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TYDDYN FLETCHER, FFORDD LLANBERIS, CAERNARFON

Preliminary Ecological Appraisal Survey and Report

For

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RML

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QUALITY ASSURANCE PROCEDURES: Qp4, QP7.3Doc6

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Executive Summary

Richards, Moorehead and Laing Ltd (RML) were commissioned by ADRA to undertake a Preliminary Ecological Appraisal (PEA) survey and report to include reptile surveys of proposed development work at, Tyddyn Fletcher, Ffordd Llanberis, Caernarfon, Gwynedd.

The development fronts onto the A4086 Ffordd Llanberis, Caernarfon and measures approximately 1.35ha (3.38 acres). At the time of writing, it is proposed that 36 new dwellings will be built on the site. The site consists of one field currently used for grazing and agricultural purposes.

The site was assessed using an extended Phase 1 survey methodology, with a specific focus on its potential use by any protected or/and notable species. Furthermore, targeted survey work was conducted for reptiles and bats which are reported separately.

The surveys were required to identify potential ecological constraints of the proposals and to advise of any mitigation measures, further survey requirements and measures to avoid, reduce and minimise ecological effects, during the pre- and post-construction phases.

The proposed development has the potential to affect habitats of low to moderate ecological value. To maintain connectivity with the wider landscape, the loss of hedgerows and mature trees should be minimized. While the site has the potential to support badgers, bats, nesting birds, and reptiles, no bat roosts were identified, and no reptiles were found during presence/absence surveys. The development is not anticipated to result in direct or indirect effects on statutory or non-statutory designated sites. Detailed recommendations are provided in Section 6 of this report.

The scheme proposals are anticipated to result in minimal biodiversity losses. However, significant opportunities exist to deliver substantial net gains for biodiversity. To align with Planning Policies Wales 12, several enhancements are recommended for integration into the development proposals. These include the implementation and management of new landscape planting using native species indigenous to the local area, and species known to attract invertebrates and pollinators, the installation of bat and bird boxes, and the creation of hedgehog highways throughout the site.

The details in this report will remain valid for a period of 18 months from the date of this report (April 2025) after which if no site works have commenced, the validity of this assessment should be reviewed to determine whether further updates are necessary.

1 INTRODUCTION

1.1 Scope of commission

1.1.1 Richards, Moorehead and Laing Ltd (RML) were commissioned by ADRA to undertake a Preliminary Ecological Appraisal (PEA) survey and report of proposed development work at, Tyddyn Fletcher, Ffordd Llanberis, Caernarfon, Gwynedd (hereafter referred to as 'the site'), centred on Grid reference SH 49302 62817.

1.1.2 This report presents the findings of a preliminary ecological appraisal, reptile surveys and provides an assessment of the potential effects on habitat and protected species which may result from the development[1].

1.2 Site description

1.2.1 The site is located on the A4086, Ffordd Llanberis in Caernarfon, Gwynedd in North Wales and currently comprises 1.35 ha of greenfield site of improved grassland, semi-improved grassland, scrub and hedgerows.

1.2.2 The location and extent of the site is shown in **Appendix A**.

1.3 Development proposal

1.3.1 The development proposals would involve the following:

- Construction of a new site access.
- 36 dwellings and associated parking and infrastructure.
- Active travel routes.
- Amenity and play space.
- SUDs including a rain garden.
- Boundary fencing, and a

1.3.2 The proposed site masterplan (current at the time of writing) is shown in **Appendix B.**

1.4 Survey and report objectives

1.4.1 The purpose of this report is to:

[1] Morris.K; 2025; *Bat Survey and Report*; Richards Moorehead and Laing

a) Provide the results of the Preliminary Ecological Appraisal (PEA) survey carried out by RML on the 12th of June 2024 of the proposed developments footprint and adjacent habitats located at the site.

b) An assessment of the habitats present, the potential for these to support protected species and the likely impacts due to construction at the site.

c) To establish whether any areas of potential reptile habitat support reptiles, and what species are present on site.

d) Identify any further survey requirements.

e) Identify appropriate enhancement measures including mitigation and,

f) Highlight the potential requirement for protected species licensing.

1.5 Consultations and meetings

1.5.1 Consultation has been sought with Gwynedd County Council (GCC) and Natural Resources Wales as part of a Pre-application Enquiry. NRW stated that their records show there may be protected species in the vicinity of the site and advised that liaison with the LPA's ecologist is required to discuss and agree the scope of any surveys required.

1.5.2 The County Ecologist was contacted in July 2024, a number of protected species surveys were requested, including bat flight path surveys[2].

1.5.3 Regular Design Team Meetings (DTM) have been held. These included discussions regarding constraints in respect of biodiversity interest at the site and to advise of measures to avoid, mitigation and/or enhancements which can be incorporated into the final design.

1.6 Personnel and quality assurance

1.6.1 This report has been written by Katy Morris, reviewed Donna Hall and approved by Jon Stoddard. The report is issued by RML Ltd.

1.6.2 Ecologist Katy Morris is an Associate member of CIEEM. Katy has a BSc in Environmental Science from Liverpool John Moores University. She has a keen interest in bats. Katy has experience of surveying bats, dormice, otters, water vole, reptiles, and great crested newts. She is also proficient in Phase 1 habitat surveys and is extending her repertoire to include invertebrates, NVC habitat surveys, Green Infrastructure Statement, Habitat Regulation Assessment, QGIS and Qfields. Katy is currently involved in numerous voluntary bat activities, including roost monitoring, bat care and handling. Katy has

[2] Bat survey report is provided separately.

completed the Certificate of Bat Acoustics Analysis (CoBAA) and has achieved Technician Level: Graded B Assessment Result.

1.6.3 Landscape Architect Rhodri Edwards has 20 years' experience of working on highways and infrastructure projects and has worked extensively on high profile schemes for Welsh Government. He is a native Welsh speaker with a farming background, who uses Welsh in meetings and consultation events. Rhodri is a proficient and Autodesk trained CAD user with design software packages of AutoCAD Civil 3D 2016, 3ds Max and TIN modelling. With a growing demand for visualisations, he has prepared Photomontages, 3d visualisations and drive/fly-through videos. He is also skilled in the use of Adobe Photoshop, GIS and assessment techniques including preliminary surveys using GPS for arboriculture and ecological surveys and technical drawings from survey data. He is a skilled at ecology surveys including Phase 1, reptile, GCN and bat activity surveys.

1.6.4 Assistance from Rob Jones (RML) and Dr Adam Lynch (RML) for the reptile surveys.

2 LEGISLATION AND PLANNING POLICIES

2.1 Habitats and Species

2.1.1 Certain habitats and species are subject to protection as laid out in the Wildlife and Countryside Act (as amended) [3] and/or the Conservation of Habitat and Species Regulations 2017 (the 2017 Regulations) as amended[4] or by their own separate protection, for example, the Badgers Act 1991[5]. Wild birds are supported by Regulation 10 of the 2017 Regulations which require local authorities and others to take steps to contribute to the diversity and extent of habitat for wild birds.

2.1.2 For a summary of the offences under this legislation refer to **Appendix C**.

2.2 Environment (Wales) Act 2016[6]

2.2.1 Welsh legislation confirms Wales' legal commitment to biodiversity conservation. Section 6 of the Environment (Wales) Act 2016 introduced an "enhanced biodiversity and resilience of ecosystems duty (the S6 duty)" for public authorities, which requires that they "seek to maintain and enhance biodiversity so far as consistent with the proper exercise of their functions and in so doing promote the resilience of ecosystems".

2.3 Planning Policy Wales (PPW12) [7]

2.3.1 Planning Policy Wales 12 (PPW12) Section 6.4.3 sets out the responsibilities of the Local Planning Authority when assessing development proposals and their impacts on biodiversity. This document states:

2.3.2 'The planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement'.

2.3.3 It sets out the requirement for planning authorities to demonstrate that they have sought to fulfil the duties and requirements of Section 6 of the Environment Act 2016 by taking all reasonable steps to maintain and enhance biodiversity in the exercise of their functions.

[3] https://www.legislation.gov.uk/ukpga/1981/69
[4] https://www.legislation.gov.uk/uksi/2017/1012/contents/made
[5] https://www.legislation.gov.uk/ukpga/1991/36/enacted
[6] https://www.legislation.gov.uk/anaw/2016/3/contents/enacted
[7] https://www.gov.wales/sites/default/files/publications/2024-02/planning-policy-wales-edition-12_1.pdf

2.4 Biodiversity Policy and Net Benefits for Biodiversity

2.4.1 Wales Biodiversity Partnership (WDP) have produced biodiversity checklists for local authority and public authority staff in Wales. The checklists will assist public and local authorities to take account of biodiversity in their operational activities and will help organisations to remain legal under the Environment (Wales) Act (2016) Biodiversity Duty and other biodiversity related legislation. In addition, the implementation of the checklists and guidance will help build towards the biodiversity outcomes contained in the Environment Strategy for Wales.

2.4.2 The net-benefits for biodiversity approach by Welsh Government has the intention to deliver an overall improvement in biodiversity by putting an emphasis on proactive consideration of biodiversity and wider ecosystem benefits within a placemaking context to be considered early in the design process. The aim is to design schemes that positively impact ecosystem resilience. Natural Resources Wales (NRW) has developed a framework for evaluating ecosystem resilience based on five attributes and properties specified in the Environment (Wales) Act 2016. This is referred to as DECCA: Diversity, Extent, Condition, Connectivity and Aspects of ecosystem resilience[8].

[8] Garrett HM, and Ayling SC. 2021.Terrestrial and freshwater Resilient Ecological Networks: a guide for practitioners in Wales. 43 pp. NRW Report No. 483 Natural Resources Wales. Dolgellau

3 METHODOLOGY

3.1 Desk study

3.1.1 Third party consultation was undertaken as part of the proposal. Data was requested from Cofnod, the Local Environmental Records Centre for North Wales, on 24th May 2024 to obtain the following ecological data:

- Details of any statutory and non-statutory nature conservation designations within 10 km[9] of the site; and
- Records of any legally protected or other notable species within 2 km[10] of the site.
- Records of bat species within 10 km of the site.

3.1.2 A copy of the public records available from Cofnod are provided in **Appendix D**.

3.1.3 Open source 1:25,000 Ordnance Survey mapping and Google Earth Pro satellite imagery were used to identify any mapped water bodies and watercourses within 500 m of the Site.

3.2 Field survey

Extended phase 1 habitat survey

3.2.1 An Extended Phase 1 habitat survey was conducted on the 12th of June 2024 by Rhodri Edwards and Katy Morris of RML to determine the current baseline conditions of the site. The survey area included all land affected by the proposed development and immediate adjacent land, where accessible. The weather conditions during the survey were overcast, calm and dry with an ambient temperature of 14°C.

3.2.2 Habitats were described and mapped following the standard Phase 1 habitat survey methodology (JNCC, 2010). Phase 1 habitat survey is a standard technique for classifying and mapping British habitats. The dominant plant species were recorded, and habitats were classified according to their vegetation types. Where appropriate, consideration was given to whether habitats qualify, or could qualify, as a Habitats of Principal Importance following habitat descriptions published by the Joint Nature Conservation Committee (JNCC, 2008). The Phase 1 survey method is 'extended' through the additional recording of specific features indicating the presence, or likely presence of, protected

[9] Only those sites within 2 km of the scheme proposals are reported within this document. Cofnod data can be provided upon request.
[10] Only those species within 2 km of the scheme proposals are reported within this document. Cofnod data can be provided upon request.

species or other species of nature conservation significance (also referred to as 'notable' species).

3.2.3 The scientific naming of plant species follows those in Stace (2010). Habitats were marked on a paper base map and were subsequently digitised using a Geographical Information System (QGIS). Target notes (TN) were made to provide information on specific features of ecological interest or habitat features too small to be mapped. These are shown and described in **Appendix E.**

3.2.4 Species of plants in each land parcel were recorded, their density was noted using the DAFOR scale, as shown in **Table 1** below:

Table 1 The DAFOR scale

Value	Percentage cover
Dominant	More than 75%
Abundant	51 to 75%
Frequent	26 to 50%
Occasional	11 to 25%
Rare	Less than 10%

3.2.5 Any invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) recorded during the Phase 1 habitat survey was also target noted.

3.3 Protected Species Assessment

3.3.1 Any evidence, or potential for protected species and notable species were noted and, where appropriate, marked as a target note on the Phase 1 habitat plan. The assessment of habitat suitability for protected and notable species was based on professional experience and judgement and supplemented by standard sources of guidance on habitat suitability assessment for key faunal groups. This modified approach to Phase 1 habitat survey is in accordance with the approach recommended by Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017[11]).

3.3.2 In conjunction with the NBW surveys, (where surveyors were equipped with Night Vision Aids (NVAs)), one of the surveyors utilised the NVA's to scan the site at 'stopping points' to look for hedgehogs.

3.3.3 Bat surveys and assessment are reported separately[12].

[11] https://cieem.net/wp-content/uploads/2018/01/Guidelines-for-Preliminary-Ecological-Appraisal-Jan2018-typo-edit.pdf

[12] Morris.K; 2025; *Bat Survey and Report*; Richards Moorehead and Laing

3.3.4 One camera trap was deployed within hedgerow 3 between 23/07/2024 and 09/09/2024, location is shown on the phase 1 plan in **Appendix E**.

Reptile surveys

3.3.5 The survey used the standard method of setting-out artificial refugia (which reptiles use to bask on or shelter under) in the survey area. The artificial refugia were made from 0.5 m^2 roofing felt that has suitable thermal qualities (absorbing and trapping heat) and were easily transported. The refugia were set out following guidance by Froglife (1999)[13] in areas of suitable reptile habitat throughout the site.

3.3.6 A total of 53 refugia were set out approximately every ten metres throughout the site at locations exposed to solar radiation for at least part of the day adjacent to or partially concealed in suitable vegetation cover. The refugia were placed out on the 21st August 2024. The location of the refugia matts is shown in **Appendix F**.

3.3.7 The dark surface of the refugia absorb sunlight, warming more quickly and cooling more slowly than the surrounding substrate. This enables a reptile under the refugia to achieve a favourable body temperature faster than usual and thus it can start foraging earlier and for longer in the day. Once the reptile has found a refuge it will typically use it as part of its daily routine.

3.3.8 Following their placement, refugia were left for two weeks to 'bed down' and allow reptiles time to find and use them.

3.3.9 After the bedding down period, the refugia were checked on seven occasions. This number of checks was considered sufficient to establish the presence or likely absence of all reptile species supported in the survey area and their distribution. Supplementary techniques were also used in conjunction with the checking of artificial refuges. This involved systematic searching of the survey area, visually scanning the ground 3-4m ahead, listening for 'rustles' in the vegetation and searching of vegetation for individuals and sloughs (reptile skins) at key basking areas.

3.3.10 Survey checks were undertaken within or as close as possible to the following weather conditions; temperatures between 9 and 18 degrees centigrade, hazy or intermittent sunshine and still or light breeze.

3.3.11 All seven visits were undertaken from mid-morning onwards within the climatic guidelines contained in good practice guidance.

[13] https://www.froglife.org/wp-content/uploads/2013/06/Reptile-survey-booklet-3mm-bleed.pdf

3.3.12 The refugia were collected up and removed from the site during the final survey on 2nd October 2024.

3.4 Survey constraints and limitations

3.4.1 The habitat surveys were undertaken at an optimal time of year and were unhampered by access restrictions. The results are therefore considered appropriately robust.

3.4.2 May, June and September are considered the optimal months for undertaking reptile surveys. However, reptiles are mobile species and therefore surveys can only provide a general indication of species present on site.

3.4.3 Five of the reptile refugia went 'missing' during the 2-week bedding in period. However, 48 refugia was considered to be enough to provide adequate data results for this site.

3.4.4 Records held by local ecological record centres, local recording groups and on the internet are often collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, rather, it may simply indicate a gap in recording coverage.

3.4.5 As the behaviour of wild animals is unpredictable and can change over time, the results of the survey reflect the site conditions on the dates of surveys.

4 BASELINE ECOLOGICAL CONDITIONS

4.1 Desk Study

Statutory designated sites

4.1.1 There are two statutory designated sites[14]: one Special Area of Conservation (SAC) and one Site of Special Scientific Interest (SSSI) located within 2 km of the site. There are two further statutory designated sites for bats within 10km one SAC and one SSSI. The designated sites are detailed in **Table 2** and their locations are shown on plans in **Appendix G**.

Table 2: Statutory designated sites within 2 km of the Site.

Site name	Distance from site	Reason for notification (as taken form site citations)
UK0030202 Y Fenai a Bae Conwy / Menai Strait and Colwyn Bay[15]	1330 m northwest.	Annex I habitats that are a primary reason for selection of this site are: • 1110 Sandbanks which are slightly covered by the sea water all the time. • 1140 Mudflats and sandflats not covered by seawater at low tide. • 1170 Reefs. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site. • 1160 Large shallow inlets and bays. • 8330 Submerged or partially submerged sea caves.
Afon Seiont (SSSI)[16]	1240 m south-east.	Afon Seiont is a small, tidal river in the town of Caernarfon This site is of special interest for strata which are exposed in the west riverbank (cliff) of Afon Seiont and in a former river cliff, inland, alongside the A487 some 200 m east of the river. The exposed rocks include strata from two series within the Ordovician Period, namely the Arenig and overlying Llanvirn series.
UK0012661 Glynllifon[17] (SAC)	6600 m southwest	Annx II species that are a primary reason for selection of this site.

[14] SACs and Special Protection Areas (SPAs) in the UK no longer form part of the EU's Natura 2000 ecological network. The 2017 Regulations as amended have created a national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes existing SACs and SPAs, new SACs and SPAs designated under these Regulations. Any references to Natura 2000 in the 2017 Regulations and in guidance now refers to the new national site network.
[15] https://sac.jncc.gov.uk/site/UK0030202
[16] https://www.cofnod.org.uk/resources/sssi/2554/SSSI_2554_Citation_EN001.pdf
[17] https://sac.jncc.gov.uk/site/UK0012661

Site name	Distance from site	Reason for notification (as taken form site citations)
		• 1303 Lesser horseshoe bat (*Rhinolophus hipposideros*). This site in North Wales is both a maternity and hibernation site doe a large population of lesser horseshoe bats, comprising about 6% of the UK population.
Glynllifon (SSSI)	6600 m southwest	This site has been selected for its population of lesser horseshoe bats. The site is situated in the former Glynllifon estate, 7.5km south west of Caernarfon. The site includes three summer roost sites and two hibernation sites for the lesser horseshoe bat.

4.1.2 There are no Special Protection Areas (SPA) or Ramsar sites within 2 km of the site.

Non-statutory designated sites

4.1.3 There are 10 Local Wildlife Site located within 2 km of the site; theses are detailed in **Table 3** below, there are also 18 additional candidates for wildlife sites.

Table 3: Non statutory designated sites within 2 km.

Site name	Site Designation	Distance from site	Reason for notification
Gwynedd 1189 – Coed Mawr	Wildlife Site (WS)	<10 m northwest	8ha Qualifying Habitat: River corridor, lowland mixed deciduous woodland, coastal & floodplain grazing marsh, lowland meadow.
Gwynedd 887 Gallt-y-sil farm	(WS)	370 m south	3.8 ha Qualifying Habitat: River corridor, lowland meadow, lowland mixed deciduous woodland & scrub woodland.
Gwynedd 1190 Peblig Graveyard	(WS)	665 m southwest	1.6 ha Qualifying Habitat: Scrub, open mosaic habitat of previously developed land. Qualifying Species: S42 slow worms (*Anguis fragilis*), common lizard (*Zootoca vivipara*), grasshopper warbler (*Locustella naevia*)
Gwynedd 1630 Afon Seiont	(WS)	1230 m west	14.5 ha Qualifying Habitat: Upland oak woodland, river, mudflats. Qualifying Species: Wintering waders.

Site name	Site Designation	Distance from site	Reason for notification
Gwynedd 643 - Plas Brereton	(WS)	1630 m north	13.1 ha Qualifying Habitat: Deciduous woodland, lowland meadow. Qualifying Species: S42 breeding song thrush, linnet, bullfinch.
Gwynedd 877 – Afon Cadnant	(WS)	750 m northeast	5 ha Qualifying Habitat: River corridor, purple moor-grass & rush pasture, wet woodland.
Gwynedd 887 - Gallt-y-sil farm	(WS)	350 m south	3.8 ha Qualifying Habitat: River corridor, lowland meadow, lowland mixed deciduous woodland & scrub woodland.
Gwynedd 888 – Waenfawr Road	(WS)	510 m south	7 ha Qualifying Habitat: River corridor, scrub woodland, wet woodland, lowland mixed deciduous woodland, lowland meadow.
Gwynedd 996 Tyddyn-llwydyn	(WS)	900 m south	2.6 ha Qualifying Habitat: River corridor, lowland mixed deciduous woodland.
Gwynedd 997 Rhyddallt - bach	(WS)	1420 m southwest	13.6 ha Qualifying Habitat: Upland oak woodland, river Qualifying Species: Lesser Horseshoe bat, probably otters in river.

4.1.4 There are 16 areas of ancient woodland (either ancient semi-natural or restored) within 2 km of the site. The closest lies 930 m to the southeast of the Site.

4.1.5 There are two notable trees within 2 km of the site which are listed on the Ancient Tree Inventory[18]. One tree is 1.3 km northeast, and the other is 1.2 km northwest.

4.1.6 There is a mature oak tree on the boundary with the road which is protected by a Tree Preservation Order (TPO).

Habitat

4.1.7 The following habitat records were returned for the site (within the last 10 years) by COFNOD (JNCC alphanumeric codes).

- Improved neutral grassland (B2.2).

[18] https://ati.woodlandtrust.org.uk/

Protected and notable species

4.1.8 The following section presents the findings of the desk study (species records within 2 km of the site within the last 10 years) from COFNOD.

Amphibians

4.1.9 There were 3 records of amphibians returned within 2 km of the site in the last 10 years. All three records were for slow worms (*Anguis fragilis*) on Segontium Roman Fort or on adjacent land 830m southwest of the site.

Badger

4.1.10 There was one record for a potentially active badger sett 791 m east of the site with three further records, the nearest record 1293 m south. These records were for badger hair found on a fence, snuffle holes and a dead badger (*Meles meles*) on the road.

Bats

4.1.11 There were sixty-nine records of bat species recorded within 2 km within the last 10 years. No bat species have been identified on site; the nearest records are:

- Common pipistrelle (*Pipistrellus pipistrellus*) 555m northeast a live sighting during a survey.
- Soprano pipistrelle (*Pipistrellus pygmaeus*) 555 m northeast a live sighting, of a foraging bat.
- Lesser horseshoe (*Rhinolophus hipposideros*) 555 m northeast single bat dropping within a shed.
- Lesser horseshoe night roost 769 m south.

Hedgehog

4.1.12 There were fourteen records of hedgehog (*Erinaceus europaeus*) within 2 km of the site in the last 10 years. No records for hedgehogs were returned for the site. The nearest record was a live sighting of a hedgehog 366 m west of the site.

Invertebrates

4.1.13 There were six records returned within 2 km of the site in the last 10 years. The nearest record was for a White-letter hairstreak (*Satyrium walbum*) 772 m south of the site.

Table 4: List of invertebrates included in Section 7.

English Name	Scientific name	Distance/direction from site	Designation
Powdered Quaker	*Ennomos quercinaria*	1050 m northwest	BAP, LBAP-G, S7
Dingy Skipper	*Erynnis tages*	1380 m south	BAP, LBAP-C, LBAP-F, LBAP-G, RL-VU, S7
Grayling	*Hipparchia semele*	1395 m southwest	BAP, LBAP-G, RL-VU, S7
Small heath	*Coenonympha pamphilus*	1970 m south	BAP, LBAP-G, RL-VU, S7
Key BAP: UK Biodiversity Action Plan Priority Species[19]. LBAP – Local Biodiversity Action Plan[20]. S7 - Section 7 Environment Act (Wales) 2016[21] Red list – Near threatened			

Reptiles

4.1.14 There were no records of any reptiles within 2km of the site in the last 10 years. The county ecologist observed a slow worm on land adjacent to the site in the summer of 2024.

Otter

4.1.15 There were three records of otter (*Lutra lutra*). The nearest record to the site was 375 m, to the south, these were live sightings over a number of weeks of otters in the River Seiont.

Birds

4.1.16 There were 744 birds recorded within 2 km of the site within the last 10 years. The nearest records to the site include song thrush (*Turdus philomelos*) 104 m north, house Martin (*Delichon urbicum*) 115 m north, herring gull (*Larus argentatus*) 124 m north.

4.2 Field Surveys

Habitat

4.2.1 The surveyed site area comprises of agricultural fields currently (at the time of survey) used as grazing for cattle (**Photographs 1 & 2**), with extensive semi-improved grassland, tall ruderal vegetation, and hedgerows. The site is bounded to the east by an industrial

[19] https://jncc.gov.uk/our-work/uk-bap-priority-species/
[20] https://www.biodiversitywales.org.uk/
[21] https://www.legislation.gov.uk/anaw/2016/3/section/7

estate, by a residential housing estate to the south, and the A4086 Llanberis Road to the north and west.

4.2.2 The main habitats recorded within the surveyed site are described in the following paragraphs. The location and extent of habitats present and Target notes, are shown on a Phase 1 Plan in **Appendix E**. Photographs of key habitat features, where appropriate, are provided in **Appendix I**.

4.2.3 Species list and abundance are provided in **Appendix H**.

***Scattered broad-leaved trees* (A3.1)**

4.2.4 Broadleaved trees were notable within the areas of hedgerows. Species included ash (*Fraxinus excelsior*), oak (*Quercus robur*), holly (*Ilex aquifolium)* and sycamore (*Acer pseudoplatanus).* There is one veteran oak tree along the boundary with Llanberis road which is of note and has a Tree Preservation Order (TPO).

4.2.5 No trees on site are listed on the Ancient Tree Inventory[22].

Semi-improved neutral grassland (B2.2)

4.2.6 This habitat is the main habitat outside of the redline boundary to the north (**Photograph 3**) it appears as species-poor grassland with waterlogged areas in the northern field associated with the field drain. This habitat contains scattered clumps of rush species (*Juncus sp*.) and abundant creeping thistle (*Cirsium arvense*) with cock's-foot (*Dactylis glomerata*), crested dog's-tail (*Cynosurus cristatus*), dock (*Rumex sp.),* false oat-grass (*Arrhenatherum elatius*), and common nettle (*Urtica dioica*). Other species included, marsh thistle (*Cirsium palustre*), common mouse-ear (*Cerastium fontanum*), creeping bent (*Agrostis stolonifera*), Yorkshire fog (*Holcus lanatus*) and silverweed (*Potentilla anserina*).

Marshy grassland (B5)

4.2.7 The parcel of semi-improved grassland contained areas of marshy grassland species such as flowering rush (*Juncus effusus*), meadow buttercup (*Ranunculus acris)* and marsh thistle (*Cirsium palustre*). Additional species included creeping thistle (*Cirsium arvense*), crested dog's-tail, cinquefoil (*Potentilla aurea*), sorrel (*Rumex acetosa*) and cuckoo flower (*Cardamine pratensis*) (**Photograph 4**).

[22] Barnes A; 2024; *Tree survey and Tree Constraints Plan*; ROAVR

Poor semi-improved grassland (B6)

4.2.8 This habitat is the main habitat type within the redline boundary (**Photograph 1, 2 and 5**). This habitat contains scattered clumps of rush species (*Juncus sp*.) and abundant creeping thistle (*Cirsium arvense*) and Yorkshire fog.

Tall ruderal (C3.1)

4.2.9 Tall ruderal species were associated with the hedgerows. Species included scattered dock (*Rumex sp*), creeping thistle, common nettle (*Urtica dioica*), and bramble.

Running water (G2)

4.2.10 There is a field drain/ditch which is within the field north of the redline boundary, the drain is associated with a hedgerow (HR5). The drain is approx. 90m long flowing from the field northwest towards the River Cadnant, which discharges into the Menai Straits.

Intact species rich hedge (J2.1.1)

4.2.11 The boundary hedge to the southeast HR2 is an intact species rich hedge with dominant species comprising blackthorn and hawthorn, with frequent species dog rose with occasional hazel and holly and a goat willow (*Salix caprea*) tree.

Intact species-poor hedge (J2.1.2)

4.2.12 Five of the hedgerows are intact species poor hedgerows. Hedges comprised blackthorn (*Prunus spinosa),* hawthorn (*Crataegus monogyna*) and hazel (*Corylus avellana*) with occasional ash, dog rose (*Rosa canina*), and oak. Occasional mature oak and sycamore trees were present within some of the hedges. Ground flora was notably poor for all hedgerows, typically comprising common nettle, thistles, bramble, and willow herb.

Fence (J2.4)

4.2.13 Post and wire fences and post and rail fences, either as standalone barriers or in association with species-poor hedgerows are present around the site. None were considered to have any ecological value.

Wall (J2.5)

4.2.14 Two walls were noted, one along the eastern boundary with the industrial estate. The second was along the boundary with the A4086, this was constructed of stone which had gaps in the mortar, this feature appears to offer habitat potential habitat for reptiles.

4.3 Hedgerow Regulation Assessment

Table 5: Hedgerow Assessment HR1 – HR6

Criteria description[23]	HR1	HR2	HR3	HR4	HR5	HR6
The hedge has existed for 30 years or more	Yes	Yes	Yes	Yes	Yes	Yes
The hedgerow contains protected or otherwise notable species[24]	None highlighted though likely to contain habitat for nesting birds and small mammals. Bats recorded close by are likely to use the hedgerows for foraging and commuting.	Yes. Bats recorded foraging and commuting along the hedgerow. Likely to contain habitat for nesting birds and small mammals.	Yes. Bats recorded foraging and commuting along the hedgerow. Likely to contain habitat for nesting birds and small mammals. Badger seen commuting through and along hedgerow.	Yes. Bats recorded foraging and commuting along the hedgerow. Likely to contain habitat for nesting birds and small mammals.	Yes. Bats recorded foraging and commuting along the hedgerow. Likely to contain habitat for nesting birds and small mammals.	Yes. Bats recorded foraging and commuting along the hedgerow. Likely to contain habitat for nesting birds and small mammals.
The hedgerow includes:						
at least 7 woody species/30 m	No	Yes	No	No	No	No

[23] Please refer to the Hedgerow Regulations for the full explanation http://www.legislation.gov.uk/uksi/1997/1160/contents/made, this is a summary

[24] Presence of protected animal and plant species within the last 5 years as identified from the Cofnod data and surveys conducted in 2019 and 2020.

Criteria description[23]	HR1	HR2	HR3	HR4	HR5	HR6
at least 6 woody species/30m and at least 3 features (refer to the key for a list of features)	No	No	No	No	No	No
at least 6 woody species/30m, including one of the following—black-poplar tree (*Populus nigra* ssp *betulifolia*); large-leaved lime (*Tilia platyphyllos*); small-leaved lime (*Tilia cordata*); wild service-tree (*Sorbus torminalis*)	No	No	No	No	No	No
at least 5 woody species and has associated with it at least 4 features.	No	No	No	No	No	No

Key
Features:
• Bank/wall: The hedgerow is supported along at least half of its length by a bank/wall
• Intact: The hedgerow contains less than 10% gaps in total along its length
• Trees: The hedgerow supports at least 1 standard tree per 50 m length
• 3 flora spp.[25]:The hedgerow supports at least 3 of the valuable ground flora species defined by the Regulations.
• Ditch: There is a ditch along at least half of the length of the hedgerow
• Connections ≥4 points: A hedgerow must score 4 or more 'connection points' where connections with an adjoining hedgerow(s) score 1 point each, and a connection with a pond or woodland (in which the majority of the trees are broad-leaved) scores 2 points each. A hedgerow is considered to be connected if it meets the feature, or if it has a point within 10 m of it and would meet it if the line of the hedgerow continued
• Parallel hedge: A parallel hedgerow is present within 15 m

[25] Valuable ground flora species within the Hedgerow Regulations (1997)

4.4 Priority habitats

4.4.1 **Table 6** lists the habitats found within the surveyed area and whether these habitats are listed as Priority Habitats in Section 7 of the Environment (Wales) Act 2016[26] .

Table 6: Summary of Priority Habitats

Habitat Ref	Habitat Description	Priority Habitat	Site Context/Justification
A3.1	Scattered broadleaved trees	x	Broad-leaved trees were notable within the hedgerow.
A2.2	Dense scrub	x	Bramble and self-set ash hawthorn scrub were present within the site.
B2.2	Semi-Improved neutral grassland	x	Semi-improved neutral grassland is the main habitat in northern area of the site.
C3.1	Tall ruderal	x	Tall ruderal species were present across the site associated with the hedgerows.
G2	Running water	✓	There is a drain to the north of the redline boundary associated with a hedgerow (HR5) potentially offering habitat for amphibians.
J2.1.1 J2.1.2	Hedgerows	✓	The hedgerows on site comprised of intact species poor and one HR2 hedgerow which is species rich.
Key: ✓ Listed as priority habitat X Not listed as priority habitat			

4.5 Protected and Notable Species

4.5.1 The following section presents the findings of the extended Phase 1 Habitat survey conducted on the 12th of June 2024, and reptile surveys conducted between 05/09/2024 to 02/10/2024. The results of the bat surveys are provided in a separate report.

[26] https://www.biodiversitywales.org.uk/environment-wales-act

4.5.2 Where a species or species group has been omitted, this is due to there being no evidence or no suitability on site to support the species and as such are not considered to be affected by the developments proposals.

Flora

4.5.3 No species of note were recorded during the survey.

Amphibians and Reptiles

4.5.4 There are no ponds/standing water on site or within 250 m of the site on an OS map of the area, which could offer breeding opportunities for protected species such as the great created newt (*Triturus cristatus*).

4.5.5 The majority of the site consists of semi-improved grassland, scattered with tall ruderals, scrub and hedgerows. There are stone walls within HR4 (**Photograph 6**), and along the boundary with the road. The suitability of the habitat for reptiles and amphibians in these locations tends to be good in terms of foraging, cover and for dispersal.

4.5.6 There are suitable areas which offer more habitat structure and diversity within the surveyed area, these include the hedgerows with scrub and drainage ditch and the marshy grassland. Targeted survey work for reptiles were carried out at the site to ascertain the presence or absence of this group. Any incidental observation of amphibians were also noted (for example under refugia).

4.5.7 The survey results for the Refugia search are presented in **Table 7** below. **Figure 4** in **Appendix F** shows the location of the reptile refugia within the site.

Table 7: Reptile Survey Results

Survey Number	Date and Time	Weather Conditions	Species
1	05/09/2024 10:55 – 12:00	13°C, 100% cloud cover, warm with a slight drizzle	No reptiles or amphibians found. Refugia 1,2,3,4 and 5 were missing.
2	09/09/2024 11:51 – 12:45	14°C, 80% Cloud cover, breeze, warm, no precipitation.	No reptiles or amphibians found.

Survey Number	Date and Time	Weather Conditions	Species
3	13/09/2024	13°C, 300% Cloud cover. Breeze. Sunny, no precipitation.	No reptiles or amphibians found. Shrew found under matt 16
4	17/09/2024 11:15 – 12:00	18°C, no cloud cover, calm and warm with no precipitation.	No reptiles or amphibians found. Shrew found under matt 38
5	23/09/2024 12:40 – 13:10	13°C, 100%, Cloud cover, overcast with slight drizzle.	No reptiles or amphibians found.
6	27/09/2024 10:30 – 11:29	12°C , 100%, Cloud cover, wind. One heavy shower mid-way through.	No reptiles or amphibians found.
7	02/10/2024	11°C , 100%, Cloud cover, wind.	No reptiles or amphibians found.

4.5.8 **No reptiles or amphibians were found, during any of the seven refugia checks/visits.** However, a slow worm was seen by the county ecologist for Gwynedd in the summer of 2024 in the housing estate next to the site.

Badger

4.5.9 No signs of badger were noted during the Phase 1 survey in the form of any setts, latrines, foraging signs, scratching posts, push-throughs or pathways. However, a badger was seen during the first Night-time Bat Walkover survey on 03/06/2024. The badger made its way through a gap in HR3 near to the veteran oak tree (**TN3**) then headed towards the boundary with the industrial estate on the northeastern side of the hedgerow.

Bats

4.5.10 A separate report details the findings of the bat surveys.

Birds

4.5.11 The site offers opportunities for breeding birds in the form of scrub, hedgerows and scattered trees, which all provide suitable nesting and foraging habitat for birds. Birds

were not in abundance during the survey. Those common species encountered included collared doves (*Streptopelia decaocto*), pigeon (*Columba livia*), robin (*Erithacus rubecula*) and blackbirds (*Turdus merula*)[27].

Hedgehog

4.5.12 This species could utilise the field boundaries and areas of scrub for foraging and dispersal into the wider landscape mainly the residential areas to the south, no hedgehogs were observed on the trail camera which was deployed within hedgerow 4 from 23/07/2024 – 09/09/2024.

Invertebrates

4.5.13 The main area of the development has reduced potential for invertebrate species in its current state as improved grassland. Areas within the northern sections including the damper habitats in the field of semi-improved grassland and the mature trees would also provide habitat for invertebrates.

4.6 Priority and Notable species

4.6.1 **Table 8** lists the species with a known presence or potential to be present on the site which are Priority Species listed on Section 7 of the Environment (Wales) Act 2016[28] or are considered notable and relevant to the site in question.

Table 8: Summary of Priority Species

Species group	Species	Site Context
Reptiles	Slow worm	Some suitable habitats on site. None recorded during the surveys, incidental observation by the LPA ecologist on a wall outside of the redline boundary.
Amphibians	Common toad Common frog newts	No records of amphibians on site. No suitable breeding habitat within the site. Optimal habitat for dispersal, foraging and refugia.
Birds	Environment Wales Act (2016) S 7 list 51 species of bird of which two have	The drain, marshy grassland, and trees provide suitable nesting and foraging habitat for birds.

[27] Castell R; 2024; Breeding Bird Habitat Appraisal; Castell Ecology
[28] https://www.gov.wales/sites/default/files/publications/2023-01/list-living-organisms-principal-importance-purpose-maintaining-enhancing-biodiversity-wales.pdf

Species group	Species	Site Context
	been noted as section 7 species on site during the breeding bird survey[29].	
Mammals	Bats	Optimal habitat for foraging and commuting bats. The existing hedgerows, grassland and treelines provide foraging and commuting corridors.
	Hedgehog	Suitable habitat within the field boundaries and scrub/mosaic habitat.
	Badgers	Present commuting through site. Suitable foraging on site, no setts latrines, foraging signs, scratching posts, push-throughs or pathways found during surveys of the site.

[29] Castell R; (2024); *Breeding Bird Habitat Appraisal*

5 POTENTIAL EFFECTS

5.1 Summary

5.1.1 The following section discusses the potential effects of the development, current at the time of writing, upon the ecological interest at the site and advises upon methods which can either avoid, mitigate, or compensate for these effects.

5.1.2 Potential effects which could arise from the residential development, consisting of approximately 36 affordable homes include the following:

- Direct mortality and disturbance to protected and notable species.
- Direct loss of and disturbance to habitats; and,
- Increased noise, disturbance, and risk of pollution during construction.

5.2 Designated sites

5.2.1 No direct effects to statutory designated sites will occur, the nearest are: Afron Seiont Site of Special Scientific Interest (SSSI), located approximately 1.2km southwest and Y Fenai a Bae Conwy / Menai Strait and Colwyn Bay is 1.3km northwest. No construction operation will encroach onto these sites.

5.2.2 The Afron Seiont Site of Special Scientific Interest (SSSI) and Y Fenai a Bae Conwy / Menai Strait and Colwyn Bay are both distinctly separated from the site by existing developments within Caernarfon, as well as the main A487 road to the south and the A4086 to the north. Therefore, the proposals are unlikely to cause any adverse effects on this or any other statutory designations.

5.2.3 Coed Cadnant is a wildlife site which is situated <10m northwest from the site. However, the site is separated from Coed Cadnant by the main A4086 Llanberis Road. Additionally, as part of the proposals, a substantial buffer of landscaping will be preserved along a significant portion of the northwestern site boundary, providing an additional barrier between the proposed development and the Wildlife Site (WS).

5.3 Effects on Habitat

Scattered trees (A3.1), semi-improved grassland (B2.2), scattered scrub (A3.1), tall ruderal (C3.1), Standing water (G1), Intact species-poor hedge (J2.1.2), Fence (J2.4) and wall (J2.5).

Scattered trees (A3.1)

5.3.1 The proposals result in no loss of semi-mature trees within the developments footprint, the landscape plans show additional trees planned to be planted within the proposals.

Semi – improved grassland (B2.2) and Improved grassland (B4)

5.3.2 The site predominantly consists of improved grassland within the redline boundary and semi-improved grassland within the fields to the north of the redline boundary, both areas are grazed by cattle. The grassland supports only a very limited range of common and widespread species, rendering it of negligible ecological value. There will be the loss of this habitat to make way for the development.

Running water (G2)

5.3.3 The new buildings are outside the drain's area. Confirmation is awaited regarding whether overflow from associated works/drainage will flow into the ditch; to be confirmed when drainage strategy received. The development does incorporate SUDS which would act as a buffer, and also a detention basin and one rain garden, these would all act as retention of water and slow-release attenuation and treatment, mainly during periods of high rainfall to mitigate flooding, but also has a filtering effect prior to discharge to nearby watercourses, important considering the nearest is within a WS.

Intact species-rich hedge (J2.1.1)

5.3.4 Only one hedge within the redline boundary is intact species rich and this is to be retained.

Intact species-poor hedge (J2.1.2)

5.3.5 The hedgerows and trees at the site present some ecological value within the local context, forming continuous linear features that would serve as potential wildlife corridors, despite being composed of common species. All of these habitats are situated along the site boundaries and would be mostly retained and enhanced. A section of hedgerow HR6 will be removed to create a new access point into the development and improve visibility of the road from the new junction.

Fence (J2.4)

5.3.6 The fence boundaries on site comprised post and wire or post and rail fences, which offered little or no benefit to biodiversity. No further recommendations.

5.4 Protected and notable species

Amphibians and Reptiles

5.4.1 There are no ponds on site which would provide breeding habitat for amphibians, there is suitable habitats for amphibians and reptiles within the redline boundary to allow for dispersal into the wider landscape, as well as suitable foraging habitat on site.

5.4.2 The main interest for reptiles and amphibians within the red line boundary comprises the field margins.

5.4.3 Although no reptiles were noted during the site surveys, one was observed by the LPA ecologist basking on a dry-stone wall, located outside the site boundary. The areas within the red line boundary itself provides little in the way of suitable habitat, save for some of the marginal areas. Activities which could potentially disturb reptiles include site clearance works.

Badgers

5.4.4 Some effects on badgers are envisaged, this would be the loss of foraging habitat within the redline boundary, the grassland would be replaced by houses and infrastructure. No setts would be lost as no setts have been observed on site to date. The badger noted during the bat night-time walkover survey was seen commuting through a gap in hedgerow 3 near to the large TPO oak tree TN3. Its highly likely that the badger may have travelled from the WS, where there is more suitable habitat for badgers. The boundary features of the development are to be largely retained. The existing road is the biggest threat to badgers.

Bats

5.4.5 More detail is provided in the bat report by Morris K; 2024; *Bat Survey and Report*; RML

Birds

5.4.6 No evidence of any Schedule 1 bird species was observed at the site during the survey work. Nevertheless, it is probable that the suitable habitats within the site, specifically the trees and hedgerows, may occasionally be utilised by a variety of common bird species.

5.4.7 The main impact on nesting birds would arise if vegetation clearance or disturbance are conducted within the nesting bird season (considered to be March - August inclusive but can be earlier or later in the season dependent upon local climatic conditions).

Hedgehogs

5.4.8 The surveyed area may be used by hedgehogs for foraging, nesting, and dispersal into the wider landscape. Development would result in the direct loss of foraging and nesting habitat, and isolate hedgehog populations, restricting their access to food and mates.

5.4.9 Hedgehogs may face increased mortality due to the risk of injury or death from construction activities, and increased road traffic within the development.

5.4.10 The loss of natural foraging areas, such as grasslands and hedgerows, could reduce food availability for hedgehogs.

5.4.11 Obstacles to Movement including new fences and walls can obstruct hedgehog movement. With a lack of "hedgehog highways" (gaps in fences) which would limit their range.

Invertebrates

5.4.12 The area of grassland to be affected by the proposed construction is of low biodiversity valve, being predominantly improved grassland. Consequently, there is no significant effect on invertebrates, most of which would likely to re-colonise within gardens and the public open areas upon the completion of the development.

Invasive Non-native species/problematic species (INNS)

5.4.13 No Schedule 9 species were found to be on site during surveys.

6 RECOMMENDATIONS

6.1 Habitats

6.1.1 The current master plan retains all but a small section of the existing hedgerows and incorporates additional landscape planting, particularly along the site boundaries, which will retain and enhance valuable ecological corridors for wildlife movement. This planting will not only enhance the existing hedgerows and create a new tree-lined avenue along the development's entrance but will also integrate native plant species characteristic of the local area. To maximise the benefits for local wildlife, a detailed management plan should be implemented to ensure the long-term health and biodiversity of these newly created habitats.

6.1.2 A Sustainable Drainage System (SuDS) pond, and a detention basin, would be created near the A4086 boundary. This pond will be semi-permanent, meaning it will not hold water continuously but will instead fill during rainfall events, gradually releasing or infiltrating the water into the ground. This design contrasts with a retention pond, which maintains a permanent water level. Additionally, a rain garden will be established in the southeast of the site, adjacent to the flats, to further manage surface water runoff. Areas of longer meadow grass is retained around the suds pond and detention basin with species mix suitable for seasonal damper conditions. The rest of the grassed areas would be kept short but could include bulb planting for amenity value and shrub to attract pollinators, refer to the landscape master plan in **Appendix J**.

Scattered trees (A3.1)

6.1.3 Ideally, construction of the new buildings and associated infrastructure, including the installation of boundary fencing, should aim to avoid or minimise the loss of or disturbance to semi-mature and mature trees[30].

6.1.4 Works near trees should be conducted following best practice guidance BS 5837:2012 ***Trees in relation to design, demolition, and construction***[31]. This includes the requirement for a buffer zone known as the Root Protection Area (RPA) as provided in the ROAVAR arboricultural method statement, to be established around retained trees during construction to avoid unnecessary compaction and physical damage within the tree's rooting system, thereby safeguarding its long-term health and viability.

[30] Barnes A; 2024; *Tree Survey and Contains Plan*; ROAVR GROUP
[31] https://beta.bathnes.gov.uk/sites/default/files/2020-01/BS5837%202012%20Trees.pdf

6.1.5 To enhance the ecological value of the development, any additional trees to be planted should be native tree species.

Semi – improved grassland (B2.2)

6.1.6 With appropriate seeding and management, including a less intensive management regime and the introduction of pollinator-friendly and night-scented plant species[32] to enhance bat foraging opportunities, the species diversity of the grassland has the potential to be improved to exhibit characteristics of species-rich meadow grassland.

Hedge (J2.1.2 J2.2.2)

6.1.7 Retain existing hedgerows wherever possible. Where enhancement is feasible, including the in filling of species poor hedgerows, this should be done with native species planting to improve connectivity and provide habitat for wildlife. A section of hedge is being removed for access. Those to be retained should be protected during site clearance and construction following guidelines as set out with the arb MS and also the BS stated above which also includes hedges.

6.2 Protected and notable species

Amphibians and Reptiles

6.2.1 If work is carried out to the stone walls, or in habitat considered as suitable terrestrial habitat for amphibians and reptiles, then it is recommended that a Toolbox Talk should be given to all contractors involved with site clearance works to make them aware of amphibians and reptiles which could be encountered, and what to do if they are found.

6.2.2 If any amphibians or reptiles are found, these must be removed to a safe distance away from the works, into suitable habitat. If great crested newts are found, then all work must stop, and an ecologist contacted.

6.2.3 If any stone walls are to be removed or repaired this must be supervised under an Ecological Watching Brief, with any amphibians or reptiles encountered removed to a safe distance away from the works, into suitable habitat.

6.2.4 Stone wall removal should be avoided during winter (November to February) or in frosty conditions to prevent disturbance to potentially hibernating amphibians and reptiles.

Badgers

[32] https://cdn.bats.org.uk/uploads/pdf/Resources/Encouraging-Bats.pdf?v=1646658894

6.2.5 If sett entrances are found at any time during site clearance works, an ecologist must be consulted on the way forward, which is dependent upon the location of the sett and extent of potential disturbance. If setts are discovered within 30 m of any works, a licence from Natural Resources Wales (NRW) may be required.

6.2.6 Access for badgers around the site must be maintained.

6.2.7 If any trenches/excavations are dug, then these must be either covered over each night or installed with an egress so that badgers (or other mammals) do not become trapped.

6.2.8 No works should be carried out between the hours of dusk and dawn.

Bats

6.2.9 New trees and shrubs will be planted, consisting of native species, to improve foraging opportunities for bats. Additionally, the landscaped areas within the site should be managed to maximise the abundance of invertebrates. Habitat connectivity would be retained, in particular the hedgerows as the majority of the hedgerows are being retained. The current design proposals retain all mature trees, however, if there is the requirement to remove trees, then these would need to be assessed and, if required, surveyed for bats prior to their removal.

6.2.10 It is advised that where lighting is required, the amount of light should not exceed the minimum necessary and the spread of light should be no more than is necessary to serve the purpose.

6.2.11 Careful lighting design will need to limit the spread of light to critical areas for people so that the hedgerows are retained as 'dark' corridors.

6.2.12 Further information is provided within the separate bat survey report.

6.2.13 Integrated bat boxes/bricks on new buildings are shown on the landscape plans provided in **Appendix J** and wood concrete bat boxes on the retained mature trees around the site. Example bat boxes are provided in **Appendix** K and the bat survey report**.**

Birds

6.2.14 Existing nesting sites would be retained by preserving mature trees, hedgerows, and other features that provide nesting habitat.

6.2.15 Removal of vegetation which could support nesting birds should be undertaken outside the bird breeding season (considered to be March - August inclusive but can be earlier or later in the season dependent upon local climatic conditions). It is advised that if works are programmed to start at a time which conflicts with this, then site clearance works

(i.e., the removal of the tall ruderal habitat, scrub, trees etc.) is scheduled ahead of the main site preparation and clearance works. If cut or flailed, any regrowth should be kept short to deter nesting birds. If this is not possible, a suitably experienced ecologist will need to conduct a nesting bird check immediately before vegetation removal. Any active nests should be left undisturbed with a suitable buffer (dependent upon species found) until the nest is no longer in use.

6.2.16 Grassland habitat to be lost would be mitigated by planting native trees, shrubs, and wildflowers that provide food and shelter for birds.

6.2.17 It is recommended that a variety of bird boxes be incorporated into proposals to offer additional nesting opportunities while the planting scheme matures examples are shown in **Appendix K**. The best position for bird boxes in a new housing development, is to aim for sheltered, north or east-facing locations, at least 2 meters off the ground, and away from direct sunlight and prevailing winds, ensuring easy access for maintenance.

Hedgehogs

6.2.18 The development will preserve existing natural habitat, including the hedgerows and trees which bound the site.

6.2.19 Implement measures to prevent hedgehogs from being injured or killed during construction, such as:

- Checking areas for hedgehogs before starting work.
- If any trenches/excavations are dug, then these must be either covered over each night or installed with an egress as described above.
- Storing materials carefully to prevent hedgehogs from becoming trapped.

6.2.20 Any hedgehogs encountered during site clearance and preparation activities must be safely moved to a suitable location outside the construction area.

6.2.21 All fencing within the development requires provisions for hedgehog passage, such as hedgehog holes or appropriately sized gaps underneath. Gaps (known as "hedgehog highways") should be incorporated into fencing. These gaps should be approximately 13cm x 13cm[33] and located at ground level to allow hedgehogs to pass through. It is recommended that these gaps are included in all new fencing within the development to maintain connectivity and allow hedgehogs to roam freely **Appendix J** shows the location of the hedgehog highways on a plan of the site.

[33] https://www.hedgehogstreet.org/wp-content/uploads/2023/10/PTES-BHPS-Developers-leaflet-Sept-23.pdf

Invertebrates

6.2.22 The development preserves existing natural habitat, including hedgerows and trees.

6.2.23 Measures to include resources for invertebrates within the development designs include the inclusion of water features, retention of areas of grassland with a longer sward, in particular around the SUDS proposals and adjacent to hedgerows, the incorporation of features for invertebrates, for example bee brick within stone or retaining walls, preferable south facing ones.

6.2.24 The inclusion of bee bricks in new housing developments offers a simple yet effective strategy to support solitary bee populations, which are vital pollinators facing decline due to habitat loss. By providing dedicated nesting spaces within the built environment, bee bricks can enhance local biodiversity and contribute to the ecological value of the development. For optimal use, bee bricks should be integrated into south-facing walls to maximise sun exposure, ideally at least one meter above ground level to reduce dampness and predation.

6.2.25 Minimise artificial lighting by use directional lighting to reduce light pollution, which can disorient nocturnal invertebrates.

7 Conclusion

7.1 Summary

7.1.1 This report presents the findings of the Extended Phase 1 habitat survey and provides an assessment of the potential effects on ecological features which may result from the proposed development works.

7.1.2 No designated sites will be affected directly by the proposed development.

7.1.3 The site was assessed using an Extended Phase 1 survey methodology, with a specific focus on its potential use by any protected or/and notable species. Furthermore, targeted survey work was conducted for reptiles.

7.1.4 The site offers suitable habitat for, and has the potential to support, a range of protected and notable species, including badgers, bats, nesting birds, and reptiles. While no bat roosts were identified and reptile presence was not confirmed during the present/absence surveys, the potential for these species remains. Detailed recommendations for mitigation and enhancement measures, addressing the potential presence of these species and ensuring compliance with relevant legislation, are provided in Sections 5 and 6.

7.1.5 The development is designed to minimise any negative impacts on existing biodiversity. However, a range of enhancement measures have been identified that will not only offset any potential losses but also create a positive outcome for local wildlife. These measures, outlined in previous sections, will contribute to a net increase in biodiversity value.

7.1.6 To align with Planning Policy Wales 12 and maximise biodiversity opportunities, several ecological enhancements are recommended for integration into the development proposals. These enhancements will focus on creating and managing diverse habitats, specifically:

- Native Species Landscape Planting: A comprehensive planting scheme using native tree, shrub, and herbaceous species indigenous to the local area will be implemented. This will provide foraging resources and shelter for a variety of wildlife, including pollinators, birds, and mammals. The plant selection will be tailored to the specific soil and environmental conditions of the site, ensuring long-term sustainability and ecological functionality. This will also create more natural looking areas and better connect existing habitats.

- Integrated Bat Bricks and Bird Boxes: The incorporation of bat bricks and bird boxes into the building structures will provide essential roosting and nesting sites. These features will be strategically placed to maximise their effectiveness, considering factors such as aspect, height, and proximity to foraging areas. This provides a direct method to increase the biodiversity of the site and also increase the ecological value of the building structures themselves.

7.1.7 The findings and recommendations presented in this report are valid for 18 months from the date of the report. If site works have not commenced by this date, a comprehensive review of this ecological assessment will be required to ensure its continued relevance and accuracy, potentially necessitating updates to reflect any changes in site conditions or relevant legislation.

8 REFERENCE

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APPENDIX A: SITE LOCATION

N

50 0 50 100 m

A4086 Llanberis Road

Veteran oak tree protected by a Tree Preservation Order.

Cibyn Industrial Estate

Cleient / Client:

Adra

Enw project / Project name:

Tyddyn Fletcher, Ffordd Llanberis, Caernarfon

Teitl lluniad / Drawing title:

Site Location

Eglurhad / Key:

Redline Boundary

Insert map: 1:2000000 @ A3

Graddfa / Scale (A3):	Dyddiad / Date:	Darlunwyd gan: Drawn by:	KM
1:2000 @ A3	Apr/2025	Gwirwyd gan: Checked by:	DH
Rhif lluniad / Drawing number: 3299-RML-PEA-DR-01		Cywiriad: Revision:	01

Darparwyd gan / Prepared by:

RML
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e-bost/e-mail: rml@rmlconsult.com, Gwefan/Website: www.rmlconsult.com

APPENDIX B: PROPOSED PLANS

MATURE OAK TREE TO BE RETAINED

POSITION OF OVERHEAD CABLES

FARM GATE FOR ACCESS TO ADJACENT LAND

OVERHEAD CABLES DIVERTED UNDERGROUND

EXISTING POSITION OF OVERHEAD CABLES

SUBSTATION

WILDLIFE CORRIDOR

CAERNARFON PENTECOSTAL CHURCH

LLANBERIS ROAD

AMENITY SPACE 635m²

AREA SET ASIDE FOR EQUIPPED PLAY SPACE 234m²

DETENTION BASIN

3500

3m ACTIVE TRAVEL PATH

PLANTING STRIP

AMENITY SPACE 210m²

Bungalow

AMENITY SPACE 1526m²

LINE OF WATERMAIN

INDICATIVE VISIBILITY SPLAY

NEW SITE ENTRANCE

4500

2000

5500

3000

INDICATIVE VISIBILITY SPLAY

OPTIONAL BUS STOP

LINK

PROPOSED BIODIVERSITY MITIGATION

TO BUILDINGS. REFER TO TIRLUN BARR DRAWINGS

BAT BOXES

BIRD BOXES

0m 5m 10m 15m 20m 25m

VISUAL SCALE 1:250 @ A1

REV	DESCRIPTION	DATE	BY
M	TREES UPDATED & BIODIVERSITY MITIGATION ADDED TO MATCH LANDSCAPE PLAN	21/05/25	GT
L	EQUIPPED PLAY SPACE MOVED SOUTH EAST.	20/05/25	IO
K	MORE GREEN AREAS SHOWN & AMENITY SPACE FOR FLATS	30/04/25	GT
J	SECTIONS OF HIGHWAY SHOWN IN 'BROWN' COLOUR ADJUSTED TO LIGHT GREY INFRONT OF HOUSES	29/04/25	GT
H	FLATS 15-20 MOVED UP AND ONE 4P2B HOUSE MOVED DOWN, ADJACENT TO PLOT 26. PLAY AREA MOVED OUT OF THE WATER MAIN EASEMENT	28/04/25	GT
G	WATERMAIN POSITION ADJUSTED	24/04/25	IO
F	AMENDED TEXT ANNOTATION OF ADJACENT LAND	16/04/25	GT
E	FARM GATE ADDED FOR ACCESS TO PHASE 2 LAND WITH STOCK PROOF FENCE EITHER SIDE OF GATE AND ALONG MAIN ROAD. 2.1M FENCE ADDED TO BOUNDARY WITH CIBYN INDUSTRIAL ESTATE.	16/04/25	GT
D	BINS & SHEDS ADDED, 1.2m LANDING DEPTH TO FRONT DOORS	11/04/25	GT
C	PLOT 12 & 13 SWITCHED, SUBSTATION PUSHED BACK, RAIN GARDEN REMOVED ADJACENT PLOT 8	27/03/25	GT
B	AMENDMENTS TO SITE LAYOUT FOLLOWING ADRA'S PREFERRED HOUSING MIX	03/03/25	GT
A	FOR WELSH GOVERNMENT SUBMISSION	09/12/24	GT

PROJECT

LLANBERIS ROAD, CAERNARFON for ADRA

DRAWING TITLE

PROPOSED SITE LAYOUT

SCALE	DATE	DRAWN	CHECKED
As indicated @A1	17/10/24	GT	SV

DRAWING STATUS: PLANNING

JOB No	DRAWING No	REVISION
C1139	015	M

AINSLEY GOMMON ARCHITECTS

THE OLD POLICE STATION, 15 GLYNNE WAY, HAWARDEN, CH5 3NS
Tel: 01244 537 100 | wales@agarchitects.co.uk | www.agarchitects.co.uk

Ainsley Gommon Architects Ltd. Registered in England & Wales No.4187948
Registered Office: 1 Price Street, Hamilton Square, Birkenhead CH41 6JN

PRINTED: 21/05/2025 16:41:07

A1

APPENDIX C: REVEVANT PROTECTED SPECIES LEGISLATION

The following has been produced as a guide, to outline possible offences that could occur during the scheme. For a definitive list of all species of flora and fauna, and a full interpretation you should refer to relevant Acts listed below.

Conservation of Habitats and Species Regulations 2017 (as amended)

Schedule 2 applies to all European Protected Species (EPS) which includes all bat species, otters, great crested newts, dormice, otters, sand lizards, smooth snake and natterjack toad amongst others. The protection afforded is overlapping but separate from the Wildlife and Countryside Act 1981 (as amended).

It is an offence:

- to deliberately capture, injure or kill
- to deliberately disturb
- to damage or destroy a breeding site or resting place of an EPS; this applies whether species are present or not.

The Wildlife and Countryside Act 1981 (as amended)

Applies to all wild birds where it is an offence:

- to kill, injure or take any wild bird (subject to certain exceptions)
- to take, damage or destroy a nest whilst it is in use or being built
- to take or destroy the egg of any wild bird

Schedule 1

It is also an offence to disturb any wild bird listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)

- while it is nest building
- at a nest containing eggs or young
- disturbs the dependant young of any such bird.

Schedule 5

For animals fully protected under Schedule 5 which includes all bats, great crested newts, otters, water voles, sand lizards, smooth snake and natterjack toad, it is an offence:

- to intentionally kill or injure or take
- to intentionally damage or destroy or obstruct access to any structure or place which a species uses for shelter or protection, at any time even if the animal is not there
- to intentionally disturb whilst it is occupying a place which it uses for shelter or protection
- to obstruct access to any structure or place which an animal uses for shelter or protection

Adder, grass snake, common lizard and slow worm are only protected from being killed or injured and the white- clawed crayfish is only protected from being taken.

Schedule 9

Invasive non-native species are listed under Schedule 9. It is an offence:

- to plant or otherwise cause to grow in the wild any species listed on Schedule 9.

In addition, The Invasive Alien Species (Enforcement & Permitting Order took effect on the 1st December 2019. It introduces enforcement provisions, offences and penalties needed to comply with the requirements of EU Regulation (1143/2014) on the prevention and management of the introduction and spread of invasive alien species. The provisions apply to 66 species known as 'species of Union concern'. Under the Order, NRW and the police may impose criminal sanctions in Wales relating to an offence under the Order. As the regulator, NRW may also impose civil sanctions.

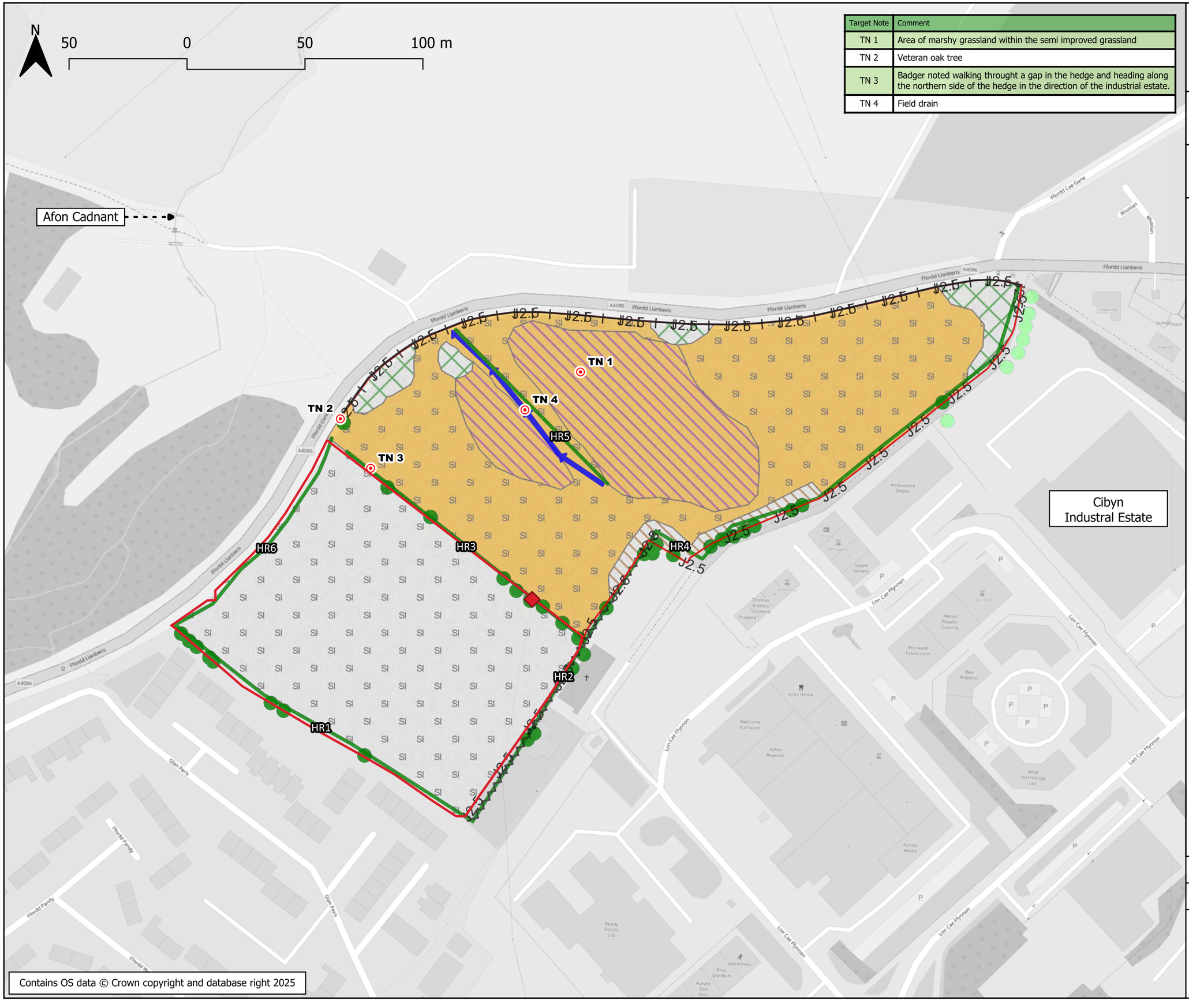
Licences may be issued under the Order allowing activities which are prohibited under the EU Regulation to be carried out. These activities can only be carried out in compliance with the conditions of a licence. Natural Resources Wales are the licensing body in Wales.

APPENDIX D: COFNOD DATA – Provided in a separate document

1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ
email: rml@rmlconsult.com web: www.rmlconsult.com
Tel: +44(0)1824 704366
Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313

APPENDIX E: PHASE 1 PLAN + TARGET NOTES

Target Note	Comment
TN 1	Area of marshy grassland within the semi improved grassland
TN 2	Veteran oak tree
TN 3	Badger noted walking throught a gap in the hedge and heading along the northern side of the hedge in the direction of the industrial estate.
TN 4	Field drain



Cleient / Client:

Adra

Enw project / Project name:

Tyddyn Fletcher, Ffordd Llanberis, Caernarfon

Teitl lluniad / Drawing title:

Phase 1 Plan

Eglurhad / Key:

- Redline Boundary
- A2.1 - Scrub - dense/continuous
- B2.2 - Neutral grassland - semi-improved
- B5 - Marsh/marshy grassland
- B6 - Poor semi-improved grassland
- C3.1 - Other tall herb and fern - ruderal
- G2 - Running water
- J2.1.1 - Intact hedge: native species-rich
- J2.1.2 - Intact hedge: species-poor
- J2.4 - Fence
- ~~J2.5~~ J2.5 - Wall
- Parkland, scattered trees, broad-leaved
- Parkland, scattered trees, coniferous
- Target Note
- Camera Trap Location

Graddfa / Scale (A3): 1:1500@ A3	Dyddiad / Date: Apr 2025	Darlunwyd gan: Drawn by: KM
		Gwirwyd gan: Checked by: DH
Rhif lluniad / Drawing number: 3299-RML-DR-RT-03		Cyfrif: Revision: 01

Darparwyd gan / Prepared by:

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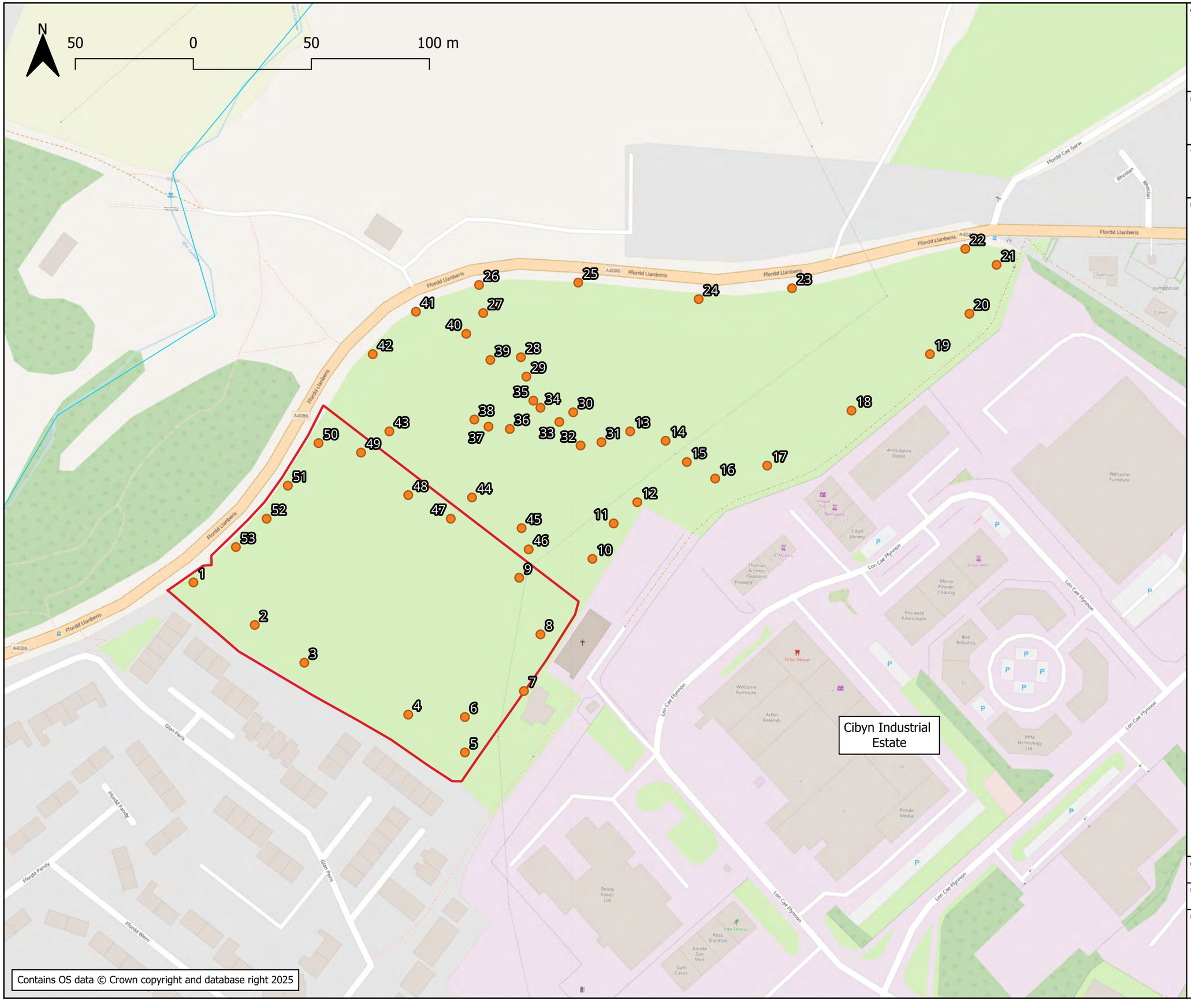
e-bost/e-mail: rml@rmlconsult.com, Gwefan/Website: www.rmlconsult.com

APPENDIX F: REPTILE REFUGIA LOCATION



Cleient / Client:

Adra

Enw project / Project name:

Tyddyn Fletcher, Ffordd Llanberis, Caernarfon

Teitl lluniad / Drawing title:

Location of the Reptile Refugia

Eglurhad / Key:

- Redline Boundary
- Reptile Rufgia Location
- Afon Cadnant

Graddfa / Scale (A3): 1:1500 @ A3	Dyddiad / Date: Apr/2025	Darlunwyd gan: Drawn by: KM
		Gwirwyd gan: Checked by: DH
Rhif lluniad / Drawing number: 3299-RML-PEA-DR-04		Cywiriad: Revision: 01

Darparwyd gan / Prepared by:

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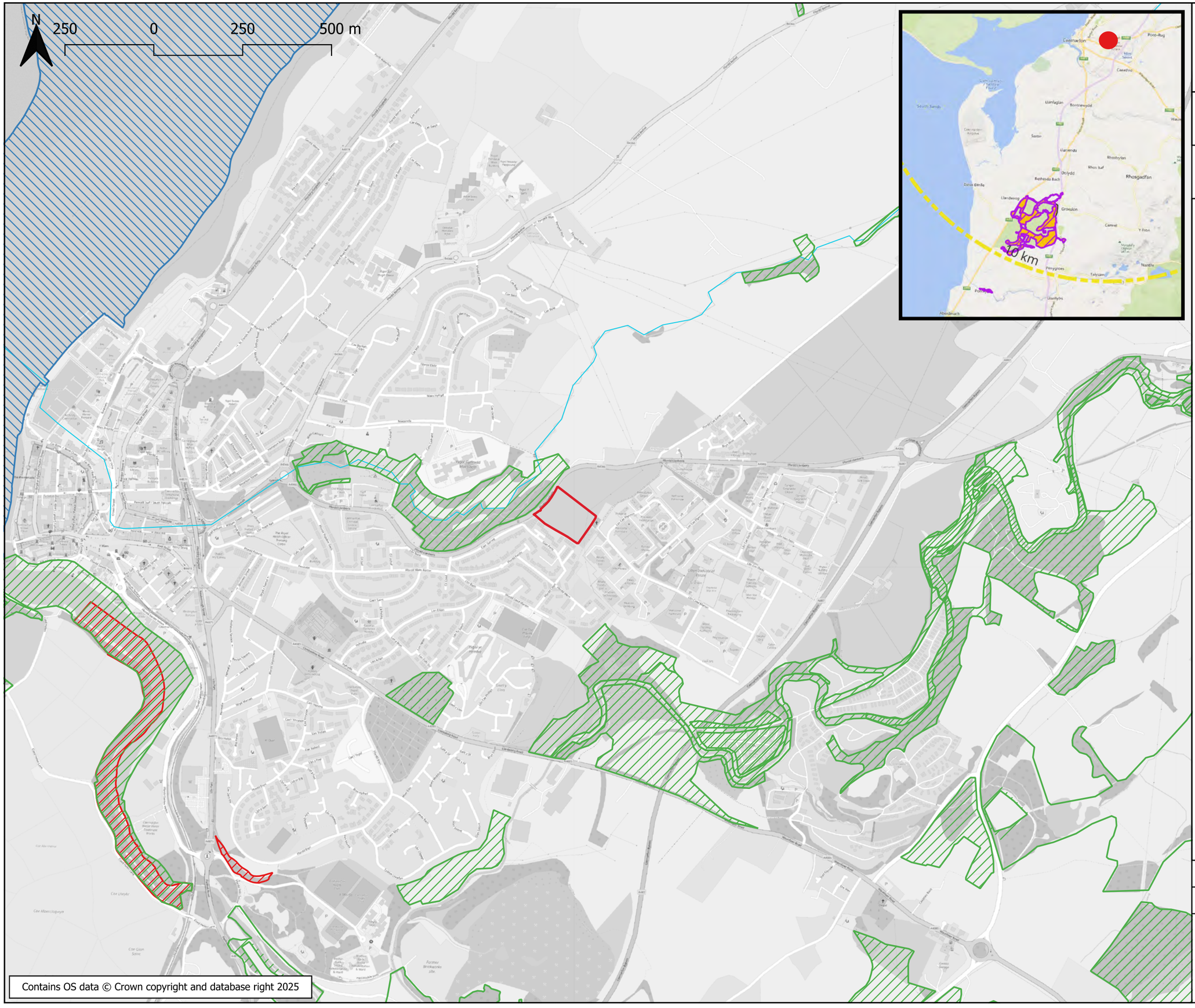
e-bost/e-mail: rml@rmlconsult.com, Gwefan/Website: www.rmlconsult.com

APPENDIX G: LOCATION OF DESIGNATED AND NON DESIGNATED SITES



Contains OS data © Crown copyright and database right 2025

Cleient / Client:

Adra

Enw project / Project name:

Tyddyn Fletcher, Ffordd Llanberis, Caernarfon

Teitl lluniad / Drawing title:

Designated and Non Designated Sites

Eglurhad / Key:

- Site Location
- Redline Boundary
- Special Area of Conservation SAC
- Special Area of Conservation for Bats
- Site of Special Scientific Interest SSSI
- Site of Special Scientific Interest SSSI for Bats
- Wildlife Sites
- Afon Cadnant
- 10km Search Area for Sites Designated for Bats

Data sourced from Cofnod

Insert map: 1:150000@A3

Graddfa / Scale (A3):	Dyddiad / Date:	Darlunwyd gan: Drawn by:	KM
1:10000@ A3	Apr 2025	Gwirwyd gan: Checked by:	DH
Rhif lluniad / Drawing number: 3299-RML-PEA-05		Cywiriad: Revision:	01

Darparwyd gan / Prepared by:

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APPENDIX H: SPECIES LIST + ABUNDANCE

Table 9 Shows the species and abundance of the field within the redline boundary of the proposals

Common Name	Latin name	DAFOR score
Creeping thistle	*Cirsium arvense*	A
Dock	*Rumex sp(p)*	A
Meadow buttercup	*Ranunculus acris*	F
Rush	*Juncus sp*	F
Yorkshire fog	*Holcus lanatus*	D
Cock's foot	*Dactylis glomerata*	O
Meadow foxtail	*Alopecurus pratensis*	F
Nettle	*Urtica dioica*	O
Dandelion	*Taraxacum sp(p)*	R

Table 10 Shows the species and abundance of the field to the north of the redline boundary of the proposals

Common Name	Latin name	DAFOR score
Meadow buttercup	Ranunculus acris	F
Creeping thistle	*Cirsium arvense*	A
Nettle	Urtica dioica	O
Dock	*Rumex sp(p)*	O
Yorkshire fog	*Holcus lanatus*	O
Cock's foot	*Dactylis glomerata*	F
Ribwort plantain	Plantago lanceolata	R
Rush	Juncus sp	O
Red campion	*Silene dioica*	F
Yarrow	*Achillea millefolium*	F

Table 11 Shows the species and abundance of the marshy grassland within the field to the north of the redline boundary of the proposals

Common Name	Latin name	DAFOR score
Rush	*Juncus sp*	D
Meadow buttercup	*Ranunculus acris*	F
Dock	*Rumex sp(p)*	O
Ribwort plantain	*Plantago lanceolata*	O
Cinquefoil	*Potentilla x tonguei*	R
Dandelion	*Taraxacum sp(p)*	R
Marsh thistle	*Cirsium palustre*	O
Cuckoo flower	*Cardamine pratensis*	O
Mouse ear chickweed	*Cerastium vulgatum*	F
Sorrel	*Rumex acetosa*	R
Soft rush	*Juncus effusus*	F

Table 12 Shows the species and abundance of the wall

Common Name	Latin name	DAFOR score
Navel wort	Umbilicus rupestris	R
Lichen sp		O
Hawk bit	*Leontodon sp*	R
Ribwort plantain	Plantago lanceolata	O

Table 13 Shows the species and abundance of Hedgerow 1 (HR1)

Common Name	Latin Name	DAFOR Score
Black thorn	*Prunus spinosa*	D
Hawthorn	*Crataegus sp*	A
Oak, pedunculate	*Quercus robur*	R
Dog rose	*Rosa canina*	F

Table 14 Shows the species and abundance of Hedgerow 2 (HR2)

Common Name	Latin Name	DAFOR Score
Ash	*Fraxinus excelsior*	O
Black thorn	*Prunus spinosa*	D
Hawthorn	*Crataegus sp*	O
Hazel	*Corylus avellana*	R
Holly	*Ilex aquifolium*	R
Dog rose	*Rosa canina*	F

Goat willow	*Salix caprea*	R

Table 15 Shows the species and abundance of Hedgerow 3 (HR3)

Common Name	Latin Name	DAFOR Score
Hawthorn	*Crataegus sp*	A
Holly	*Ilex aquifolium*	R
Dog rose	*Rosa canina*	O
Oak, pedunculate	*Quercus robur*	O

Table 16 Shows the species and abundance of Hedgerow 4 (HR4)

Common Name	Latin Name	DAFOR Score
Black thorn	*Prunus spinosa*	O
Hawthorn	*Crataegus sp*	A
Dog rose	*Rosa canina*	R
Oak, pedunculate	*Quercus robur*	O

Table 17 Shows the species and abundance of Hedgerow 5 (HR5)

Common Name	Latin Name	DAFOR Score
Black thorn	*Prunus spinosa*	A
Buckthorn	*Rhamnus cathartica*	R
Hawthorn	*Crataegus sp*	F
Hazel	*Corylus avellana*	R
Oak, pedunculate	*Quercus robur*	R
Goat willow	*Salix caprea*	R

Table 18 Shows the species and abundance of Hedgerow 6 (HR6)

Common Name	Latin Name	DAFOR Score
Sycamore	*Acer pseudoplatanus*	R
Black thorn	*Prunus spinosa*	D
Hawthorn	*Crataegus sp*	D
Hazel	*Corylus avellana*	A
Holly	*Ilex aquifolium*	O
Oak, pedunculate	*Quercus robur*	R
Goat willow	*Salix caprea*	R

APPENDIX I: PHOTOGRAPH REFEERENCE

Photo Ref	Feature/Description	Image
Photograph 1	View of the field, grazed by cattle, looking southwest	
Photograph 2	View of the field, grazed by cattle looking north.	
Photograph 3	Semi-improved grassland north of the redline boundary.	

Photo Ref	Feature/Description	Image
Photograph 4	Area of marshy grassland north of the redline boundary.	
Photograph 5	Poor semi-improved grassland which makes up most of the habitat within the field to the north of the redline boundary.	
Photograph 6	Stone wall within HR4	

Photo Ref	Feature/Description	Image
Photograph 7	Mature oak tree with a Tree Preservation Order (TPO).	
Photograph 8	Mature oak tree roughly halfway along a hedgerow HR3.	
Photograph 9	HR1	

Photo Ref	Feature/Description	Image
Photograph 10	HR2	
Photograph 11	HR3	
Photograph 12	HR4	

Photo Ref	Feature/Description	Image
Photograph 13	HR5 with ditch	
Photograph 14	HR6	

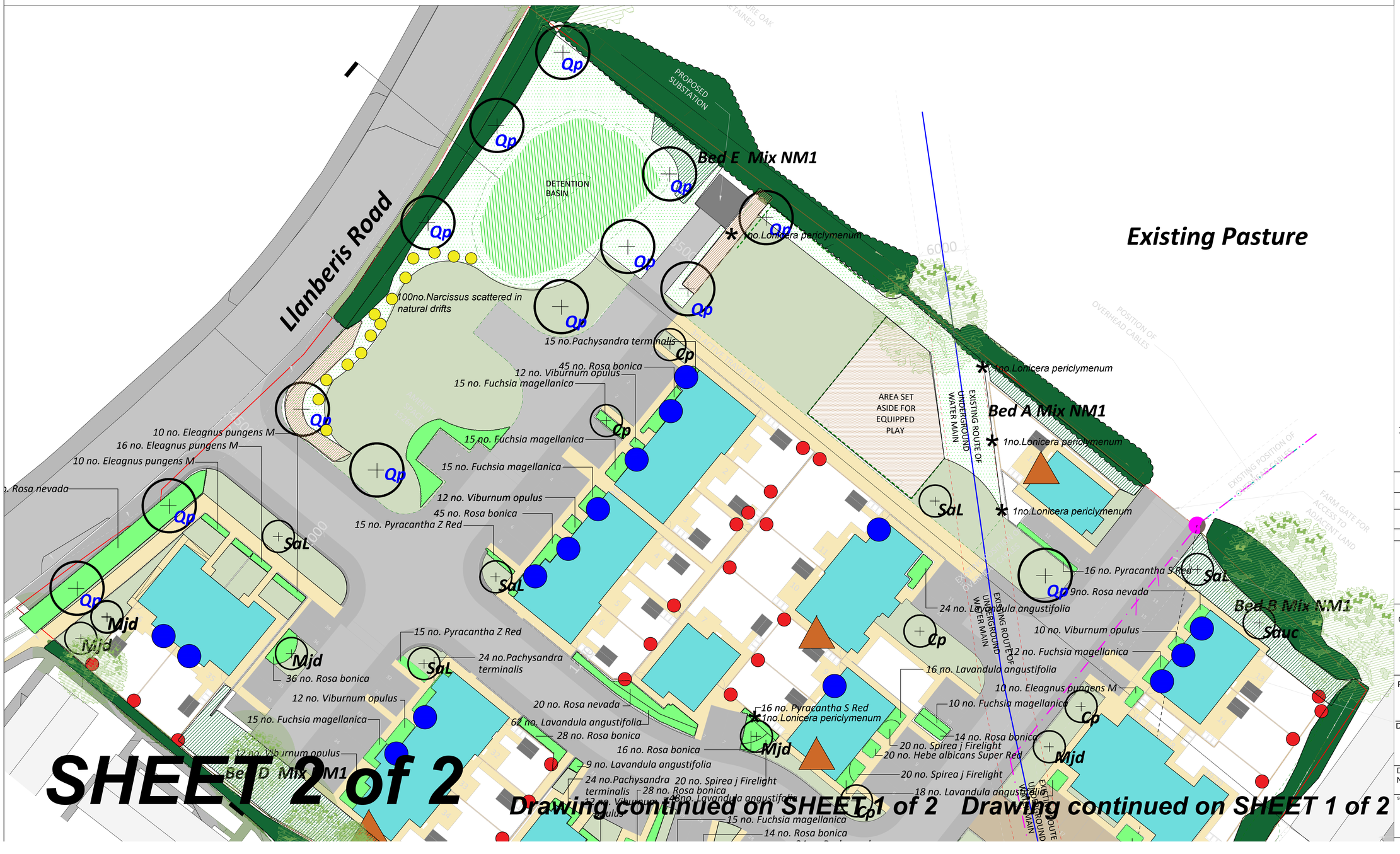
APPENDIX J: LANDSCAPE MASTERPLAN

Abbr	Shrubs and Groundcover	Height	Pot Size	Form	Notes	no/m²
	Species selected for Amenity, seasonal interest and Pollinator benefit with certain plants taken from RHS recommended List and for additional Shoulder Month nectar benefits where suitable.					
Epm	Eleagnus pungens Maculata	450-600mm	5ltr	ctr	Min. 5 breaks in lower third	3
Fcm	Fuchsia magellanica	450-600mm	3ltr	ctr	Min. 3 breaks in lower third	3 or 2.5/lin metre
Lav	Lavandula angustifolia Hidcote	450-600mm	3ltr	Ctr	Min. 3 breaks in lower third	6
Hct	Hebe albicans Super Red	450 - 600mm	2ltr	ctr	Min 3 breaks in lower third	4
Psr	Pyracantha Saphyr Red	600-900mm	5Ltr	ctr	Min 3 breaks in lower third	2 per l in m
Rb	Rosa bonica	450-600mm	2Ltr	ctr/br	Min 3 breaks in lower third	4
Rmg	Rosa nevada	450-600mm	2Ltr	ctr/br	Min 3 breaks in lower third	4
Pt	Pachysandra terminalis	300-450mm	1Ltr	ctr	Min 3 breaks in lower third	6
Voc	Viburnum opulus Compactum	450-600mm	2Ltr	Ctr	Min 3 breaks in lower third	4
Sjf	Spirea japonica Firelight	450-600mm	2ltr	ctr	Min 3 breaks in lower third	3
Shrubs to be planted into prepared ground (Including 100mm well incoporated peat free Compost, slow release fertliser and Micchorizzal additives at manufacturers recommended rates, and be evenly spaced within extents indicated. All Ornamental planting areas to receive min 50mm coarse Grade Bark Mulch immediately after planting.						

Climbers					
Species	Size	Spec	Form	Spacing	Notes
Lonicera periclymenum	450-600mm	2Ltr	ctr	As indicated on drawing	Min 4 breaks, cane to remain until established
Planted into prepared pit 300 x 300 x 300mm with added Peat free rooting medium, slow release fertiliser and michorrhizal additive at manufacturers recommended rates.					

Species	Size	Notes	
Narcissus pseudonarcissus	14/16cm	In natural drifts	As indicated

Rain Garden Planting		Planted in single species block as directed on site evenly spaced throughout area into prepared rain garden medium.				BED
Code	Species	Size	Spec	Form	Notes	no/m²
Ah	Aster herveyi	300-450mm	P9/1Ltr	Ctr		8
Am	Alchemilla mollis	300-450mm	P9/1Ltr	Ctr		6
Cg	Campanula glomerata	300-450mm	P9/1Ltr	Ctr		8
Gr	Geranium Rozanne 'Gerwat'	300-450mm	P9/1Ltr	Ctr		8
Gjb	Geranium Jacksons Blue	300-450mm	P9/1Ltr	Ctr		8
MS	Micanthus sinensis Silbespinne	450-600mm	2Ltr	Ctr		3
Vm	Vinca minor	300-450mm	P9/1Ltr	Ctr	Cut back to 300mm before planting	6
Vor	Viburnum opulus Compactum	450-600mm	2Ltr	Ctr		5



SHEET 2 of 2

Drawing continued on SHEET 1 of 2 Drawing continued on SHEET 1 of 2

Key

- Proposed dwellings - refer to Architects drawings for details
- Proposed parking and access roads - refer to Architects drawings for details
- Existing retained trees - refer to Arboricultural reporting for details
- Existing mixed Native hedgerows (retained)

Proposed Planting

- Qp — Proposed Specimen Native Field tree (species as indicated within schedules)
- Sa — Proposed Specimen Native street tree (species as indicated within schedules)
- Proposed Amenity/Pollinator Low shrubs and groundcover (refer to schedule for species)
- RG1 — Proposed Raingarden (species as indicated)
- SaL — Short mown Amenity grass seeded areas Mix 1 (species as indicated)
- Species Rich long sward seeded areas Mix 2 (species as indicated)
- Species Rich long sward seeded areas Mix 3 (wetland species as indicated)
- Proposed Native tree and Shrub Mix planting (species as indicated)
- * Specimen Shrub/Climber (species as indicated)
- Proposed Native Hedge Planting (species as indicated)

Proposed Biodiversity Mitigation

- Proposed Bat Box
- Proposed Bird Box
- Proposed Hedgehog House
- Proposed Hedgehog Hole (Highway route)

NOTES:

1. Proposals based upon layout provided within Ainsley Gommon Architects Proposed Site Plan Site Analysis and FFL Drawing Ref: C1106 016 Rev L dated 20.05.25
2. Drawing issued for Planning purposes only - not for tendering.
3. Ecological Arboricultural and Drainage reporting provided separately.
4. All fencing to have compliant Hedgehog Holes and signage as indicated - Bat Bird and Hedgehog House types as detailed by RML
5. Plant schedules indicated on Sheets 1 and 2.
6. For Hard Landscape proposals refer to Architects Proposals
7. This drawing remains © copyright of Tirlunbarr Associates.

0m 4m 8m 12m 16m 20m

Scale 1:250 @ A1

v2	PW	JB	JB	21/05/25
v1	PW	JB	JB	15/05/25
Issue	Drawn	Checked	Approved	Date

Tirlun Barr
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Tel Office :01492 650333
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Client: Adra

Project Title: Land at Tyddyn Fletcher, Caernarfon

Drawing Title: **Soft Landscape and Ecological Mitigation Proposals**

Drawing Number: 10/025/PP/01.02

Size	Scale	Issue
A1	1:250	v2

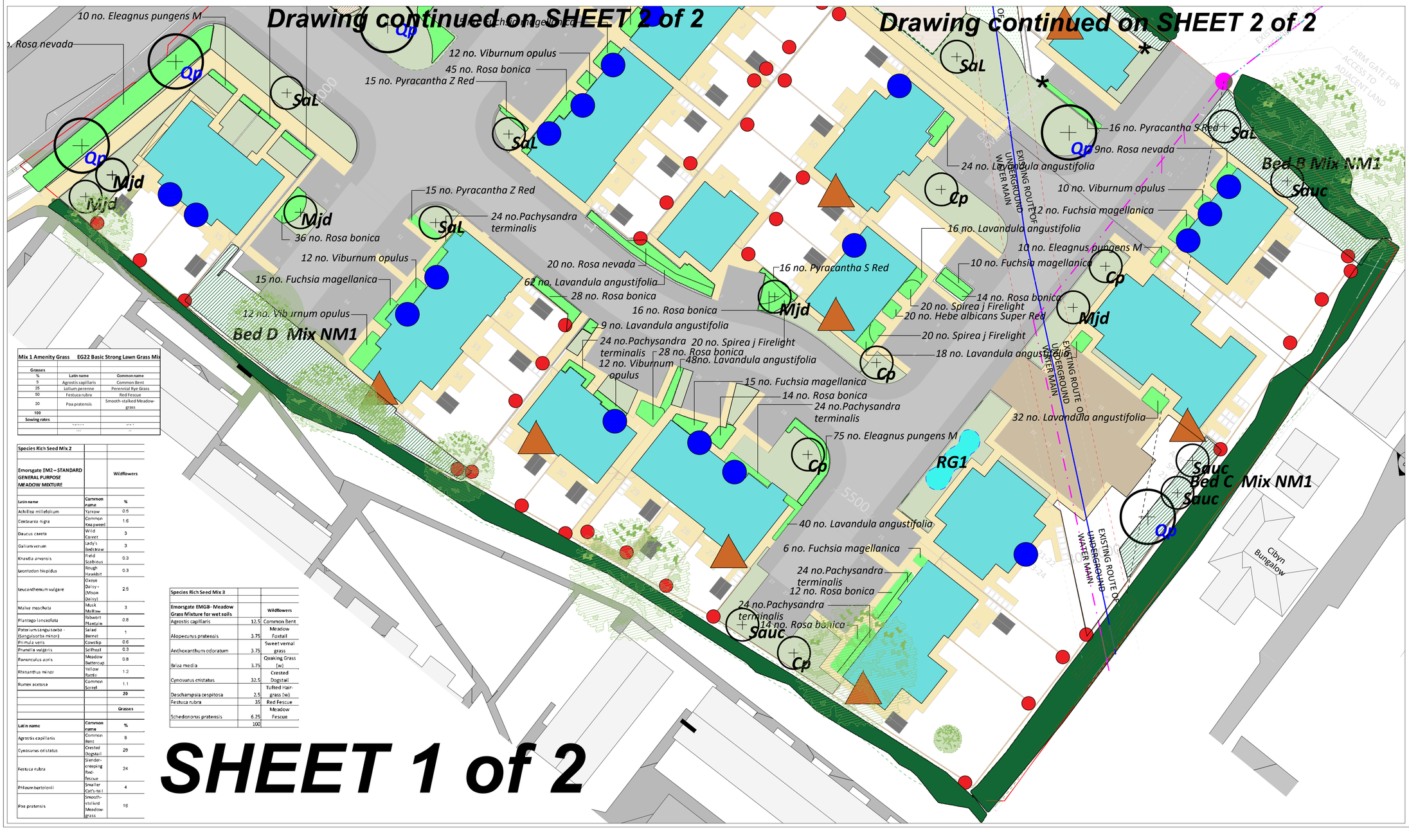
Specimen EHS Native trees						
Abbr.	**Species**	**Size**	**Pot Size**	**Form**	**Spacing**	**Notes**
Qp	Quercus petraea	14-16cm	min 75Ltr	Ctr/rb/Airpot	As shown	U/g Guying or triple staked with tie and spacer
	Planted into prepared pits min 900x900x900cm with added peat free rooting medium, slow release fertilser and michorrhizal additive at manufacturers recommended rates. Fitted with tree guard immediately after planting.Where planted in grass/wildflower areas - 1m diameter circle to be kept weed free and mulched with min 50mm coarse grade bark mulch.					

Specimen Street /Garden trees						
Code	**Species**	**Height**	**Pot Size**	**Form**	**Spacing**	**Notes**
Cp	Crataegus prunifolia	10-12cm	min 75Ltr	Ctr/rb	n/a	Staked with tie and spacer
Mjd	Malus John Downie	8-10cm	min 75Ltr	Ctr/rb	n/a	Staked with tie and spacer
Sar	Sorbus aria Lutchescens	12-14cm	min 75Ltr	Ctr/rb	n/a	Staked with tie and spacer
Sauc	Sorbus aucuparia Streetwise	12-14cm	min 75Ltr	Ctr/rb	n/a	Staked with tie and spacer
	Planted into prepared pits min 600x600x900cm with added peat free rooting medium, slow release fertilser and michorrhizal additive at manufacturers recommended rates. Tree guards to be fitted immediately after planting Staked					

Native Hedge INFILL planting - Mix NHM2	Height	Form	Size	%mix	Spacing	Notes
Species						
Crataegus mongyna	450-600mm	Br	2+0	20	3/lin m	Min 3 breaks
Prunus spinosa	300-450mm	Ctr	2ltr min	70	3/lin m	Min 3 breaks
Sambucus nigra	450-600mm	Br	2+0	10	3/lin m	Min 3 breaks
Planting to be used as infill to gap up the existing hedges where required at a spacing of min 300mm apart grouping of 7 plants of the same species either notch planted or planted into prepared Pits (300x300x300mm backfilled wd with topsoil, Michorrhizal granular additive and 100mm organic matter + Slow release fertiliser at manufacturers recommended rate). Where used as infil planting to gap up hedge plant in double or single staggered row as existing root matrix allows. All planting to be fitted with tree shelters to be removed once established and protected from stock grazing where appropriate.						

Native Hedge planting - Mix NHM1	Height	Form	Size	%mix	Spacing	Notes
Species						
Corylus avellana	450-600mm	Br	2+0	5	3/lin m	Min 3 breaks
Crataegus mongyna	450-600mm	Br	2+0	15	3/lin m	Min 3 breaks
Prunus spinosa	300-450mm	Ctr	2ltr min	70	3/lin m	Min 3 breaks
Rosa canina	450-600mm	Br	2+0	10	3/lin m	Min 3 breaks
Planting to be at 450m centres in a double staggered rows 300mm apart max . grouping of 7 plants of the same species. Trench to be 300x300x300mm backfilled with topsoil, Michorrhizal granular additive and 100mm organic matter + Slow release fertiliser at manufacturers recommended rate. Where used as infil planting to gap up hedge plant in double or single staggered row as existing root matrix allows. All planting to be fitted with tree shelters to be removed once established and protected from stock grazing where appropriate.						

Native tree and shrub planting - Native Mix NM2	Height	Form	Size	%mix	Spacing	Notes
Species						
Corylus avellana	450-600mm	Br	2+0	60	1/m²	Min 3 breaks
Crataegus mongyna	450-600mm	Br	2+0	20	1/m²	Min 3 breaks
Prunus spinosa	300-450mm	Ctr	2ltr min	5	1/m²	Min 3 breaks
Rosa canina	450-600mm	Br	2+0	5	1/m²	Min 3 breaks
Sorbus aucuparia	450-600mm	Br	2+0	10	1/m²	Min 3 breaks
Planting to be at 1m centres in staggered rows max . grouping of 7 plants of the same species. Pits to be 300x300x300mm backfilled with topsoil and 100mm organic matter + Michorrhizal additive and Slow release fertiliser at manufacturers recommended rate. All Above planting to be fitted with tree shelters and protected from stock grazing where applicable.						

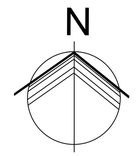


Mix 1 Amenity Grass EG22 Basic Strong Lawn Grass Mix		
Grasses		
%	**Latin name**	**Common name**
5	Agrostis capillaris	Common Bent
25	Lolium perenne	Perennial Rye Grass
50	Festuca rubra	Red Fescue
20	Poa pratensis	Smooth-stalked Meadow-grass
100		
Sowing rates		
	kg/ha	g/m²
	25	2.5

Species Rich Seed Mix 2		
Emorsgate EM2 – STANDARD GENERAL PURPOSE MEADOW MIXTURE		**Wildflowers**
Latin name	**Common name**	**%**
Achillea millefolium	Yarrow	0.5
Centaurea nigra	Common Knapweed	1.6
Daucus careta	Wild Carrot	3
Galium verum	Lady's Bedstraw	3
Knautia arvensis	Field Scabious	0.3
Leontodon hispidus	Rough Hawkbit	0.3
Leucanthemum vulgare	Oxeye Daisy - (Moon Daisy)	2.5
Malva moschata	Musk Mallow	3
Plantago lanceolata	Ribwort Plantain	0.8
Poterium sanguisorba - (Sanguisorba minor)	Salad Burnet	1
Primula veris	Cowslip	0.6
Prunella vulgaris	Selfheal	0.3
Ranunculus acris	Meadow Buttercup	0.8
Rhinanthus minor	Yellow Rattle	1.2
Rumex acetosa	Common Sorrel	1.1
		20
		Grasses
Latin name	**Common name**	**%**
Agrostis capillaris	Common Bent	9
Cynosurus cristatus	Crested Dogstail	20
Festuca rubra	Slender-creeping Red-fescue	24
Phleum bertolonii	Smaller Cat's-tail	4
Poa pratensis	Smooth-stalked Meadow-grass	18

Species Rich Seed Mix 3		
Emorsgate EMG8- Meadow Grass Mixture for wet soils		**Wildflowers**
Agrostis capillaris	12.5	Common Bent
Alopecurus pratensis	3.75	Meadow Foxtail
Anthoxanthum odoratum	3.75	Sweet vernal grass
Briza media	3.75	Quaking Grass (w)
Cynosurus cristatus	32.5	Crested Dogstail
Deschampsia cespitosa	2.5	Tufted Hair-grass (w)
Festuca rubra	35	Red Fescue
Schedonorus pratensis	6.25	Meadow Fescue
	100	

SHEET 1 of 2



Key

- Proposed dwellings - refer to Architects drawings for details
- Proposed parking and access roads - refer to Architects drawings for details
- Existing retained trees - refer to Arboricultural reporting for details
- Existing mixed Native hedgerows (retained)

Proposed Planting

- Qp — Proposed Specimen Native Field tree (species as indicated within schedules)
- Sa — Proposed Specimen Native street tree (species as indicated within schedules)
- Proposed Amenity/Pollinator Low shrubs and groundcover(refer to schedule for species)
- RG1 — Proposed Raingarden (species as indicated)
- Short mown Garden amenity grass
- seeded areas Mix 1 (species as indicated)
- Species Rich long sward seeded areas Mix 2 (species as indicated)
- Species Rich long sward seeded areas Mix 3 (wetland species as indicated)
- Proposed Native tree and Shrub Mix planting NH1 (species as indicated)
- * — Specimen Shrub/Climber (species as indicated)
- Proposed Native Hedge Planting (species as indicated)

Proposed Biodiversity Mitigation

- Proposed Bat Box
- Proposed Bird Box
- Proposed Hedgehog House
- Proposed Hedgehog Hole (Highway route)

NOTES:

1. Proposals based upon layout provided within Ainsley Gommon Architects Proposed Site Plan Site Analysis and FFL Drawing Ref: C1106 016 Rev L dated 20.05.25
2. Drawing issued for Planning purposes only - not for tendering.
3. Ecological Arboricultural and Drainage reporting provided separately.
4. All fencing to have compliant Hedgehog Holes and signage as indicated - Bat Bird and Hedgehog House types as detailed by RML
5. Plant schedules indicated on Sheets 1 and 2.
6. For Hard Landscape proposals refer to Architects Proposals
7. This drawing remains © copyright of Tirlunbarr Associates.

0m 4m 8m 12m 16m 20m

Scale 1:250 @ A1

v2	PW	JB	JB	21/05/25
v1	PW	JB	JB	15/05/25
Issue	Drawn	Checked	Approved	Date

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Client: Adra

Project Title: Land at Tyddyn Fletcher, Caernarfon

Drawing Title: **Soft Landscape and Ecological Mitigation Proposals**

Drawing Number: 10/025/PP/01.01

Size	Scale	Issue
A1	1:250	v2

APPENDIX K: MITIGATION AND ENHANCEMENT PLAN

Bat access slates Links to suppliers[34] and images	
Bat access slate https://beddoesproducts.com/products/bat-access-slate	
Bat access tile for slated & tiled pitched roofs https://www.justlead.co.uk/product/bat-access-tile-weathering/	
Bat Access Slate For Natural Spanish Slates 500mm x 250mm https://www.aboutroofing.com/bat-access-slate-natural-spanish-slate-500mm-x-250mm.html	
https://www.manthorpebp.co.uk/environmental/bat-ridge-roost/bat-ridge-roost-0	

[34] Other suppliers are available

Ibstock Enclosed Bat Box 'C' https://www.nhbs.com/4/practical-conservation-equipment?q=&hPP=60&idx=titles&p=0&fR%5Bhide%5D%5B0%5D=false&fR%5Bhide%5D%5B1%5D=false&fR%5Blive%5D%5B0%5D=true&fR%5Blive%5D%5B1%5D=true&fR%5Bshops.id%5D%5B0%5D=4&fR%5Bshops.id%5D%5B1%5D=4&fR%5Bsubsidiaries%5D%5B0%5D=1&hFR%5Bsubjects_equipment.lvl1%5D%5B0%5D=Bat%20Boxes%20%3E%20Integrated%20Bat%20Boxes&gad_source=1&gclid=Cj0KCQjw1Yy5BhD-ARIsAI0RbXbX4ycA1cB7y_1rzcgHSOGRZUQDPwKJFtDuzOskjO_l_HNyBlU1e10aAicWEALw_wcB&qtview=193867	
Externally mounted – trees	
2F Schwegler Bat Box (General Purpose) https://www.nhbs.com currently out of stock from this supplier - **usually dispatched between 1 – 2 weeks**	
Eco Kent Bat Box https://www.nhbs.com/ currently out of stock from this supplier - **Usually dispatched within 1-2 months**	
2FN Schwegler Bat Box https://www.nhbs.com//bat-boxes currently out of stock – **usually dispatched between 1 – 2 weeks**	

APPENDIX K: EXAMPLE BIRD BOXES

Bird Boxes Links to suppliers[35] and images	
Schwegler 1SP Sparrow Terrace Nest Box https://garden.jardinitis.com/schwegler-1sp-sparrow-terrace-nest-box	
Vivara Pro Woodstone Swift Nest Box Installed to the north west and/or north east elevations at least five metres above the ground, ensuring that there is unobstructed access for birds entering and leaving. https://www.swift-conservation.org/Nestboxes%26Attraction.htm https://www.nhbs.com	

[35] Other suppliers are available