:36) and ending at 22:50. The dawn survey on the 23 June 2021 commenced 90 minutes before sunrise and extended until sunrise (04:57). No further evidence of Nightjar was recorded and, as such, it was concluded the observation related to a random visit from a wandering male.

Great Crested Newts

10.2.57. The Site supports a large number of waterbodies, ranging from large areas of open water (such as South Site Reservoir) to small ponds created as a bi-product of previous Site remediation works. Whilst historic survey work indicated an absence of GCN from the vast majority of the Site, given the large numbers of GCN known in the wider area (with approximately 10,000 individuals previously translocated from the wider Coed Darcy Site), it was agreed, through liaison with NPTC Biodiversity Officers and NRW, that updated assessment work would be prudent. Initially it was agreed this survey work would take the form of Edna surveys of all accessible waterbodies, followed by the completion of partial population size class assessment work (two visits per waterbody).

10.2.58. However, following the observation of GCN in some waterbodies, it was subsequently agreed as appropriate to undertake a full suite of population size class assessment surveys (six visits) for all accessible waterbodies within the Site.

10.2.59. Site wide environmental DNA (eDNA) surveys were conducted on the 27 April 2021. Pond water sampling kits supplied by SureScreen Scientifics were utilised for the eDNA survey work, with the sampling methodology undertaken fully according with that recommended by the supplier. Water samples were subsequently sent to SureScreen Scientifics for laboratory analysis.

10.2.60. The locations of waterbodies subject to eDNA surveys are detailed on Figure 10-5.

10.2.61. Population Size Class Assessment surveys were undertaken between April and June 2021. All surveys were undertaken in suitable weather conditions in accordance with the best practice guidelines, primarily as set out in English Nature's (now NE) GCN Mitigation Guidelines and as agreed with both NPT Council and NRW. The dates and weather conditions for surveys are detailed in Table 10.6a to Table 10.6c below.

Table 10.6A – Dates and Weather Conditions of GCN Surveys Undertaken Within the North of the Site

Survey number	Date	Weather Conditions
1	27 April 2021	16c, Clear, sunny and still
2	5 May 2021	9c, Intermittent rain, overcast
3	11 May 2021	8c, Warm and dry
5	3 June 2021	14c, Light breeze, dry
6	7 June 2021	15c, dry and warm, light breeze

Table 10.6B – GCN survey Dates and Weather Conditions Undertaken within Coed Darcy GCN SINC Area

Survey number	Date	Weather Conditions
1	26 April 2021	23c, clear, still and sunny
2	6 May 2021	12c, Warm, clear and light breeze
3	10 May 2021	13c, warm sunny and light breeze
4	19 May 2021	14c, Warm, sunny and light cloud cover
5	2 June 2021	21c, warm, dry and overcast
6	6 June 2021	15c, still, warm and light cloud

Table 10.6C – GCN Survey Dates and Weather Conditions Undertaken in the Tip Area

Survey number	Date	Weather Conditions
1	10 May 2021	13c, warm sunny and light breeze
2	19 May 2021	14c, Warm, sunny and light cloud cover
3	20 May 2021	10c, Heavy rain and windy
4	2 June 2021	21c, warm, dry and overcast
5	3 June 2021	14c, Light breeze, dry
6	6 June 2021	15c, still, warm and light cloud

10.2.62. Surveys undertaken by Ecology Solutions utilised three methods per visit (torch survey, bottle-trapping, and egg searches), where possible. Given the nature of many waterbodies (many of which comprise near vertical excavations or flooded tanks remaining from the Site's refinery past), full access to each waterbody was not possible in some instances for reasons of health and safety. The locations of waterbodies and the types of survey method employed are detailed in Table 10.7 below.

Table 10.7 – Survey methods employed on waterbodies within the Site

Pond Number/Name	Survey Methods Employed	Limitations/Rational for Approach
P1, P4, P8, P13 & P17.	Egg search, torching, bottle trapping, refuge search	No limitations (minimum three survey methods adopted)
P3, P7, P9, P10, P11, P12, P14, P15, P16, P20, South Site Reservoir, PB, PC, PD, PE, West Bay, South Bay,	Egg search, torching, refuge search	Bottle trapping not undertaken was not feasible on the grounds of

Pond Number/Name	Survey Methods Employed	Limitations/Rational for Approach
Crymlyn Lagoon West & Crymlyn Lagoon East		accessibility/health and safety.
P2, P5, P6, P18, P19	N/A (ponds dry)	Dry throughout survey season
P21	N/A	No safe access for surveying

10.2.63. Suitable survey weather conditions are deemed to be those nights when the night air temperature is more than 5°C, with little or no wind, and no rain. Surveys are to be conducted during such conditions.

10.2.64. Torch counting involves the use of high powered torches to find and, if possible, count the number of adults of each amphibian species. As recommended in English Nature's guidance, the entire margin of each waterbody is to be walked once, slowly checking for GCNs.

10.2.65. Bottle-trapping involves setting traps, made from two litre plastic bottles, around the margin of each waterbody, and leaving the traps set overnight before checking them the following morning. A density of at least one trap per 2m of shoreline was utilised, where possible, as recommended in the guidance.

10.2.66. In addition, egg searches are undertaken of any aquatic vegetation, to search for any evidence of breeding GCN.

10.2.67. GCN surveys were undertaken with regard to appropriate biosecurity measures, as recommended by NRW.

Invertebrates

10.2.68. Specific invertebrate surveys were undertaken at the Site by Richard Wilson Ecology Limited, to assess the importance of the Site for a range of invertebrates. A total of nine surveys were undertaken in 2020, with this allowing for a majority seasonal coverage of the Site and wider study area. The dates of these surveys are shown in Table 10.8.

10.2.69. During the period April to early May 2020 surveys did not take place due to COVID19 restrictions. Whilst surveys in this period would inevitably identify additional species, and possibly more Key Species, it is not considered such findings would result in the overall value of the Site being altered (up or down) in regard its nature conservation interest.

Table 10.8 – Dates and Weather Conditions for Invertebrate Surveys

Date	Weather Conditions	Notes
19 May 2020	Cloud: 8/8; temperature: 15°C; wind speed: 1 (2) SW.	Scoping site
20 May 2020	Cloud: 0/8; temperature: 18°C to 28°C; wind speed: calm.	Very dry everywhere with ephemeral wetlands or shallow waterbodies dried out
21 May 2020	Cloud: 8/8; temperature: 16°C to 22°C; wind speed: 1.	
17 June 2020	Cloud: 7/8; temperature: 17.5°C; wind speed: 1.	Rain from 11:45 hrs. Installed pitfall traps
2 July 2020	Cloud: 8/8 clearing to 6/8; temperature: 14°C to 20°C; wind speed: 2 W to 1 SW	Light drizzle and intermittent showers until 13:00 hrs
21 July 2020	Cloud: 2/8 (high cloud); temperature: 22°C; wind speed: calm to 1 S.	
22 July 2020	Cloud: 4/8; temperature: 18°C to 23°C; wind speed: 1 (2) W to 2 (3) SW.	
29 July 2020	Cloud: 6/8; temperature: 18°C; wind speed: calm.	
10 September 2020	Cloud: 8/8 to 7/8; temperature: 13°C to 17°C; wind speed: 1.	

10.2.70. The sampling methodology for invertebrate surveys is detailed at Appendix 10-2. In summary, a variety of techniques were used to sample invertebrates following Drake et al. (2007), including sweeping of vegetation and aerial netting, using a light-weight butterfly net and heavy duty sweep-net, for flying invertebrates. Vacuum sampling was undertaken by use of a modified, commercially available garden blow-van. Sieving of leaf-litter, searching under refugia, direct observations, and limited pitfall trapping was also undertaken.

10.2.71. Specific aquatic surveys were not deemed necessary to inform the planning proposals for the Site. In reaching this conclusion it is noted the only large waterbody likely to be impacted is South Site Reservoir. Given the size of this waterbody, its construction and likely profile (steep sides below water, lack of emergent vegetation), any aquatic fauna is probably of relatively limited interest. In any event, the South Site Reservoir is being proposed for enhancement and there could be the opportunity to reduce the embankment's inclines and create some shallow(er) areas. All of this would have benefits for aquatic

invertebrates. The waterbodies associated with the 'model village' in the south-west are being retained, so surveys would not be informative for the purposes of a planning application.

Consultation

10.2.72. Ecology Solutions have sought to engage a range of ecology consultees during the master planning process, with this engagement including for emails, virtual meetings, and Site based meetings. In addition, a formal request for Scoping Opinion was issued in July 2021.

10.2.73. A summary of the dialogue and responses from ecology consultees is provided in Table 10.9 below. This includes for discussions with NRW, Buglife, Neath Port Talbot County Borough Council, The Amphibian and Reptile Conservation and the Wildlife Trust (WT) of South and West Wales.

10.2.74. These responses noted a number of considerations which relate to ecology, with these summarised individually in Table 10.9 below.

Table 10.9 – Summary of Responses to the Scoping Opinion for the Emerging Proposed Development

Consultee	Summary of Main Points Of Response	Confirmation of Where Matters are Addressed
Natural Resources Wales (NRW)	Agreement on scope of GCN surveys (alongside NPTC Biodiversity officers), with these to include eDNA surveys and population size class assessment of all accessible waterbodies within the Site. Ponds to the south of the red line boundary were not surveyed, and it was agreed, on a precautionary basis, these should be assumed to support GCN.	Further details on the methodology deployed are identified in the 'Faunal Methodology' section of this Chapter (see 10.2.57 onwards).
	NRW stated the importance of dedicated biodiversity management being secured in the long-term, not least for GCN, and recommended opportunities for this management be led by an experienced conservation body such as the Amphibian & Reptile Conservation Trust (ARC).	Further consideration is given to mitigation and enhancement opportunities in section 10.6 of this Chapter.

10.3.160. Other non-native species recorded within the Site include for extensive Buddleia, localised Cotoneaster, Rhododendron, and Canadian Fleabane.

Desk Study

10.3.161. The desk study information collected from SEWBRc returned a total of 2,913 records for plants within a 2km radius of the Site boundary. A significant portion of these species are associated with Crymlyn Bog SSSI, situated adjacent to the west of the Site. Many LBAP species are recorded, such as Slender Cottongrass and Tufted Sedge *Carex elata* both recorded in Crymlyn Bog, approximately 730m from the Site boundary, in 2020.

10.3.162. Other species of note are Bee Orchids *Ophrys apifera*, the closest of which was recorded on Site in 2001, and most recently 1.4km away, in 2020. There are 7 records of notable species (LBAP or WCA Schedule 8) recorded on Site including Bluebell and Blunt-flowered Rush *Juncus subnodulosus*, all recorded in 2001.

10.3.163. Information received from SEWBRc returned 477 records of invasive species, including seven records within the Site. Three of these records relate to Rhododendron, and date from 2001. In addition, two records of Japanese Knotweed were returned, with the most recent dating from 2019, located in the south-east of the Site within the Contractors Yard industrial estate. A single Himalayan Honeysuckle record was also returned from this location and date.

10.3.164. A single record of New Zealand Willowherb *Epilobium brunnescens* was returned and relates to a location in the north of the Site, and dates from 2006.

Wildlife Use of the Site

10.3.165. General observations were made during the surveys of any faunal use of the Site, with attention paid to the potential presence of protected faunal species. Ecology Solutions also undertook specific surveys with regard to Badgers, bats, reptiles, breeding birds, invertebrates, Dormouse and GCN.

Badger

10.3.166. Specific surveys for Badgers were undertaken as part of the habitat survey work by Ecology Solutions between 2020 and 2021.

10.3.167. No evidence of Badgers has been recorded during the extensive survey work undertaken at the Site between 2020 and 2021. However, suitable foraging and sett building habitat is present in the form of areas of woodland, scrub, and more established areas of grassland. It is noted that some areas of dense woodland and/or scrub which have colonised on steep gradients were inaccessible and could feasibly support unrecorded setts. Nonetheless, noting the lack of any Badger activity recorded during nocturnal survey work, as well as an absence of mammal paths, latrines, or foraging signs, it is deemed unlikely the Site is of potential significance to this faunal group.

10.3.168. Evidence of active Badger setts was recorded in the wider Coed Darcy Site, albeit at locations significantly distanced from the site boundary (>500m south) by both Ecology Solutions and Atkins.

10.3.169. Information received from SEWBRc returned 26 records of Badger dating from 1977 to 2016. A single record was returned for the Site, located in the north of the Site, close to North Site Reservoir, dating from 2002. A further five records of Badger were returned within the wider study area, predominantly within the Jersey Marine SINC woodland to the south-east, and date from 2002. A single record was returned relating to a location within the wider study area, located to the west of South Site Reservoir, dating from 2002. Two records were also returned for an area within the wider study area, they relate to a location in the far south of the wider study area, and date from 2004 and 2005. The most recent record relates to a location approximately 1.1km south-east of the Site at its closest point, and dates from 2017.

Bats

10.3.170. Roosting (Buildings). None of the buildings within the Site, which are likely to be subject to direct or in-direct impacts, support roosting bats. Indeed, with the exception of B3 to B6 as well as the mitigation bat house (B22), the buildings within the Site are unsuitable to support roosting bats on account of their construction.

10.3.171. Regarding B1, the partial collapse of the roof has resulted in just a single enclosed internal space remaining. Moreover this 'room' supports an open (rotted) doorway resulting in significant exposure to the elements and fluctuating internal conditions. Moreover, internally the building supports smooth concrete walls and ceiling surfaces, with no potential cracks or crevices which would offer potential roosting opportunities. On this basis, the building is assessed as being of very low value to roosting bats. Moreover, a full inspection of this building recorded no past or present evidence of roosting bats.

10.3.172. Building B3 is deemed to be of low roosting suitability, with no obvious cracks, gaps, or crevices noted, and the tile roof is in good condition. B4 to B6 are each considered to be of low to moderate suitability, primarily on account of supporting occasional slipped/damaged roof tiles. In addition, B5 was noted to support several externally fitted bat boxes, offering further roosting opportunities.

10.3.173. Noting their potential suitability, buildings B3 and B4 to B6 were subject to a suite of bat surveys in accordance with best practice methodologies. These surveys included for the completion of a single emergence survey of B3, in addition to two surveys (one dusk and one dawn) of buildings B4 to B6 (as detailed in Table 10.2 above).

10.3.174. No evidence of roosting bats was recorded during the course of these surveys and, as such, the buildings are not considered to support roosting bats.

10.3.175. For clarity, no evidence of roosting was recorded as associated with the bat boxes installed on B5. Given the height of these features, it was not possible to undertake additional bat box inspections.

10.3.176. Roosting (Trees). In addition, a vast majority of trees/woodland, with potential to be impacted by the emerging proposals, comprise generally semi-mature and early specimens which have not developed features of potential suitability for roosting bats. However, a small number of trees proposed for removal in the north-east of the Site are deemed to be suitable to support roosting bats. With the exception of T1 and T2, these trees were assessed (via a ground based inspection) as of low bat roosting potential on account of the presence of features such as exposed, open cracks in branched deadwood. Initial ground

based assessment of these trees did not record any evidence of use by bats (such as staining, droppings or scratch marks).

10.3.177. Noting the presence of potentially higher value features, T1 and T2 were subject to further survey effort in the form of a tree climbing survey in September 2021.

10.3.178. T1 was identified to support a large open cavity in its trunk, with this significantly exposed and deemed of very low suitability for roosting bats. In addition, it supports two woodpecker *Picidae*/squirrel *Sciuridae* holes on its southern aspect, in addition to a small rot hole (callus roll). Whilst these latter three features were deemed suitable to support bats, no evidence of past or present roosting was identified.

10.3.179. Regarding T2, a single feature assessed of potential value at ground level (callus roll leading to potential cavity) was identified to be blunt ended and unsuitable for roosting through the internal inspection.

10.3.180. It is noted some areas of the woodland with the potential to be impacted, namely W1, are partially inaccessible on account of dense vegetation cover and steep banks/gradients. As above, these woodland areas support trees that are generally semi-mature or early mature in nature, with the woodland habitat overall deemed to be of low potential value for roosting. Moreover, no evidence of suitable bat roost features was confirmed during the completion of ground based inspections of accessible habitat areas between 2020 and 2021.

10.3.181. Notwithstanding this, it is proposed, on a precautionary basis, that where detailed design necessitates localised impacts to woodland, further inspections would be undertaken prior to their removal. If deemed appropriate, this would include for the completion of tree climbing surveys and/or emergence/re-entry surveys. This is considered in more detail in later Sections of this Chapter.

10.3.182. Suitable areas for foraging and commuting bats were identified within the Site and the wider study area during habitat survey works undertaken by Ecology Solutions in 2020. To ascertain the use of the Site by foraging and dispersing bats the Site was subject to activity transects and static automated surveys in accordance with survey guidelines (see Section 10-2 of this Chapter). These monthly surveys commenced in June 2020 and concluded in October 2020, the results of which are summarised below.

10.3.183. Transect surveys. The results of the transect surveys are summarised below. Although the exact route of each transect varied between surveys, it was ensured the entirety of the Site was covered during the course of the survey work, with this including all linear features. A representative route covered by the transect surveys is shown on Figure 10-3. It is noted, in accordance with the instruction at that time, these surveys assessed the wider Coed Darcy Site (including the Site), as opposed to the Site specifically. Given the comparable habitats present within the wider Coed Darcy Site, and their close proximity to the Site, this data is considered to provide useful context and so is included within this Assessment.

10.3.184. The transect surveys undertaken on 24 and 25 June 2020 recorded a low number of registrations, with the majority of registrations associated to Common Pipistrelle *Pipistrellus pipistrellus* (306 registrations) and Soprano Pipistrelle *Pipistrellus pygmaeus* (161 registrations), and the main activity focused along the north-east of the Site associated with the hedgerows and the treeline north of the railway. In addition, increased activity was associated with north-west and west boundaries in the wider study area. Heightened activity is primarily associated with linear features and substantial waterbodies such as the

North and South Site Reservoirs. Bat activity was considerably lower in areas of bare ground. Other species recorded include Nathusius' Pipistrelle *Pipistrellus nathusii* (11 registrations), Noctule *Nyctalus noctula* species (56 registrations) and Myotis species (28 registrations), albeit at much lower numbers.

10.3.185. The transect surveys undertaken on 29 July 2020 recorded a low number of registrations, with the majority of registrations associated with Common Pipistrelle (290 registrations) and Soprano Pipistrelle (153 registrations), again with the main activity focused along the north-east of the Site associated with the hedgerows and treeline north of the railway. Increased activity was found within the wider study area, particularly to the south of the South Site Reservoir, and in the south-east of the wider study area associated with South Bay waterbody. Bat activity was again considerably lower in areas of bare ground. Other species recorded include Nathusius' Pipistrelle (1 registration), Noctule species (3 registrations), Myotis species (20 registrations), Brown Long-eared Bat *Plecotus auritus* (4 registrations), and Lesser Horseshoe Bat *Rhinolophus hipposideros* (1 registration).

10.3.186. The transect surveys undertaken on 21 August 2020 recorded a very low number of registrations, with a majority of registrations again associated with Common Pipistrelle (102 registrations) and Soprano Pipistrelle (88 registrations), and the majority of the activity focused in the north-west of the Site associated with the hedgerows to the north of the railway. A higher level of activity was also recorded along the main access route to the west of the wider study area. Bat activity was again considerably lower in areas of bare ground. Other species recorded include Nathusius' Pipistrelle (1 registration), Serotine (1 registration), Noctule species (4 registrations) and Myotis species (8 registrations).

10.3.187. The transect surveys undertaken on 29 September 2020 recorded a low number of registrations, with a majority of registrations again associated with Common Pipistrelle (375 registrations) and Soprano Pipistrelle (144 registrations). Bat activity was focused in the north-west of the Site, associated with the linear vegetation to the north of the railway. A higher level of activity was also recorded around W2 in the south-west of the Site, and in the far south of the wider study area associated with hedgerows and woodland. Bat activity was again considerably lower in areas of bare ground. Other species recorded include Nathusius' Pipistrelle (1 registration), Noctule species (30 registrations), Myotis species (23 registrations) and Brown Long-eared Bat (2 registrations).

10.3.188. The final transect survey undertaken on 15 October 2020 recorded a very low number of registrations, with a majority of the registrations again associated with Common Pipistrelle (82 registrations) and Soprano Pipistrelle (80 registrations), and a majority of the activity focused in the north of the Site associated with scrub features to the south of the site reservoir, balancing ponds, and the railway bridge. A higher level of activity was also recorded around W2. Bat activity was again considerably lower in areas of bare ground. Other species recorded include Noctule species (1 registration), Myotis species (2 registrations) and Lesser Horseshoe Bat (1 registration).

10.3.189. Static surveys. As stated above, static detectors were deployed at strategic locations across the Site (as well as across the wider Coed Darcy Site) to supplement the results from the transect work, and to collect bat data over extended periods on an approximately monthly basis. Table 10.4 identifies weather conditions for the static surveys. The locations of static detectors are provided on Figure 10-3. A written summary of the findings is provided below.

10.3.190. Static survey: 24 June 2020 to 30 June 2020. Static detector SD1, located in the north-east of the Site, north of the railway, recorded a very low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (75 registrations) and Soprano Pipistrelle (18 registrations). Noctule species (9 registrations), and Myotis species (2 registrations) were all recorded in low numbers.

10.3.191. Static detector SD2 located in the north-west of the Site, just south of the railway, recorded a very low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (134 registrations) and Soprano Pipistrelle (29 registrations). Nathusius' Pipistrelle (1 registration), Noctule species (8 registrations), Myotis species (8 registrations) and Brown Long-eared Bat (6 registrations) were all recorded in low numbers.

10.3.192. Static detector SD3 located in the south-east of the Site, north of the Contractors Yard industrial estate, recorded a moderate level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread bat species. The highest levels of activity pertained to Common Pipistrelle (4639 registrations) and Soprano Pipistrelle (665 registrations). Nathusius' Pipistrelle (39 registrations), Noctule species (27 registrations), Myotis species (186 registrations), Brown Long-eared Bat (4 registrations), Lesser Horseshoe Bat (1 registration) and Serotine *Eptesicus serotinus* (1 registration) were all recorded in low numbers.

10.3.193. Static detector SD4 located in the south-west of the wider study area, to the west of South Bay, recorded a low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (303 registrations) and Soprano Pipistrelle (218 registrations). Nathusius' Pipistrelle (1 registration), Noctule species (85 registrations), Myotis species (16 registrations), and Brown Long-eared Bat (2 registrations) were all recorded in low numbers.

10.3.194. Static detector SD5 located in the far south of the wider study area recorded a moderate level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (712 registrations) and Soprano Pipistrelle (483 registrations). Nathusius' Pipistrelle (11 registration), Noctule species (17 registrations), Myotis species (68 registrations), Brown Long-eared Bat (39 registrations) and Serotine (1 registration) were all recorded in low numbers.

10.3.195. Static detector SD6 located south of the Site, within the wider study area, recorded a very low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (125 registrations) and Soprano Pipistrelle (58 registrations). Noctule species (16 registrations), Myotis species (4 registrations) and Brown Long-eared Bat (5 registrations) and Lesser Horseshoe Bat (1 registration) were all recorded in low numbers.

10.3.196. Static Survey 30 July 2020 to 6 August 2020. Static detector SD7, located in the north-east of the Site, just south of North Site Reservoir, recorded a moderate level of bat activity over the 9 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (854 registrations) and Soprano Pipistrelle (591

registrations). Noctule species (43 registrations), Myotis species (50 registrations) and Brown Long-eared Bat (1 registration) were all recorded in low numbers.

10.3.197. Due to a mechanical fault, static detector SD8 failed to record any data. This was deployed in the east of the Site, close to the railway.

10.3.198. Static detector SD9, located in the north-west of the Site, just south of the railway, recorded a very low level of bat activity over the 9 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (73 registrations) and Soprano Pipistrelle (63 registrations). Noctule species (18 registrations), Myotis species (1 registration) and Lesser Horseshoe Bat (2 registrations) were all recorded in low numbers.

10.3.199. Static detector SD10, located in the south-west of the Site, to the east of the Crescent Woodland, recorded a moderate level of bat activity over the 9 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (4225 registrations) and Soprano Pipistrelle (942 registrations) as well as Myotis species (302 registrations). Nathusius' Pipistrelle (63 registrations), Noctule species (8 registrations) and Brown Long-eared Bat (5 registrations) were all recorded in low numbers.

10.3.200. Due to a mechanical fault, static detector SD11 failed to record any data. This was deployed in the west of the Site.

10.3.201. Static detector SD12, located in the south-west of the wider study area, recorded a low level of bat activity over the 9 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (421 registrations) and Myotis species (491 registrations). Soprano Pipistrelle (70 registrations), Nathusius' Pipistrelle (2 registrations), Noctule species (24 registrations) and Brown Long-eared Bat (6 registrations) were all recorded in low numbers.

10.3.202. Static detector SD13, located in the east of the wider study area, just south of the off-site industrial estate, recorded a low level of bat activity over the 9 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Myotis species (469 registrations), Common Pipistrelle (375 registrations) and Soprano Pipistrelle (325 registrations). Nathusius' Pipistrelle (10 registrations), Noctule species (4 registrations) and Brown Long-eared Bat (27 registrations) were all recorded in low numbers.

10.3.203. Static detector SD14, located in the south-east of the wider study area, recorded a moderate level of bat activity over the 9 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (829 registrations), Myotis species (433 registrations) and Soprano Pipistrelle (290 registrations). Nathusius' Pipistrelle (1 registration), Noctule species (14 registrations) and Brown Long-eared Bat (38 registrations) were all recorded in low numbers.

10.3.204. Static Survey August 2020 to 26 August 2020. Static detector SD15, located in the north of the Site, just south of the North Site Reservoir recorded a low level of bat activity over the 6 day period. As per

the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (122 registrations) and Soprano Pipistrelle (353 registrations). Noctule species (58 registrations) and Myotis species (7 registrations) were all recorded in low numbers.

10.3.205. Static detector SD16, located in the north of the Site, just north of the railway, recorded a low level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (75 registrations) and Soprano Pipistrelle (56 registrations). Noctule species (5 registrations), Myotis species (19 registrations) and Lesser Horseshoe Bat (5 registrations) were all recorded in low numbers.

10.3.206. Static detector SD17, located in the west of the wider study area, adjacent to the main western access route, recorded a high level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (4261 registrations) and Soprano Pipistrelle (4590 registrations) and Myotis species (3244 registrations). Nathusius' Pipistrelle (33 registrations), Noctule species (27 registrations), Brown Long-eared Bat (23 registrations) and Lesser Horseshoe Bat (1 registration) were all recorded in low numbers.

10.3.207. Static detector SD18 located in the south-west of the Site just north of Contractors Yard Industrial Estate, recorded a low level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (146 registrations) and Soprano Pipistrelle (228 registrations). Noctule species (5 registrations), Myotis species (5 registrations) and Brown Long-eared Bat (1 registration) were all recorded in low numbers.

10.3.208. Static detector SD19, located in the south-west of the wider study area, just south of the model village, recorded a moderate level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (1568 registrations) and Soprano Pipistrelle (445 registrations). Noctule species (11 registrations), Myotis species (90 registrations), Brown Long-eared Bat (6 registrations) and Serotine (1 registration) were all recorded in low numbers.

10.3.209. Static detector SD20, located in the south-west of the wider study area, recorded a very low level of bat activity over the 6 day period. All species were recorded at low numbers, consisting Common Pipistrelle (8 registrations), Soprano Pipistrelle (9 registrations), Noctule species (5 registrations) and Myotis species (1 registration).

10.3.210. Static detector SD21, located in the south-east of the wider study area, just south of the off-site industrial estate on the woodland fringe, recorded a moderate level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (1216 registrations) and Soprano Pipistrelle (156 registrations). Nathusius' Pipistrelle (1 registration), Noctule species (9 registrations), Myotis species (41 registrations), and Brown Long-eared Bat (5 registrations) were all recorded in low numbers.

10.3.211. Static detector SD22, located in the south of the wider study area close to the north to south access route, recorded a very low level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (23 registrations) and Brown Long-eared Bat (37 registrations). Soprano Pipistrelle (9 registrations), Noctule species (6 registrations) and Myotis species (8 registrations) were all recorded in low numbers.

10.3.212. Static Survey 29 September 2020 to 4 October 2020. Static detector SD23, located in the north of the Site, just south of P9 and P10, recorded a very low level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. All the species were recorded at low numbers, consisting of Common Pipistrelle (11 registrations), Soprano Pipistrelle (9 registrations), Noctule species (2 registrations) and Myotis species (5 registration).

10.3.213. Static detector SD24, located in the north-east of the Site, within a hedgerow, recorded a very low level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (59 registrations) and Soprano Pipistrelle (75 registrations). Brown Long-eared Bat (1 registration), Noctule species (1 registration) and Myotis species (20 registrations) were all recorded in low numbers.

10.3.214. Static detector SD25, located in the north-west of the Site, south-east of the South Site Reservoir, recorded a very low level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. All species were recorded at low numbers, and consisted Soprano Pipistrelle (2 registrations), Noctule species (1 registration) and Myotis species (2 registration).

10.3.215. Static detector SD26, located in the west of the wider study area, north-east of 'The Tip' area, recorded a moderate level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (1002 registrations), Soprano Pipistrelle (1323 registrations and Myotis species (503 registrations). Noctule species (2 registrations) was recorded in low numbers.

10.3.216. Static detector SD27, located at the southern edge of the Site, to the south-west of W2, recorded a very low level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (79 registrations) and Soprano Pipistrelle (75 registrations). Nathusius' Pipistrelle (2 registration), Noctule species (2 registrations) and Myotis species (5 registrations) were all recorded in low numbers.

10.3.217. Static detector SD28, located in the south of the wider study area, recorded a very low level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. All the species were recorded at low numbers, consisting of Common Pipistrelle (17 registrations), Soprano Pipistrelle (26 registrations), Noctule species (1 registration), Myotis species (11 registration) and Brown Long-eared Bat (1 registration).

10.3.218. Static detector SD29, located in the south-east of the Site, within a tree belt/woodland recorded a moderate level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common

Pipistrelle (693 registrations) and Soprano Pipistrelle (520 registrations). Nathusius' Pipistrelle (1 registration), Noctule species (4 registrations), Myotis species (133 registrations), Brown Long-eared Bat (9 registrations) and Lesser Horseshoe Bat (1 registration) were all recorded in low numbers.

10.3.219. Static detector SD30, located in the far south of the wider study area, recorded a moderate level of bat activity over the 6 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (745 registrations), Soprano Pipistrelle (934 registrations) and Myotis species (302 registrations). Nathusius' Pipistrelle (2 registrations), Noctule species (3 registrations), Lesser Horseshoe Bat (6 registrations) were all recorded in low numbers.

10.3.220. Static Survey 15 October 2020 to 21 October 2020. Static detector SD31, located in the north of the Site, close to the balancing lakes, south of North Site Reservoir, recorded a low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (106 registrations) and Soprano Pipistrelle (115 registrations). Brown Long-eared Bat (1 registration), Noctule species (21 registrations) and Myotis species (17 registrations) were all recorded in low numbers.

10.3.221. Static detector SD32, located in the east of the Site, just north of the railway, recorded a very low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (69 registrations) and Soprano Pipistrelle (23 registrations). Myotis species (7 registrations) was recorded in low numbers

10.3.222. Static detector SD33, located in the west of the wider study area, close to the main access route, recorded a very low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (83 registrations) and Soprano Pipistrelle (72 registrations). Brown Long-eared Bat (2 registrations), Noctule species (17 registrations) and Myotis species (15 registrations) were all recorded in low numbers.

10.3.223. Static detector SD34, located in the south-west of the Site, close to W2, recorded a low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. The highest level of bat activity pertained to Common Pipistrelle (133 registrations) and Soprano Pipistrelle (123 registrations). Myotis species (30 registrations) was recorded in low numbers.

10.3.224. Static detector SD35, located in the west of the wider study area, recorded a very low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. All species were recorded in low numbers, consisting of Common Pipistrelle (6 registrations), Soprano Pipistrelle (7 registrations), Brown Long-eared Bat (2 registrations), Noctule species (6 registrations) and Myotis species (10 registrations).

10.3.225. Static detector SD36, located in the south-west of the wider study area, also recorded a very low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. All species were recorded in low numbers, consisting of Common

Pipistrelle (1 registration), Brown Long-eared Bat (1 registration), Noctule species (4 registrations) and Myotis species (4 registrations).

10.3.226. Static detector SD37, located in the south-east of the wider study area, recorded a very low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. All species were recorded in low numbers, consisting of Common Pipistrelle (9 registrations), Soprano Pipistrelle (14 registrations), Brown Long-eared Bat (2 registrations), Noctule species (1 registration) and Myotis species (39 registrations).

10.3.227. Static detector SD38, located to the south of the wider study area, within a line of scrub, recorded a very low level of bat activity over the 7 day period. As per the transect surveys, bat activity was largely dominated by common and widespread species. All species were recorded in low numbers, consisting of Common Pipistrelle (2 registrations), Soprano Pipistrelle (2 registrations), Brown Long-eared Bat (1 registration), Noctule species (1 registration) and Myotis species (6 registrations).

10.3.228. Summary. No bat roosts were identified within the Site during the course of the survey work undertaken.

10.3.229. Bat activity surveys have confirmed the Site to be subject to a low level of activity, with this overwhelmingly pertaining to widespread and common bat species such as Common Pipistrelle and Soprano Pipistrelle.

10.3.230. Unsurprisingly relatively higher levels of bat activity are associated with linear features and woodland, including the Crescent Woodland, as well as within the larger waterbodies. Relatively higher levels of activity were also recorded along some of the wider study area's vegetated boundaries, particularly the southern edge of the Site. Typically, low levels of bat activity were recorded within the sparser, open habitats elsewhere within the Site.

10.3.231. Information received from SEWBRc returned several records of bat species within the Site. This includes a single record of a Long-eared bat species, an unknown bat species, and a Common Pipistrelle, relating to an area in the south of the Site, and dating between 2008 and 2009. In addition, a single record of Lesser Horseshoe Bat was returned, it relates to a location in the south of the Site, and dates from 2001. A record of a Common Pipistrelle was also returned from an area south of the North Site Reservoir, and dates from 2009. Within the wider study area a number of records were returned including Common Pipistrelle, Soprano Pipistrelle, an unknown bat species, Long-eared bat species, Noctule, Lesser Horseshoe, Daubenton's bat, Myotis species, and Brown Long-eared Bat, and date from 2001 to 2017. Notable is the record of a Lesser Horseshoe Bat roost located in the south-west of the wider study area, dating from 2001. These roosting features have since been demolished/mitigated for during previous works.

Reptiles

10.3.232. Extensive previous clearance works across the wider Coed Darcy Site (including the Site) resulted in the removal of a vast majority of suitable reptile habitat between 2008 and 2015. This clearance work (undertaken in support of the consented OPP) was supplemented by a considerable capture and translocation effort in regards reptiles (amongst other species). Noting this previous work, and whilst the

Coed Darcy Site was previously known to support populations of all four common reptile species, it can be concluded the vast majority (if not all), of the Site was clear of reptiles as recently as 2015.

10.3.233. Subsequent to these works, suitable reptile habitat has gradually recolonised within the Site, namely within the south-western edge, in eastern areas, and to the north of the railway. This suitable habitat is considered recent in origin (with most habitats only attaining suitability within the last 3 to 4 years).

10.3.234. Given the on-going re-establishment of suitable habitat, and noting the potential for reptiles to re-colonise the Site from off-site habitats, (such as the railway embankment), or alternatively for potentially remnant (un-trapped) populations to re-establish, Ecology Solutions undertook reptile surveys from June 2021 to September 2021, in various locations (see Figure 10-4) within the Site and the wider study area, into the west of the Crescent Woodland. The results of the surveys can be seen in Table 10.11 below.

Table 10.11 – Dates, weather conditions and results for reptile surveys at the Site

Survey Number	Date	Temperature °C	Weather Conditions	Results*
1	22 June 2021	16	Clear	2UCL, 2MCL, 1FCL
2	30 June 2021	20**	50% Cloud	3UCL, 1FCL, 2JGS, 1UGS
3	13 July 2021	18	20% Cloud	2UCL, 4UGS
4	16 July 21	18	Clear	1UCL
5	12 August 21	14	75% Cloud	4UCL, 1JCL, 5UGS, 1JGS
6	31 August 2021	17	70% Cloud	7UCL, 8UGS, 3JGS
7	3 September 2021	16	10% Cloud	1UCL, 8UGS
8	15 September 2021	18	30% Cloud	8UCL, 1UGS
* MCL/FCL/JCL/UCL: Male/Female/Juvenile/Unsexed Common Lizard <i>Zootoca vivipara</i>. * MGS/FGS/JGS/UGS – Male / Female / Juvenile / Unsexed Grass Snake. ** Survey conditions sub-optimal				

10.3.235. As detailed in Table 10.11, the surveys undertaken have identified a peak count of 11 Grass Snakes and eight Common Lizard. No other reptile species have been recorded. It is noted, given the survey methodology utilised, these findings are reflective of a sample of the supported reptile populations associated with the habitats in question.

10.3.236. In order to ascertain the relative importance of common reptile populations recorded within the Site, the tinning density has been taken into account, alongside guidance and population size estimates set out by the Herpetofauna Groups of Britain and Ireland (HGBI). On this basis it can be concluded from the surveys that the population size for all reptiles found on Site is low.

10.3.237. The majority of Common Lizard observations were made adjacent the Crescent Woodland (W2) located in the south of the Site, and in close proximity to the north of the railway embankment (as shown on Figure 10-4) and adjacent to established scrub in the north of the Site. A majority of the Grass Snakes relate predominantly to the Crescent Woodland (W2), and the south of the railway embankment, located in the north-east of the Site. Three additional records of Grass Snake relate to north of the Site, west of the horse paddocks (G1). The results indicate populations may be re-establishing from pockets of retained (previously un-impacted) habitats within the Site, or otherwise from off-site habitats.

10.3.238. Information received from SEWBRc returned no records of reptiles within the Site. Eight records of Grass Snake were returned from the far south of the wider study area, and date from 2004. The most recent record of a Grass Snake relates to a location approximately 2.3km south of the Site boundary at its closest point, and dates from 2018.

10.3.239. Three records of Common Lizard were returned within the far south of the wider study area, dating from 2004. The most recent record relates to a location approximately 1.3km south of the Site boundary, and dates from 2020.

10.3.240. A single record of an Adder *Vipera berus* was returned, relates to a location approximately 2.9km north of the Site boundary at its closest point, and dates from 2003. Three records of Slow Worm *Anguis fragilis* were returned. The closest record relates to a location approximately 0.6km north of the Site boundary at its closest point, and dates from 2009. The most recent record relates to a location approximately 1.8km south-east of the Site boundary at its closest point, and dates from 2020.

10.3.241. It is noted that previous assessment work undertaken across the wider Coed Darcy landholding (including the Site) identified the presence of all four common reptile species.

Wintering Birds

10.3.242. Notwithstanding its size, the habitats present across a majority of the Site are deemed to be of low importance for wintering birds, and are considered unlikely to support populations of raised conservation significance. In addition, where areas of more suitable habitat are present (such as the South Site Reservoir, South Bay, and the larger waterbodies within the Coed Darcy GCN SINC), these are to be retained or (in the case of South Site Reservoir) modified to enhance their suitability for wintering assemblages.

10.3.243. In noting the Sites reduced suitability, regard is given to the high levels of disturbance experienced at the Site over a number of years, a lack of optimal foraging habitat and, moreover, the proximity of habitats of greater suitability in the immediate area. Reflecting the Site's low suitability, it was not deemed necessary for a suite of winter bird surveys to be undertaken.

10.3.244. Nonetheless, and at the request of NPTC Biodiversity Officers, a detailed desk based review has been undertaken in order supplement the above conclusion. Information was gathered from the following sources:

- Previous surveys undertaken by Parsons Brinckerhoff Limited at the Site in 2002;
- Information collected from SEWBRc.

10.3.245. In addition, efforts were made to obtain information from Barry Stewart (local WeBS recorder). However, no data was made available.

10.3.246. Previous specific wintering bird surveys were undertaken at the Site in 2002 by Parsons Brinckerhoff. During these surveys it was concluded there was potential for birds within the Site during the wintering period to be indirectly affected by the Proposed Development. It concluded the species recorded within the Site during these surveys spent the majority of their time outside the Site, within the adjacent Crymlyn Bog SAC/Ramsar/SSSI. The surveys concluded that, during the wintering period, species primarily utilised the Site for supplementary foraging areas. The surveys further concluded “*the refinery site is not of particular value as winter foraging habitat for important bird species from the cSAC [the Crymlyn Bog SAC]*”. Where habitats were deemed of potentially heightened wintering interest, these were limited to wetland habitats. It is noted the larger existing waterbodies (i.e. of potentially heightened value for wintering birds) are to be retained or otherwise enhanced as part of the Proposed Development.

10.3.247. During the time these previous surveys were undertaken in 2002, the Site supported notably more established vegetation, not least extensive scrub, providing more substantial areas of suitable foraging habitat, particularly during the winter months. The extensive habitat clearance within intervening years resulted in the loss of a vast majority of semi-natural habitats and, whilst these are beginning to re-establish, these historic works have nonetheless tempered the Site's value for foraging birds during winter periods. Noting the comparatively reduced value of the Site relative to historic surveys, and that those historic surveys in any event identified the Site to be of supplementary foraging value only, it is considered highly unlikely the Site is of any significant importance for wintering assemblages throughout the wintering months.

10.3.248. The desk study information collected from SEWBrEC returned a total of 1805 records of birds within a 2km radius of the site. Occasional records returned multiple numbers of birds attributed to the same record, therefore the total number of records returned does not necessarily indicate the full extent of the birds observed whilst collecting this data. This high number of records is no doubt a reflection of the considerable interest generated by the Coed Darcy Site over a number of years, with extensive on Site survey work undertaken. The number of records is further elevated by the Site's proximity to Crymlyn Bog designated sites complex.

10.3.249. Of the overall birds records, 409 of these were attributed to the winter months (November to February), with 154 of these recorded after 2010. Of these more recent records, four records were attained to the site, these included three records of Kestrel *Falco tinnunculus* and one Lapwing, recorded in the northern section of the site.

10.3.250. A number of the 154 records post 2010 were associated with the Crymlyn Bog SAC, including one record each of Mistle Thrush *Turdus viscivorus*, Marsh Harrier *Circus aeruginosus*, Bittern *Botaurus lentiginosus* and Hen Harrier. With regards to these species, it is considered that the Site only supports suitable primary foraging and nesting habitat for Mistle Thrush. It is considered unlikely that the Site would be utilised by Marsh Harrier and Hen Harrier *Circus cyaneus* for anything other than occasional supplementary foraging, as the habitats within Crymlyn Bog are more suitable for these species primary foraging needs. With regards to Bittern, the habitats are sub-optimal for foraging and loafing and it is considered unlikely that this species utilises the Site.

10.3.251. Directly adjacent to the Site on the southern and eastern boundary exist single records of Cetti's Warbler, Green Woodpecker *Picus viridis* and Starling *Sturnus vulgaris* respectively. It is considered that the Site would offer a degree of suitable wintering habitat for these species, as it would for a range of scrub and woodland birds.

10.3.252. A range of additional species records were returned in the nearby area, including species which would likely make at least opportunistic use of the habitats within the Site. However, a review of these findings does not indicate the presence of assemblages or populations of note that would be reliant upon the Site, relative to other habitats in the local area.

Breeding Birds

10.3.253. Given the size of the Site and the presence of a range of habitats, a series of three breeding bird surveys were undertaken to assess the value of the Site. At the time of these surveys in 2020, Ecology Solutions was instructed to survey the wider Coed Darcy Site, as opposed to the Site specifically. As such, whilst specific consideration is given to the Site itself, the survey results for the wider area are provided for completeness. These surveys were undertaken in April, May and June 2020.

10.3.254. A total of 73 species of birds was recorded within the wider Coed Darcy Site during the three surveys, of which 53 were considered to be breeding or probably breeding (i.e. suitable habitat to support the species is present). The remaining 14 species were either breeding in adjacent habitats, recorded as migrants, flying over the Site, or were represented only by non-breeding individuals. Of the above species, 42 were considered to be breeding or probably breeding within the Site itself.

10.3.255. A summary of observations for each species is included in the systematic list in Table 10.12 below, whilst the distribution of breeding birds is shown in Figure 10-7.

10.3.256. These surveys confirmed both the Site and the wider Coed Darcy Site support a diverse breeding bird assemblage, primarily on account of their size and the range of habitats present.

10.3.257. The greatest interest was found across the open habitats where breeding species include good numbers of Lapwing, Ringed Plover, Little Ringed Plover, Skylark and Meadow Pipit *Anthus pratensis*, plus small numbers of Cuckoo *Cuculidae*, Tree Pipit *Anthus trivialis* and Linnet. With the exception of Little Ringed Plover (which is included in Schedule 1 of the 1981 Wildlife and Countryside Act) and the Amber listed Meadow Pipit, all these species are included on the RSPB Red List, having undergone major declines in their UK populations.

10.3.258. Most of these species occurred in the open grassland habitats in the south of the Coed Darcy area (predominantly beyond the Site boundary), with the noticeable exception of Ringed Plover which was nesting exclusively in the bare ground habitat of the cleared area of the Site. By its nature such habitat is ephemeral, and hence this species is taking advantage of conditions which are going to be relatively short-lived.

10.3.259. The woodland and scrub habitats across the wider Coed Darcy Site support a range of species typical of such habitat, including Red-listed Song Thrush, Mistle Thrush and Lesser Redpoll *Acanthis*

cabaret, and Amber-listed Dunnock, Bullfinch and Willow Warbler, the latter occurring in notable abundance (and Garden Warbler *Sylvia borin* also relatively numerous). All these species remain generally common and widespread in both a local and national context.

10.3.260. The wetland habitats, located in the south-western edge of the Site (i.e. within Coed Darcy GCN SINC) also support an interesting assemblage, including Mallard *Anas platyrhynchos*, Tufted Duck *Aythya fuligula*, Little Grebe *Tachybaptus ruficollis*, Reed Bunting *Emberiza schoeniclus*, Cetti's Warbler, Sedge Warbler *Acrocephalus schoenobaenus* and Reed Warblers (with the Red-listed Grasshopper Warbler *Locustella naevia* just off-site). Mallard and Reed Bunting are Amber listed having undergone moderate declines, whilst Cetti's Warbler is a Schedule 1 species.

10.3.261. Species associated with buildings include Herring Gull *Larus argentatus*, Lesser Black-backed Gull *Larus fuscus*, House Martin *Delichon urbicum* and House Sparrow *Passer domesticus*, all of which are Red or Amber listed. Particularly pleasing was the thriving colony of House Martins on Llan Coed House, as so many breeding colonies have been lost.



Table 10.12 – Bird Species Recorded During Breeding Bird Surveys at Coed Darcy

Species and BTO species code	RSPB listed	Minimum No. pairs*	Notes
red-legged Partridge (RL) <i>Alectoris rufa</i>	Feral	3	In open habitats in the south.
Pheasant (PH) <i>Phasianus colchicus</i>	Feral	3	In the southern half.
Canada Goose (CG) <i>Branta canadensis</i>	Feral	1	On a pond in the south.
Greylag Goose (GJ) <i>Anser anser</i>	Feral	0	Flying over.
Mallard (MA) <i>Anas platyrhynchos</i>	Amber	0 to 2	On various waterbodies.
Tufted Duck (TU) <i>Aythya fuligula</i>		0 to 2	On the lake/pits.
Swift (SI) <i>Apus apus</i>	Amber	0	Flying over.
Cuckoo (CK) <i>Cuculus canorus</i>	Red	2	In the south.
Stock Dove (SD) <i>Columba oenas</i>	Amber	0	Recorded feeding in open areas.
Wood Pigeon (WP) <i>C. palumbus</i>		12	In woodland/scrub.
Collared Dove (CD) <i>Streptopelia decaocto</i>		2	Associated with buildings.
Moorhen (MH) <i>Gallinula chloropus</i>		1	On the lake.

Species and BTO species code	RSPB listed	Minimum No. pairs*	Notes
Coot (CO) <i>Fulica atra</i>		2	On the lake/pits.
Little Grebe (LG) <i>Tachybaptus ruficollis</i>		2	On the lake/pits.
Lapwing (L.) <i>Vanellus vanellus</i>	Red	5	In open habitats.
Ringed Plover (RP) <i>Charadrius hiaticula</i>	Red	6	All on bare ground in the northern half.
Little Ringed Plover (LP) <i>C. dubius</i>	Sch.1	4	In open habitats.
Herring Gull (HG) <i>Larus argentatus</i>	Red	1	On industrial buildings.
Lesser Black-backed Gull (LB)	Amber	6	On industrial buildings.
Cormorant (CA) <i>Phalacrocorax carbo</i>		0	Flying over.
Grey Heron (H.) <i>Ardea cinerea</i>		0	Flying over.
Buzzard (BZ) <i>Buteo buteo</i>		0-1	
Great Spotted Woodpecker (GS) <i>Dendrocopos major</i>		1	
Green Woodpecker (G.) <i>Picus viridis</i>		0-1	

Environmental Statement

Coed Darcy



Species and BTO species code	RSPB listed	Minimum No. pairs*	Notes
Peregrine Falcon (PE)		0	One flew over in June.
Jay (J.) <i>Garrulus glandarius</i>		1	
Magpie (MG) <i>Pica pica</i>		2	
Jackdaw (JD) <i>Corvus monedula</i>		0 to 1	In the industrial estate.
Carrion Crow (C.) <i>Corvus corone</i>		2	
Raven (RN) <i>Corvus corax</i>		0	Regularly flying over the southern area.
Coal Tit (CT) <i>Periparus ater</i>		0	Presumed dispersing bird, in June.
Blue Tit (BT) <i>Cyanistes caeruleus</i>		5	
Great Tit (GT) <i>Parus major</i>		2	
Skylark (S.)	Red	11	In open habitats.
Sand Martin (SM) <i>Riparia riparia</i>		0	Post-breeding birds, present in June.
Swallow (SL) <i>Hirundo rustica</i>		2	Associated with out-buildings.
House Martin (HM)	Amber	32	On Llan Coed House in the north-east.

Environmental Statement

Coed Darcy



Species and BTO species code	RSPB listed	Minimum No. pairs*	Notes
Cetti's Warbler (CW)	Sch.1	6	Especially around the western wetland.
Long-tailed Tit (LT) <i>Aegithalos caudatus</i>		3	
Willow Warbler (WW)	Amber	44	Abundant.
Chiffchaff (CC) <i>Phylloscopus collybita</i>		15	
Sedge Warbler (SW)		1	In the western wetland.
Reed Warbler (RW) A.		6	In the western wetland.
Grasshopper Warbler (GH)	Red	0	In the adjacent Crymlyn Bog.
Blackcap (BC) <i>Sylvia atricapilla</i>		15	In wooded areas.
Garden Warbler (GW) S.		10	In scrub throughout.
Lesser Whitethroat (LW) <i>Sylvia curruca</i>		0 to 3	Possibly migrants.
Whitethroat (WH) <i>Sylvia communis</i>		12	In scattered scrub.
Goldcrest (GC) <i>Regulus regulus</i>		3	
Wren (WR) <i>Troglodytes troglodytes</i>		23	In all vegetated areas.

Environmental Statement

Coed Darcy



Species and BTO species code	RSPB listed	Minimum No. pairs*	Notes
Nuthatch (NH) <i>Sitta europaea</i>		1	In woodland.
Treecreeper (TC) <i>Certhia familiaris</i>		1	In woodland.
Starling (SG)	Red	0	Only recorded flying over.
Blackbird (B.) <i>Turdus merula</i>		11	
Song Thrush (ST)	Red	11	
Mistle Thrush (M.)	Red	1	In the far south-east.
Robin (R.) <i>Erithacus rubecula</i>		11	
Stonechat (SC) <i>Saxicola rubicola</i>		4	In open or 'heathy' areas.
Wheatear (W.) <i>Oenanthe oenanthe</i>		0	Three migrants on the first visit.
House Sparrow (HS)	Red	2+	Associated with buildings.
Dunnock (D.)	Amber	17	
Pied Wagtail (PW) <i>Motacilla alba</i>		2	
Meadow Pipit (MP)	Amber	12	Numerous in open habitats.
Tree Pipit (TP) <i>A. trivialis</i>	Red	1 to 2	

Species and BTO species code	RSPB listed	Minimum No. pairs*	Notes
Chaffinch (CH) <i>Fringilla coelebs</i>		3	All in peripheral woodland.
Bullfinch (BF) <i>Pyrrhula pyrrhula</i>	Amber	5	In scrub.
Greenfinch (GR) <i>Carduelis chloris</i>		4	
Linnet (LI)	Red	3	In open habitats in the south.
Lesser Redpoll (LR)	Red	2	In western scrub/woodland.
Crossbill (CR) <i>Loxia curvirostra</i>	Sch.1	0	A party of eight flew over in June.
Goldfinch (GO) <i>Carduelis carduelis</i>		6	
Siskin (SK) <i>Spinus spinus</i>		0	A post-breeding bird in June.
Reed Bunting (RB) <i>Emberiza schoeniclus</i>	Amber	2	In wetland areas.

Sch.1 indicates a species included in Schedule 1 of the 1981 Wildlife and Countryside Act (as Amended).

* Estimated pairs relate to the wider Coed Darcy landholding

10.3.262. In addition to the surveys undertaken in 2020, during the course of survey work in 2021 due regard was given to ground nesting birds, with this including for the completion of two dawn transects within the Site, which served to specifically assess the continued use of the Site by ground nesting species. These updated surveys identified an additional Lapwing pair which were considered to be holding territory within the Site (two pairs in total). However, a reduced level of nesting activity was recorded for Ringed Plover, with only a single confirmed pair recorded. The breeding territories of ground nesting birds recorded in 2021 are detailed at Figure 10-8.

10.3.263. Of further note, a single Nightjar was recorded during the completion of the final GCN survey in June 2021. The bird was heard briefly 'churring' and seen in flight in the north-east of the Site. Noting the

reduced suitability of the habitats present for this species, and that no Nightjar were recorded during previous surveys in May and June 2020, both of which started pre-dawn, (nor indeed during other nocturnal work), the observation was deemed likely to represent a roaming male as opposed to evidence of a breeding territory. Notwithstanding this initial conclusion, a further dedicated Nightjar visit was undertaken in the form of a dusk and dawn survey on the 22 and 23 June 2021. No further evidence of Nightjar was recorded and, as such, it was concluded the observation related to a random visit from a wandering male.

10.3.264. Information received from SEWBRc returned 76 records of protected or notable birds from within the Site, including Swallow, Kestrel, Lapwing, Linnet, Dunnock, Garden Warbler, Lesser Redpoll, Snipe *Gallinago gallinago*, Mistle Thrush, Ringed Plover, Skylark and Wheatear, dating from 2001 to 2020. Of these records, a confirmed nesting and/or breeding Swallow dating from 2001, and Lapwing dating from 2006 and 2020, relating to a location in the north-east of Site, south of the railway line. The record of the Lapwing dates from 2020 and relates to a location in the south-west of the Site, close to the Crescent Woodland. The most recent record returned is of a Red Kite *Milvus milvus*, and relates to a location approximately 1.8km south-west of the Site boundary at its closest point, and dates from June 2020.

Invertebrates

10.3.265. Noting the diverse range of habitats present within the Site, much of which would qualify as OMH, Ecology Solutions commissioned Richard Wilson Ecology Limited to complete a suite of invertebrate surveys. As for other species, the instruction at the time of surveys was for the wider Coed Darcy Site to be surveyed. Noting the broad similarity of habitats present, and their continuity within the Site, analysis has included for an assessment of the wider assemblage within Coed Darcy, as opposed to the Site specifically.

10.3.266. The full survey report prepared by Richard Wilson is provided at Appendix 10-2, with a summary of the findings provided below.

10.3.267. A total of nine surveys for terrestrial invertebrates were undertaken during optimal weather conditions from mid-May to mid-September 2020. The surveys involved walking a series of transects within the specific habitat type, focusing on the collection of Diptera (flies) and aculeate Hymenoptera (primarily bees and wasps), also noting Coleoptera (beetles). Other identifiable taxa such as butterflies were also recorded. In addition, sampling surveys were undertaken in representative habitats across the study area, for ground-dwelling and arboreal fauna, by vacuum sampling the field layer and beating lower branches of trees and shrubs. Static pitfall trapping was also employed to supplement the active surveying methods.

10.3.268. The surveys recorded a total of 505 terrestrial species across the wider study area, with 380 species associated with the Site. This confirmed a good range of invertebrate species utilise the Site, including a number of notable species (i.e. species of conservation significance). A full list of the species recorded is detailed at Appendix 10-2. The key findings of the surveys are detailed below.

10.3.269. No invertebrate species which are afforded direct legal protection under any UK or European legislation were recorded during the surveys.



10.3.270. A total of 505 species were recorded throughout the study site, of which 30 (6% of the assemblage) are Key Species; those with a nature conservation status. These key species are detailed in Table 10.13 below.

Table 10.13 – List and Details of Key Invertebrate Species Recorded During Surveys in 2020

Species	Status	Sector Recorded	Ecology
<i>Pardosa tenuipes</i> <i>Araneae,</i> <i>Lycosidae</i>	Nationally scarce	Northern Southern	A wolf-spider associated with sparsely vegetated but humid (damp) environments such as dune slacks, floodplain meadows, and riparian vegetation. It is a southern species in Britain, with very scattered records within Wales. Recorded within damper hollows and edge of waterbodies where there are exposed substrates.
<i>Xerolycosa miniata</i> <i>Araneae,</i> <i>Lycosidae</i>	Nationally scarce	Southern	A contrastingly marked large wolf-spider of coastal environments, particularly fixed sand dunes. It is recorded throughout Britain but nowhere is it common; in Wales it is recorded along the Glamorgan and Pembrokeshire coast. A single individual recorded from the OMH just off Parc Amazon, at the extreme southern tip of the proposed Southern Access Route.
<i>Argenna subnigra</i> <i>Araneae,</i> <i>Dictynidae</i>	Nationally scarce	Northern	A ground-dwelling spider associated with sparsely vegetated open grasslands, including those characteristic of brownfield sites. A rare species in Wales with only a dozen known locations. It is more frequent in south-eastern England.

Species	Status	Sector Recorded	Ecology
<i>Cheiracanthium virescens</i> <i>Araneae,</i> <i>Cheiracanthiidae</i>	Nationally Scarce	Northern Southern	A ground-dwelling species associated with open habitat biotopes, including coastal grasslands, dunes, heathland, and OMH on brownfield sites. Away from south-east England, there are scattered records in the Midlands, becoming rare north of an imaginary line linking the Humber and the Mersey. Within Wales, it is a predominantly coastal species.
<i>Zodarion fuscum</i> <i>Araneae,</i> <i>Zodariidae</i>	Vulnerable; Nationally rare	Northern	A very rare species known from six locations (five hectads) in Britain, with only one previous record from Wales (Porthkerry Country Park, near Barry). It requires open habitats where the vegetation is either short or patchy, thus exposed to sunshine, creating a locally warmer microclimate, where it specialises in hunting ants (Hymenoptera, Formicidae). A single male was collected in a pitfall trap located on the west-facing slope near the centre of the Oil Refinery.

Species	Status	Sector Recorded	Ecology
<i>Marpissa nivoyi</i> <i>Araneae,</i> <i>Salticidae</i>	Nationally scarce	Northern	A characteristic jumping-spider associated with coastal semi-fixed dunes with Marram <i>Ammophila arenaria</i>. The single individual was collected in tall dry grassland, which presumably has a similar structure and environment. The species is restricted to coastal England, with only five other modern Welsh records, though it was previously recorded at Crymlyn Burrows SSSI in May 1991.
<i>Synageles venator</i> <i>Araneae,</i> <i>Salticidae</i>	Nationally scarce	Northern	An ant-mimicking jumping spider associated with coastal dunes and other dry habitats, including inland. Within Wales, it is only known from the coast around Swansea and Port Talbot, where it has previously been recorded at Crymlyn Burrows SSSI.
<i>Haliphus mucronatus</i> <i>Coleoptera,</i> <i>Haliplidae</i>	Nationally scarce	Northern Southern	A small brown 'crawling water beetle', distinctive within the genus due to its bulky appearance. It has a rather disjunct distribution, with its core across the east and south-east regions of England, but another centre of distribution occurs in south Wales clockwise into Somerset. Its habitat is typically on clay, including natural subsidence ponds, but also in man-made stagnant water bodies. The species probably feeds on plant and/or algal matter.

Species	Status	Sector Recorded	Ecology
<i>Elaphrus parvulus</i> <i>Coleoptera,</i> <i>Carabidae</i>	Nationally scarce	Southern	This is a miniscule ground beetle, found on sandy and gravelly soils, but also in old walls and cracked paths, often in association with buildings. However, it can also occur next to water in gravel and sand pits, and other post-industrial habitats. The species is widely distributed throughout the south of England, the Midlands and Wales, and has recently been expanding its range. It has to date been found as far north as Cumbria.
<i>Paederus fuscipes</i> <i>Coleoptera,</i> <i>Staphylinidae</i>	Nationally scarce (Nb)	Northern Southern	This is a remarkably colourful species, as are all the members of the genus. It has striking metallic blue elytra, the remainder of the beetle being black and red. It is a predator, found in marshes and bogs, on the margins of ponds and dykes, and in permanently wet mires. It is also recorded in saltmarsh habitats. Its distribution is patchy throughout England and Wales, with most records from the coastal fringes. Adults have been recorded in most months of the year.

Species	Status	Sector Recorded	Ecology
<i>Meligethes fulvipes</i> and <i>Meligethes rotundicollis</i> <i>Coleoptera,</i> <i>Nitidulidae</i>	Nationally scarce	M.f. (Northern) M.r. (Southern)	<i>M. fulvipes</i> is a nondescript, brown pollen beetle, is very locally distributed in England and Wales, with a predominantly coastal stronghold (South Wales and south-east England), but also inland in several areas, including East Anglian Breckland. It feeds on brassicas, within which plant group it is certainly associated with Charlock <i>Sinapis arvensis</i>. <i>M. rotundicollis</i> is a small black, nondescript pollen beetle, primarily found in south-east England, but also known from Wales. It can be located in waste and disturbed ground habitats, including brownfield sites, and road verges. Its foodplant associations are with Charlock, Hedge Mustard <i>Sisymbrium officinale</i>, and possibly other plants in this family. Adults have been recorded in the field, mainly between April and August.

Species	Status	Sector Recorded	Ecology
<i>Sitona waterhousei</i> <i>Coleoptera,</i> <i>Curculionidae</i>	Nationally scarce (Nb)	Southern	This is a small weevil, with characteristic convex protruding eyes. It is found in England and Wales, although its distribution is predominantly coastal, with occurrences almost exclusively between Anglesey anticlockwise to the Thames Gateway in West Kent. There are a very few inland records, from post-industrial sites. Otherwise, habitats such as coastal undercliffs, coastal shingle, and coastal quarries are examples of its typical haunts. The species feeds on Common Bird's-foot Trefoil as both a larva and adult. Adults have been recorded between February and September.
<i>Bombylius canescens</i> <i>Diptera,</i> <i>Bombylidae</i>	Nationally Scarce	Northern Southern	This small bee-fly is restricted to south-west England and southern Wales, where it is associated with sparsely vegetated sandy or base-rich substrates in grasslands, woodland edge or coastal soft-cliffs (Stubbs and Drake, 2014; Harvey, 2018). It is a parasite of smaller mining bees in the genus <i>Lasioglossum</i> which are frequent within the study site.

Species	Status	Sector Recorded	Ecology
<i>Drymus pilicornis</i> <i>Hemiptera,</i> <i>Lygaeidae</i>	Nationally scarce	Southern	A small brown ground-bug. Sparsely distributed in southern England and Wales, where it is associated with short turf habitats, including chalk downland. Adults overwinter, mating in spring to give a new generation of adults by August. There is one generation a year. It most probably feeds on mosses at ground level, and possibly also fungi.
<i>Andrena congruens</i> <i>Hymenoptera,</i> <i>Andrenidae</i>	Nationally scarce (Na)	Northern	This mining bee is associated with exposures of soils, sand, or chalk on sloping ground in southern England, with outlier populations associated with the region around the Forest of Dean and the Gower Peninsula in south Wales (Else & Edwards, 2018). It is identified as a threatened species in Wales (Olds et al., 2018). Several specimens were recorded within the former Oil Refinery, and it seems likely they are exploiting the various spoil heaps as nesting habitat.

Species	Status	Sector Recorded	Ecology
<i>Bombus humilis</i> (brown-banded carder bee) <i>Hymenoptera</i> , <i>Apidae</i>	SoPI	Northern Southern	The brown-banded carder bee is a species of warm, dry sites with extensive flower-rich calcareous or coastal grasslands. Within Britain, it is largely restricted to coastal south-east, southern and south-west England, and in Wales to the coastal fringes of Gwynedd, Glamorgan and Pembrokeshire (Else & Edwards, 2018). It is identified as a threatened species in Wales (Olds et al., 2018).
<i>Sphecodes reticulatus</i> <i>Hymenoptera</i> , <i>Halictidae</i>	[Nationally scarce (Nb)]	Northern	This blood-bee (so called, because of its partially red abdomen) is more-or-less restricted to south-east England where it is associated with sandy sites in open woodland or grassland: the extensive dry grasslands and scrub mosaics likely providing suitable habitat for the species in the study site. There are only three Welsh locations; one being in VC 41 near Merthyr Tydfil (Else & Edwards, 2018). Consequently, it is identified as a threatened species in Wales (Olds et al., 2018). It is a cuckoo of a few mining bees though its host range is poorly understood. A female was recorded in May 2020 at the western end of the study site.

Species	Status	Sector Recorded	Ecology
<i>Erynnis tages</i> (Dingy skipper) <i>Lepidoptera</i> , <i>Hesperiidae</i>	Vulnerable; SoPI	Northern Southern	A declining butterfly which is generally associated with brownfield sites, colliery spoil heaps, and similar places where habitats support short swards where its food plant, Bird's-foot Trefoil occurs. Several individuals were recorded in late May 2020 at various locations within the OMH.
<i>Coenonympha pamphilus</i> (small heath) <i>Lepidoptera</i> , <i>Nymphalidae</i>	Near threatened; SoPI	Northern Southern	Although a widespread species in the UK, this otherwise common species has experienced a substantial decline in both abundance and occurrence (Fox et al., 2015), hence its classification as Near Threatened.
<i>Hipparchia semele</i> (Grayling [butterfly]) <i>Lepidoptera</i> , <i>Nymphalidae</i>	Vulnerable, SoPI	Northern Southern	A butterfly of patchy grasslands, which has suffered a substantial decline in Britain such that it is now more or less restricted to coastal habitats such as sand dunes and grasslands; or in Wales, colliery spoil heaps. Individuals were observed in late June and mid-July across the dunes.

10.3.271. Of the 30 Key Species, three are Rare Key Species (a spider – *Zodarium fuscum*; and two butterflies: Dingy Skipper *Erynnis tages* and Grayling *Hipparchia semele*); all of which are associated with dry grasslands and bare ground. Three Welsh threatened bees *Andrena congruens*, *Sphecodes reticulatus* and Brown-banded Carder Bee *Bombus humilis* were recorded, in addition to several other species that are scarce or rare in the county/Wales. The Carder Bee and both butterflies are also included in the Welsh Biodiversity List as Species of Principal Importance.

10.3.272. Within the study site, 76 species are reliant on the vegetation communities present to complete their lifecycle, of which 57 species are present within the northern sector. Most are intrinsically linked with the OMH which represents a substantial resource in the context of the Swansea Bay National Landscape Character Area and South Wales.

10.3.273. The physical characteristics of the OMH share similar properties to nearby coastal dune systems such as at Crymlyn Burrows SSSI and Kenfig SSSI. The OMH supports an assemblage of invertebrates characteristic of dry, flower-rich grasslands on highly heterogeneous topography, of which coastal sand dune systems are interpreted as the natural equivalent. The study site is located within an ecological coastal landscape where there are several high quality protected sites such as at Crymlyn Burrows and Kenfig SSSIs, which are known to support important populations of individual Key Species.

10.3.274. The invertebrate assemblages associated with the Site have been evaluated to be of regional nature conservation value when considered as a component of the wider Coed Darcy Site. This is based on the relative quality and extent of the habitat resource present for invertebrates within the wider region, number of Key Species, and the proportion of stenotopic taxa (species dependent on restricted habitat conditions) recorded in specific assemblages, indicating favourable conservation status.

Amphibians (Great Crested Newts)

10.3.275. As set out above, historic survey work has recorded (and subsequently translocated) very large numbers of GCN, with approximately 10,000 individuals of all life cycle stages captured and relocated to facilitate previous remediation works across much of the wider Coed Darcy Site, including the Site. Captured amphibians were relocated to a dedicated GCN receptor site within and adjacent the wider Coed Darcy Site under several NRW licenses. This receptor site, which is delineated from the wider Coed Darcy Site by herpetofauna fencing, has since designated as the Coed Darcy GCN SINC.

10.3.276. Following the completion of extensive capture and relocation up until 2016, which facilitated the completion of Site wide habitat clearance, the wider Coed Darcy Site was assumed cleared of GCN. However, subsequent observations made by the ARC during the completion of habitat creation/management works, confirmed continued presence of GCN within the wider Coed Darcy Site (albeit outside the Site). Following further investigation by Atkins, it was concluded these observations reflected the presence of a small remnant GCN population that had evaded capture following previous translocation work. As such, a further NRW licence was granted to facilitate additional amphibian capture. Notwithstanding the grant of this licence, and despite the installation of additional fencing to facilitate an additional capture exercise, no further capture effort was completed. Noting that a localised population of GCN were present in the south of the Coed Darcy Site, partial update survey work was undertaken by Atkins in 2020, in the form of eDNA surveys. This survey effort included the completion of eDNA surveys across the wider Coed Darcy Site, including ponds within the Site. The surveys returned positive eDNA results for several ponds in the south of the Coed Darcy Site (outside the Site), as well as one waterbody (P20) within the Site (the latter observation comprising a visual sighting of an adult GCN within the waterbody). No evidence of GCN was recorded within the waterbodies to the north of the railway, with negative eDNA results obtained for eight ponds (P1, P8, P11, P13, P14, P15, P17, W30). Pond W30 is an Atkins reference, which was dry during the entirety of the 2021 surveys. It is noted eDNA records for two ponds (P3 and P10) were not made available to Ecology Solutions (identified as results pending within an informal interim report).

10.3.277. It is relevant to note the vast majority of GCN recorded (and/or translocated) through previous survey work were located in areas outside the Site, with this reflecting a dearth of waterbodies within the Site. Indeed, whilst the Site now supports a large number of ponds, these are mostly of recent origin, having been 'created' as bi-products following previous remediation works (likely around 2015).

10.3.278. Noting the relatively recent origin of most ponds within the Site, that these were within areas not previously known to support GCN, and that eDNA surveys by Atkins in 2020 did not return any positive results, it was deemed unlikely GCN would have colonised the waterbodies. In reaching this conclusion, consideration was also given to the terrestrial habitats, which remained primarily bare and inhospitable to amphibians as recently as 2018.

10.3.279. With the above in mind, a bespoke survey approach was agreed with both NRW and NPTC Biodiversity Officers in the first instance, whereby update eDNA and partial (two visits) Population Size Class Assessment work would be undertaken. However, following confirmation of GCN in some waterbodies, a full six visits were undertaken of all accessible ponds.

10.3.280. The eDNA surveys of the waterbodies within the Site were undertaken on the 27 April 2021. The returned eDNA results identified only a single waterbody (P14) with positive replicates for GCN. This, however, proved unreliable, as GCN were recorded in two additional waterbodies on the same evening, using traditional surveying techniques.

10.3.281. Due to this, six surveys were undertaken across all waterbodies within the Site on the 27 April 2021, 5 May 2021, 11 May 2021, 20 May 2021, 3 June 2021 and 8 June 2021. A summary of the results is provided Table 10.14 below. A full detailed list of the results is provided in Appendix 10-5. For clarity, with the exception of those ponds summarised in Table 10.14 below, no other waterbodies within the Site were confirmed to support GCN.

Table 10.14 – Summary of GCN Surveys Undertaken in 2021

Waterbody	Maximum count of GCN	Date of Maximum Count
P9	6	5 May 2021
P10	9	5 May 2021
P14	3	5 May 2021
P16	1	8 June 2021
P20	1	3 June 2021
POND B	35	19 May 2021

10.3.282. As above, only a sub-set of the ponds in the north of the Site were found to support GCN, collectively comprising a population that would be classed as a 'medium' population size class (low end of size class). Noting the apparent suitability of the ponds and (albeit to a lesser extent) terrestrial habitats in 2021, the smaller size of the population is considered a reflection of the recent origin and establishment of habitats. On the evidence available, and noting the western 'bias' to the findings, it is concluded GCN (and other amphibians) are likely to have only recently colonised this area of the Site, likely from suitable off-site habitat to the west of the Site.

10.3.283. In contrast to the high concentration of ponds north of the railway, a majority of the central areas of the Site are devoid of any permanent or sustained waterbodies and are, for the most part, notably less

established. A majority of the Site is therefore unlikely to support GCN, nor provide any significant terrestrial opportunities for them.

10.3.284. The majority of the GCN were recorded in Pond B located in the south-west of the Site, with a peak count of 35 individuals, which was undertaken on survey visit two (19 May 2021). This observation is consistent with previous survey work (i.e. with the southern areas of Coed Darcy supporting a vast majority of amphibian populations), and moreover reflects the more established nature of habitats in this locality. It is unclear whether these populations of GCN have successfully colonised from off-site habitat or otherwise represent a remnant population re-establishing following previous capture effort.

10.3.285. Given the size of the study area, with ponds broadly located within two separate 'clusters' (north and south), it is deemed likely the Site supports two meta populations between which there is likely to be (at best) only limited dispersal.

10.3.286. Whilst specific update surveys were not undertaken of all ponds in the wider Coed Darcy Site (i.e. to the south of the Site), it is noted the majority of these ponds are reasonably well distanced from the Site, in excess of 200m at their closest points. Noting this, and given positive eDNA results in 2020 (see Figure 10-9), it was deemed appropriate to assume presence within these more distant ponds. Subsequent mitigation/enhancement opportunities, as identified later in this Chapter, are made on this basis.

10.3.287. Of relevance, the receptor ponds located south of the wider study area (within the Coed Darcy GCN SINC) were also surveyed for GCN using traditional methods in 2021, confirming a continued population of GCN within this area.

10.3.288. With the exception of those waterbodies identified above, no other suitable waterbodies are located within a 500m radius of the receptor site when considering barriers to dispersal (with the site being bordered by major roads to the north, south, east and west).

10.3.289. A number of common amphibians were also recorded during the course of the GCN surveys. These included Palmate Newts *Lissotriton helveticus*, Frogs *Anura* and Toads *Bufo bufo*. These are listed below in Table 10.15.

Table 10.15 – Common amphibian survey results from 2021 surveys

Environmental Statement

Coed Darcy



Waterbody	Palmate Newt maximum counts	Common Toad maximum counts	Common Frog maximum counts
P1	5	0	0
P2	4	1	0
P3	8	1	0
P4	11	1	0
P5	3	0	0
P6	0	0	0
P7	15	0	0
P8	1	0	0
P9	12	0	0
P10	8	0	0
P11	3	2	1
P12	11	1	0
P13	17	0	0
P14	2	0	0
P15	0	0	0
P16	17	0	1
P17	0	0	0
P18	0	0	0
P19	0	0	0
P20	35	0	0
Crymlyn Lagoon East	1	0	0
Crymlyn Lagoon West	0	0	0
West Bay	0	0	0

Waterbody	Palmate Newt maximum counts	Common Toad maximum counts	Common Frog maximum counts
PB	5	0	0
PC	0	0	0
PD	0	0	0
PE	0	0	0
South Site Reservoir	6	3	0

10.3.290. Information received from SEWBrEC returned a total of 11 records of GCN. A single record relates to a location in the north-west of the Site, just east of the South Site Reservoir, and dates from 2020. This is assumed to be the record attained by Atkins. The remaining records of GCN relate to the wider study area, with a majority dating from 2018 to 2019.

10.3.291. In addition, a total of 63 common amphibian records were returned from SEWBrEC and 22 records of Common Frog were returned. The closest records are located within the Site, located in the South Site Reservoir and in the east of the Site, and date from 2001 and 2020 respectively. The most recent record relates to a location approximately 1.8 km west of the Site at its closest point, and dates from 2020.

10.3.292. A total of 16 records of Common Toad were returned. The closest record relates to a location approximately 0.1km south-west of the Site boundary at its closest point, and dates from 2015. The most recent record relates to a location approximately 2.5km south-west of the Site and dates from 2019.

10.3.293. A total of 21 records of Palmate Newt were returned. The closest and most recent record relates to a location approximately 0.1km south-west of the Site and dates from 2018.

10.3.294. A total of four records of Smooth Newt *Lissotriton vulgaris* were returned. The closest record relates to a location approximately 0.4km south-west of the Site and dates from between 1900 and 1989. The most recent record relates to a location approximately 1.8km north-east of the Site and dates from 2019.

10.3.295. Again, previous survey work at the Site, undertaken in support of the previously consented OPP, identified the presence of Common Frog, Common Toad and Palmate Newt within the Site.

Hazel Dormouse

10.3.296. Notwithstanding an absence of any historic records of Dormice within the wider Coed Darcy Site, noting the age of previous survey work (2009), an updated suite of Dormouse surveys was undertaken between August 2020 and August 2021.

10.3.297. The location of the Dormouse tubes is shown in Figure 10-6. A summary of the findings is detailed below in Table 10.16.

Table 10.16 – Summary of Dormice Surveys at Coed Darcy

Survey Number	Date	Temp' °C	Weather Conditions	Results
1	21 August 2020	18	Strong wind	No evidence of Dormouse recorded.
2*	3 September 2020	15	Slight rain for short period at the of start of survey	No evidence of Dormouse recorded.
3	29 September 2020	16	Sunny, clear	No evidence of Dormouse recorded.
4*	5 October 2020	11	Dry, cloudy.	No evidence of Dormouse recorded.
5	15 October 2020	13	Dry	No evidence of Dormouse recorded.
6*	21 October 2020		Dry	No evidence of Dormouse recorded.
7**	26 November 2020	8	Clear, sunny	No evidence of Dormouse recorded.
6**	30 June 2021	17	40% cloud, sunny, dry	No evidence of Dormouse recorded.
7**	16 July 2021	18	Still, sunny, clear	No evidence of Dormouse recorded.
8**	27 August 2021	18	Clear, light breeze	No evidence of Dormouse recorded.
* Footprint Check Only				
** Nest Tube Check Only				

10.3.298. On the basis the surveys followed the methodology as set out in Section 3, the survey effort allowed a score of 25 points, and noting historical surveys, it can be reasonably assumed Dormouse are absent from the Site. As such, no further consideration is given to this species as part of this assessment.

Otter & Water Vole

10.3.299. A vast majority of the Site, with an absence of larger waterbodies or suitable watercourses, is unsuitable to support Otter or Water Vole.

10.3.300. Where more suitable habitat is present, for example within Coed Darcy GCN SINCS, these habitats are to be retained as part of the proposals. Regarding South Site Reservoir, whilst this could provide a degree of suitable foraging opportunities for Otter, its value is greatly tempered by its artificial nature, with significantly improved opportunities in the immediate area. The steep and artificial banks of the waterbody are highly sub-optimal to offer potential holt or burrowing opportunities to either species.

10.3.301. Regarding ditches within the Site, these are relatively recent in origin and, again, highly sub-optimal for Water Vole or Otter, for the most part supporting limited aquatic vegetation and ephemeral water, whilst offering no significant connectivity or dispersal opportunities. Whilst both D1 and D2 provide a degree of heightened suitability, no evidence of either Water Vole or Otter was recorded during detailed checks of both features during the completion of habitat survey work in 2020 and 2021. Equally, no evidence of either species was recorded during the completion of extensive GCN survey work across the Site.

10.3.302. Noting the above, it is not considered either species would be in any way reliant on the habitats present within the Site, nor that populations present in the wider area would have the potential to be adversely impacted by emerging Development Proposals.

10.3.303. The SEWBRc returned 41 records of Otter, none of which relate to the Site. The majority of records relate to the Tennant Canal. However, the closest and most recent record relates to a record approximately 0.7km east of the Site at its closest point, and dates from 2012.

10.3.304. The SEWBRc returned seven records of Water Vole, none of which relate to the Site. The majority of the records again relate to the Tennant Canal. However, the closest and most recent record relates to a location approximately 0.4km south-west of the Site, and dates from 2004.

Other Protected Species

10.3.305. No other evidence of protected or notable species has been recorded during the course of the extensive survey work undertaken at the Site. Noting this, and with regard to the extensive habitat clearance which has been undertaken across the Site, it is considered unlikely the Site will be of heightened value to any other protected or notable species.

10.3.306. Notwithstanding this conclusion, habitats within the Site are at least locally suitable to support a range of small mammal species such as European Hedgehog. The potential presence of a range of small mammals is given due regard as part of this Assessment.

10.3.307. SEWBRc returned a small number of records for Polecat (three records) and Hedgehog (14 records). Of these, the closest was a record of Hedgehog located approximately 190m to the east of the Site.

Summary of Ecological Baseline

10.3.308. Habitats. The Site supports a mosaic of predominantly early successional habitats, with these frequently complemented by areas of diverse structural topography. In addition, localised areas of mature vegetation are present, predominantly in the form of secondary woodland, with dense scrub and established waterbodies also present.

10.3.309. Some areas of recolonising vegetation, not least RV1, are of high ecological value, supporting a diverse floristic community with the topographical diversity contributing to a wide range of microhabitats. Elsewhere, such as RV3, the habitat community is sparse, and localised topographical diversity is largely absent, resulting in a habitat area of low ecological interest when assessed in isolation. Whilst the value of these areas is elevated by the wider 'open mosaic', they provide only a limited qualitative contribution to this mosaic.

10.3.310. Areas of wet grassland and mixed scrub are also deemed of heightened ecological interest, supporting a good range of grasses, sedges, and forbs. The prevalence of scrub, whilst offering localised interest, is generally concluded to detract from the overall interest and, indeed, on-going scrub succession will continue to result in losses to more valuable open habitats within the Site.

10.3.311. Areas of secondary woodland, whilst also considered of heightened value within the Site, predominantly comprise fast growing Willows and Birch, and include frequent non-native vegetation such as Buddleia, with very limited woodland ground flora, somewhat tempering their overall interest. Regarding the designation of an area of on Site woodland as 'Ancient' (W1A), and noting the substantial historic disturbance at this location, with resultant woodland clearance and loss/degradation of soils, it is not considered the Ancient Woodland designation of this area is a correct reflection of the true extent of the resource present.

10.3.312. Also of heightened value are the tree belts in the north-east of the Site, in particular TB1 which supports a good number of mature Oak trees and occasional Hazel coppice.

10.3.313. The Site supports a large number of waterbodies, ranging from small ephemeral ponds to high quality wetlands and artificial reservoirs. Whilst the quality of these wetland habitats varies substantially the overall resource is deemed of value in both the context of the Site and local area.

10.3.314. As above, the Site supports extensive areas of scrub, with these habitats in turn supporting a good range of woody species. However, areas of scrub are frequently dominated by a small number of species, including non-native and/or undesirable specimens such as Buddleia. Moreover, areas of scrub appear to be encroaching on and outcompeting relatively higher value habitats within the Site, such as areas of wet grassland and floristically diverse recolonising vegetation. In this context, scrub is of reduced ecological value within the Site.

10.3.315. Other habitats within the Site typically support a reduced range of species or are otherwise widespread and common habitat types in both a national and local context. These are not deemed of heightened ecological interest in the context of the Site.

10.3.316. Species. In terms of faunal species, the Site is considered to provide opportunities for a range of species groups including invertebrates, amphibians, breeding birds, common reptiles and foraging and commuting bats.

10.3.317. The Site supports notable populations of terrestrial invertebrates, with a total of 505 species recorded throughout the study site, of which 30 (6% of the assemblage) are Key Species; those with a nature conservation status.

10.3.318. A diverse breeding bird assemblage was recorded within the wider Coed Darcy Site, with 76 species recorded across the wider Coed Darcy landholding, including 42 species within the Site. The greatest interest was found across the open habitats, not least on account of breeding Lapwing, Ringed Plover, Little Ringed Plover and Skylark, whilst good assemblages were also recorded in wetland and woodland areas.

10.3.319. GCN surveys confirmed the presence of a 'medium' population of GCN, alongside valuable populations of common amphibians, with these populations sustained within the north of the Site (north of the railway) as well as in the south-west of the Site.

10.3.320. Equally, small populations of two common reptile species; Grass Snake and Common Lizard, were recorded within the Site, with these locations consistent with areas of suitable off-site habitat, or otherwise habitat which avoided removal during previous Site remediation.

10.3.321. No evidence of roosting bats was recorded within the buildings on Site. Whilst significant areas of woodland are present, these are assessed overall as being of low bat roosting potential, being dominated by fast growing Willows and Birches. A small number of trees were identified to have low potential to support roosting bats, whilst two trees (T1 and T2) initially assessed as of moderate bat roost potential were subject to tree climbing. No evidence of past or present roosting was associated with any trees during either aerial or ground based inspections.

10.3.322. Bat activity surveys confirmed the Site to be subject to a generally low level of activity. Unsurprisingly, relatively higher levels of bat activity are associated with the larger waterbodies, in association with areas of woodland and along the Site's vegetated boundaries, particularly the southern edge of the Site. Typically, very low levels of bat activity were recorded across open habitats.

10.3.323. The Site is not considered likely to be of any significant value for other notable or protected species or assemblages.

10.4. Inherent Design Mitigation

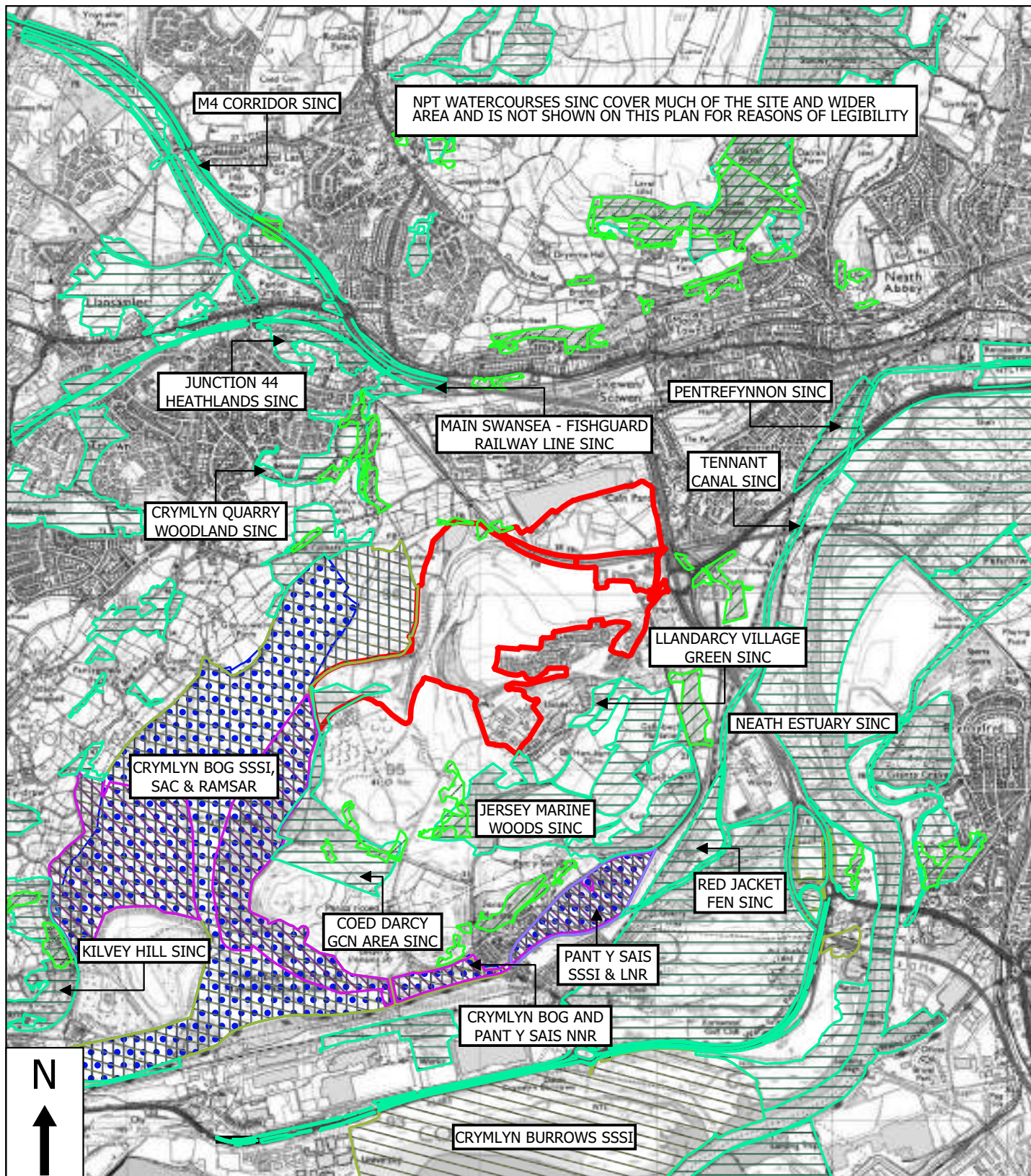
10.4.1. The Proposed Development will deliver extensive areas of greenspace as an inherent design feature, not least to achieve requisite SuDS capacity, as well as open space provision for future residents.

10.4.2. The delivery of these semi-natural habitats would undoubtedly ensure that habitats of ecological value are present post-development. However, in the absence of informed, biodiversity led design, there would be no certainty on the type of habitat delivered, nor reassurance that these habitats would be subject to appropriate management such that any biodiversity value can be retained in the long-term. Equally, the suitability of these habitats to support protected or notable faunal species/assemblages would be uncertain.

10.4.3. On this basis, it is concluded that for the vast majority of ecological receptors, no significant reliance could be placed on appropriate mitigation measures being secured through 'inherent design mitigation'.

ENVIRONMENTAL STATEMENT
CHAPTER 10 - BIODIVERSITY
FIGURES

FIGURE 10-1
Site Location
and Ecological Designations



- SITE BOUNDARY
- SPECIAL AREA OF CONSERVATION (SAC)
- RAMSAR SITE
- SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
- NATIONAL NATURE RESERVE (NNR)
- LOCAL NATURE RESERVE (LNR)
- SITE OF IMPORTANCE FOR NATURE CONSERVATION (SINC)
- AREA DESIGNATED AS ANCIENT WOODLAND



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FIGURE 10-1: SITE LOCATION
AND ECOLOGICAL DESIGNATIONS

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FIGURE 10-2
Baseline Habitats