



Galileo 03 Ltd.

Mynydd Ty-talwyn Energy Park - Environmental Statement Volume III

Appendix 10.4: Net Benefit for Biodiversity Report

Project Reference: 663870

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RSK

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1.0 INTRODUCTION

1.1 Purpose of this Report

- 1.1.1 This report presents the results of a Net Benefit for Biodiversity assessment of the Mynydd Ty-talwyn Energy Park (the 'Proposed Development'), located north of Bridgend, south Wales within the administrative boundaries of Bridgend County Borough Council (BCBC) and Neath Port Talbot Council (NPTC) (grid reference SS 86327 86041) (the 'Site'). The location of the Site is illustrated in **Figure 1**. This report also includes a Habitat Management Plan (HMP) in **Section 6**.
- 1.1.2 This report has been prepared by RSK Biocensus on behalf of Galileo 03 Ltd (part of Galileo Empower UK Ltd) (hereinafter referred to as 'Galileo' or the 'Applicant').
- 1.1.3 The aim of this Net Benefit for Biodiversity assessment is to determine the extent to which biodiversity would be affected by the Proposed Development and detail the proposed improvements in biodiversity post construction.
- 1.1.4 The pre-construction baseline biodiversity value was first measured using the findings of a suite of ecological surveys, including a Phase 1 Habitat Assessment survey, undertaken at the Site between 2021 and 2024.
- 1.1.5 The Proposed Development footprint was then used to determine habitat loss and the landscape design and ecological mitigation proposals were assessed to determine the targeted post-construction biodiversity value.

1.2 Legislation

- 1.2.1 In 2016, the Environment (Wales) Act (Welsh Government, 2016a) was introduced to put in place the legislation needed to plan and manage Wales' natural resources in a sustainable and joined-up way and is intended to work alongside the Well-being of Future Generations (Wales) Act 2015. The Environment Act brought in a new duty to replace the existing biodiversity duty (in the Natural Environment and Rural Communities Act 2006) which required public authorities to have regard to conserving biodiversity. The new Environment (Wales) Act Section 6 duty takes this further, requiring all public authorities, when carrying out their functions in Wales, to seek to "*maintain and enhance biodiversity*" where it is within the proper exercise of their functions. In doing so, public authorities must also seek to "*promote the resilience of ecosystems*".
- 1.2.2 Future Wales: The National Development Plan (Welsh Government, 2021) contains Policy 9 – Resilient Ecological Networks and Green Infrastructure; a policy that aims to maintain and enhance biodiversity and ecosystem resilience within the planning system.

- 1.2.3 Planning Policy Wales (Welsh Government, 2016b), states *“Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity. In doing so planning authorities must also take account of and promote the resilience of ecosystems...”*

1.3 Development Proposals

- 1.3.1 The Proposed Development comprises the construction and operation of six wind turbines, ground mounted solar photovoltaic (PV) modules, one project substation and ancillary infrastructure works.

1.4 Ecological Context

- 1.4.1 The approximately 578 ha Site is located 4 km to the north of Bridgend and 8 km to the east of Port Talbot. The Site is dominated by other neutral and modified grassland, many of these fields are bordered by hedgerows, with areas of wet, broadleaved, other coniferous and mixed woodland, gorse and bramble scrub and fen marsh and swamp. The Site is also dissected by watercourses in several locations. Areas of modified grassland are actively grazed by both sheep and cows, with areas also being mown for silage.
- 1.4.2 The Site is predominantly bordered by further areas of agricultural land to the north, south and east, with the western border of the Site adjacent to both forested and agricultural areas. The surrounding area is generally made up of agricultural fields sparsely interrupted by forested areas with small residential areas immediately adjacent to the Site. A review of aerial photographs and Ordnance Survey maps show that there are 59 ponds located on or within 250 m of the Site.
- 1.4.3 Habitats recorded within the Site boundary comprise plantation coniferous woodland, broadleaved woodland, wet woodland, modified grassland, other neutral grassland, bracken, dense scrub and marshy grassland within active pastoral farmland. More details about the baseline are available in **ES Volume III, Appendix 10.1: Ecological Baseline Report**.
- 1.4.4 The existing Site was found to support the following:
- Reptiles;
 - Dormice;
 - Foraging badger
 - Foraging bats;
 - Wintering birds; and
 - Breeding birds.
- 1.4.5 The development footprint itself is set within predominantly farmland (grazing sheep fields).

2.0 METHODS

- 2.1.1 This study has been carried out as a desk-based exercise, using the results of the ecological surveys, as well as the Proposed Development footprint. The primary documents consulted as part of this study include:
- **Environmental Statement (ES) Volume II, Chapter 10: Terrestrial Ecology (RSK Biocensus, 2026);**
 - **ES Volume III, Appendix 10.1: Ecological Baseline Report (RSK Biocensus, 2026);**
 - **ES Volume III, Appendix 10.2 : Grassland Fungi Survey Report (RSK Biocensus, 2025);**
 - **ES Volume III, Appendix 10.3: Habitats Regulations Assessment Screening Report (RSK Biocensus, 2025);**
 - **ES Volume II, Chapter 11: Ornithology (RSK Biocensus, 2026);**
 - **ES Volume III, Appendix 11.1: 2021 - 2023 Ornithology Report (RSK Biocensus, 2025);**
 - **ES Volume III, Appendix 11.2: 2024 – 2025 Wintering Bird Survey Report (RSK Biocensus, 2026);**
 - **ES Volume III, Appendix 11.3: Ornithology Collision Risk Modelling Report (RSK Biocensus, 2025);**
 - **ES Volume III, Appendix 11.4: 2025 – 2026 Wintering Bird Survey Report (RSK Biocensus, 2026); and**
 - **ES Volume IV: Figure 8.57: Landscape Mitigation Plan (Pegasus Group, 2025).**
- 2.1.2 A plan showing the pre-construction habitats is presented in **Figure 2: Phase 1 Habitat Plan.**

3.0 RESULTS

3.1 Biodiversity Baseline

3.1.1 The Phase 1 Habitat Plan (**Figure 2**) has been used to determine that twenty-six different habitat types occur within the Site boundary. The total areas are presented in **Table 1**.

Table 1 Baseline Habitat Area and Length within Site Boundary.

Phase 1 Habitat classification	Area – Ha
Semi-natural Broadleaved Woodland	26.94
Plantation - Coniferous Woodland	3.81
Semi-natural – Mixed Woodland	0.7
Plantation – Mixed Woodland	2.81
Scrub – Dense / continuous	6.87
Semi-improved Acid Grassland	6.95
Semi-improved Neutral Grassland	5.03
Improved Grassland	299.55
Marsh / Marshy Grassland	0.32
Poor Semi-improved Grassland	154.11
Bracken – continuous	26.39
Standing Water	0.35
Cultivated / disturbed land – arable	30.25
Building	0.99
Bare Ground	4.92
Hard Standing	7.73
TOTAL Area	577.72

Phase 1 Habitat classification (linear features)	Length - Km
Line of Broadleaved trees	1.59
Running Water	7.93
Intact Hedge – native species – rich	0.56
Intact Hedge – species-poor	9.86
Defunct Hedge – Species-poor	0.46
Hedge with trees – native species-rich	0.15
Hedge with trees – species-poor	1.69
Fence	33.77
Wall	2.45
Dry Ditch	0.10
TOTAL Linear	58.56

- 3.1.2 The Proposed Development design has sought to avoid direct impacts on important habitats.

3.2 Post-development Biodiversity without Intervention

- 3.2.1 The Proposed Development footprint was used to identify where there would be a loss of the baseline habitats currently present within the Site boundary.
- 3.2.2 The total areas for the proposed habitats post construction are presented in **Table 2**.

Table 2 Post-development Biodiversity Habitat Area and Length Within Site Boundary Without Intervention.

Phase 1 Habitat Classification	Area – ha retained	Area – ha Loss
Semi-natural Broadleaved Woodland	26.87	0.07 (0.3 %)
Plantation Coniferous Woodland	3.80	0.01 (0.3 %)
Semi-natural – Mixed Woodland	0.7	0.00
Plantation – Mixed Woodland	2.81	0.00

Phase 1 Habitat Classification	Area – ha retained	Area – ha Loss
Scrub – Dense / continuous	6.87	0.00
Semi-improved Acid Grassland	6.95	0.00
Semi-improved Neutral Grassland	5.02	0.01 (0.2 %)
Improved Grassland	267.04	32.51 (10.9 %)
Marsh / Marshy Grassland	0.32	0.00
Poor Semi-improved Grassland	116.87	37.24 (24.2 %)
Bracken – continuous	26.16	0.23 (0.9 %)
Standing Water	0.35	0.00
Cultivated / Disturbed land – arable	18.08	12.17 (40.2 %)
Building	0.99	0.00
Bare Ground	4.85	0.07 (1.4 %)
Hardstanding	5.45	2.28 (29.5 %)
Phase 1 Habitat Classification (linear features)	Length – km retained	Length – km Permanent Loss
Line of Broadleaved trees	1.55	0.04 (2.5 %)
Running Water	7.8	0.13 (1.6 %)
Intact Hedge – native species – rich	0.56	0.00
Intact Hedge – species-poor	8.39	1.47 (14.9 %)
Defunct Hedge – Species-poor	0.34	0.12 (26.1 %)
Hedge with trees – native species-rich	0.15	0.00
Hedge with trees – species-poor	1.59	0.10 (5.9 %)
Fence	30.92	2.85 (8.4 %)
Wall	2.36	0.09 (3.7 %)

Phase 1 Habitat Classification	Area – ha retained	Area – ha Loss
Dry Ditch	0.10	0.00
* Please note that the figures for trees and hedgerows may not match with those stated in the arboriculture report. This is due to the differing definitions between ecology and arboriculture. I.e., some of the areas of trees from the arboriculture report are defined as continuous scrub in ecology.		

3.2.3 Overall, without any intervention, the Proposed Development would result in the permanent loss of:

- 0.3 % (0.07 ha) Semi-natural Broadleaved Woodland;
- 0.3 % (0.01 ha) Plantation Coniferous Woodland
- 0.2 % (0.01 ha) Semi-improved Neutral Grassland;
- 10.9 % (32.51 ha) Improved Grassland;
- 24.2 % (37.24 ha) Poor Semi-improved Grassland;
- 0.9 % (0.23 ha) Bracken – continuous;
- 40.23 % (12.17 ha) Cultivated / Disturbed land – arable;
- 2.5 % (0.04 km) Line of Broadleaved trees;
- 1.6 % (0.13 km) Running water;
- 14.9 % (1.47 km) Intact Hedge – species poor;
- 26.1 % (0.12 km) Defunct Hedge – species poor; and
- 5.9 % (0.1km) Hedge with trees – species poor.

3.3 Post-development Biodiversity with Intervention

- 3.3.1 The proposed Landscape Mitigation Plan (**Figure 3**) was primarily focused on biodiversity and visual screening. The retained areas of habitats will be either maintained in their current condition, or their condition will be enhanced. Additionally, areas of woodland and hedgerow will be created to compensate for the habitat loss associated with the proposed works.
- 3.3.2 The total areas for the proposed habitats excluding manmade infrastructure post construction (retained, enhanced and created) within the Site boundary are presented in **Table 3**.

Table 3 Post-construction Habitats Within the Site Boundary Following Interventions

Phase 1 Habitat classification	Intervention	Area – ha
Semi-natural Broadleaved Woodland	Retained	26.87
	Creation	19.05
Plantation - Coniferous Woodland	Retained	3.80
Semi-natural – Mixed Woodland	Retained	0.7
Plantation – Mixed Woodland	Retained	2.81
Scrub – Dense / continuous	Retained	6.87
Semi-improved Acid Grassland	Retained	6.95
Semi-improved Neutral Grassland	Retained	5.02
Improved Grassland	Retained	267.04
Marsh / Marshy Grassland	Retained	0.32
Poor Semi-improved Grassland	Retained	41.50
	Enhanced (dry meadow)	47.97
	Enhanced (wet meadow)	26.08
Bracken – continuous	Retained	26.16
Standing Water	Retained	0.35
Cultivated / disturbed land – arable	Retained	18.08

Phase 1 Habitat classification	Intervention	Area – ha
		Length - Km
Line of Broadleaved trees	Retained	1.55
Running Water	Retained	7.8
Intact Hedge – native species – rich	Retained	0.56
	Creation	3.26
Intact Hedge – species-poor	Retained	8.39
Defunct Hedge – Species-poor	Retained	0.34
Hedge with trees – native species-rich	Retained	0.15
Hedge with trees – species-poor	Retained	1.59
Dry Ditch	Retained	0.10

3.3.3 Overall, the Proposed Development with interventions would result in:

- An initial loss of 0.07 ha Semi-natural Broadleaved Woodland, followed by the creation of 19.05 ha of woodland;
- 47.97 ha of grassland that will be enhanced to further support the important fungi assemblage together with providing ground nesting bird opportunities and the grassland beneath the solar panels will be allowed to regenerate;
- Creation of 26.08 ha of marshy/wet grassland created and enhanced habitat for ground nesting birds and marsh fritillary (*Euphydryas aurinia*)¹;
- A decrease of 0.23 ha Bracken – continuous; The reduction of this habitat will help control the encroachment of bracken into the fungi rich grassland areas;
- A decrease of 12.17 ha Cultivated/Disturbed land – arable;
- A loss of 0.04 km Line of Broadleaved trees, however the woodland creation will include the offset for this loss;
- A loss of 0.13 km of embankment associated with a roadside watercourse (no actual loss of running water habitat); and
- An initial loss of 0.169 km of hedgerow with the creation of 3.26 km of species rich hedgerow.

¹ Of which 6.38 ha is also enhancement for grassland fungi.

4.0 BIODIVERSITY PROPOSALS

- 4.1.1 The biodiversity proposals are outlined below, detailed in **Annex 1** (Habitat Management Plan) and displayed in the Landscape Mitigation Plan (**Figure 3**).

4.2 Created Habitats

Woodland

- 4.2.1 Planting of 19.05 ha of native woodland species in locations to extend and connect with existing areas of woodland. This would then need to be managed to ensure it reaches maturity. This will also provide additional habitat for nesting birds, bats and dormice.

Hedgerow

- 4.2.2 Planting of 3.26 km of native hedgerow species in locations to provide connections between existing and created woodland blocks. This would provide additional habitat for nesting birds, bats and dormice.

Marshy Grassland (Bird and Marsh Fritillary Enhancement)

- 4.2.3 This would be management of an existing area of 0.32 ha and creation of a further 26.08 ha of wet grassland to encourage more diversity of marshy grassland species, including planting of additional native species to enhance habitat for ground nesting birds and create suitable habitat for marsh fritillary, not currently thought to breed on-site.

4.3 Retained and Enhanced Habitats

- 4.3.1 Once the development is complete, the use of the Site will be the same as it is currently, i.e. grazing pasture. The following management opportunities will be implemented to enhance the other habitats:
- Grassland Management (fungi mitigation areas) of 47.97 ha - Where grass vegetation is well established, implement an annual cutting regime of random areas to diversify grassland – say 5 – 10 %, with the arisings removed each year. This cutting would need to be done in a 'messy' way (no straight lines). This would provide habitat for grassland fungi. The cut would need to be timed to avoid the ground nesting bird season, i.e., at the end of summer;
 - Wet grassland (bird and marsh fritillary mitigation areas) of 26.4 ha –Includes enhancement and creation within improved grassland through natural regeneration. Management prescriptions detail the implementation of sensitive livestock grazing schemes, cutting (outside of ground nesting bird season) and undesirable species control. Prescriptions aim to regenerate wet and marshy grassland respectively within the bird and marsh fritillary mitigation areas. Supplementary measures to be implemented where appropriate should management not produce suitable conditions are planting

of local sourced seeds for wet grassland; management of hydrological features (e.g. ditches); and scrape creation for nesting waders.

- Invasive Species Management – Control the spread of invasive species and to prevent them becoming dominant in areas of scrub, hedgerows and watercourses. This will help to maintain structural diversity.

5.0 SUMMARY AND CONCLUSION

- 5.1.1 The majority of the loss of habitat is accounted for by the loss of 'improved and poor semi-improved' grassland. There will also be some small loss of bracken, arable and species-poor hedgerows.
- 5.1.2 Potential mitigation measures are focused on enhancing areas of retained habitat, restoring and enhancing an area of grassland to support fungi and ground nesting birds, enhancing an area to support marsh fritillary butterfly and habitat creation/enhancement including woodland and hedgerows. This will result in overall better-quality greenfield habitat together with additional support for rare species present in the area.
- 5.1.3 The proposed strategy will provide multiple high-quality habitats with opportunities for a wide-ranging selection of species including those rarer assemblages identified in the baseline surveys. There would also be the opportunity for species populations in the wider area to expand into this area.

Diversity, Extent, Condition, Connectivity and Aspects of ecosystem resilience (DECCA) Framework

- 5.1.4 The Natural Resources Wales Ecosystem Resilience Field Guide (NRW, 2022) highlights the importance of ecosystem resilience and actions that can be undertaken to meet this aim, as required by the Environment (Wales) Act 2016. Resilient ecosystems are those with good levels of diversity, which are of sufficient extent, are in a good condition and have connectivity; referred to as the 'DECCA' framework of measurable attributes. Actions to achieve resilient ecosystems include safeguarding and improving existing ecosystems, restoring degraded habitats and creating new areas of habitat. Measures may also include tackling current pressures, such as removing invasive non-native species and improving air quality.
- 5.1.5 The existing Site baseline has a poor level of ecosystem resilience. The grazed fields, isolated areas of woodland and poor hedgerow network without management will deteriorate further resulting in a loss of important habitats and important green corridor for species within the county.

Table 4 Assessment of the Biodiversity Proposals against the 'DECCA' Framework

DECCA Attribute	Consideration in the Proposal
Diversity Maintaining and enhancing diversity at every scale, including genetic, structural, habitat and between-habitat levels. This supports the complexity of ecosystem functions	The Proposed Development was designed to retain as much greenfield areas as practicable and ensuring that none of the retained areas would become isolated from surrounding habitat. The Landscape Mitigation Plan (Figure 3) includes the same range of habitats from the baseline. Where the

DECCA Attribute	Consideration in the Proposal
and interactions that deliver services and benefits.	habitats are currently in poor condition, they will be enhanced to increase their diversity and structure. The mitigation hierarchy was followed, and most diverse habitats were avoided during the Proposed Development's design.
Extent Incorporating measures which maintain and increase the area of semi-natural habitat/features and linkages between habitats. In general, smaller ecosystems have reduced capacity to adapt, recover or resist disturbance.	The majority of habitat has been retained and enhanced. Primarily, where habitat is being lost, the same habitat type is being created in other places within the Site, ensuring that there are no isolated areas of habitat. Connections to existing habitat within the wider landscape have been maintained and enhanced to improve connectivity linkages.
Condition The condition of an ecosystem is affected by multiple and complex pressures acting both as short term and longer-term types of disturbance. Both direct and wider impacts should be considered, for example avoiding or mitigating pressures such as climate change, pollution, invasive species, land management neglect etc.	The enhancement proposals are to improve the ecological condition of the habitats within the Site. Management strategies are designed for the long-term to help mitigate for expected future pressures, i.e., climate change. The management strategy includes: • Invasive species control; and • Land management practices (i.e., reduced grazing/hay cuts) to the enhanced areas of grassland.
Connectivity This refers to the links between and within habitats, which may take the form of physical corridors, stepping stones in the landscape, or patches of the same or related vegetation types that together create a network that enables the flow or movement of genes, species and natural resources. Developments should take opportunities to develop functional habitat and ecological networks within	Areas of habitat creation have been designed to create green corridors throughout the Site linking all areas of habitats. The linkages between the habitats within the Site and the wider landscape have also been maintained as part of a larger green corridor.

DECCA Attribute	Consideration in the Proposal
and between ecosystems, building on existing connectivity.	
Aspects of ecosystem resilience (adaptability, recovery and resistance) Ecosystem resilience is a product of the above four attributes. Adaptability, recovery and resistance to/from a disturbance are defining features of ecosystem resilience.	The landscape proposals have been designed to minimise disturbance to the Site's ecosystem and enhance its resilience. Habitats on Site that are currently in poor ecological condition will be enhanced and managed to increase the Site's biodiversity and species carrying capacity in addition to its connectivity with the wider landscape.

- 5.1.6 It is considered that the implementation of the strategy detailed above within the Site would provide an overall net benefit to biodiversity within both the local area and the wider county.

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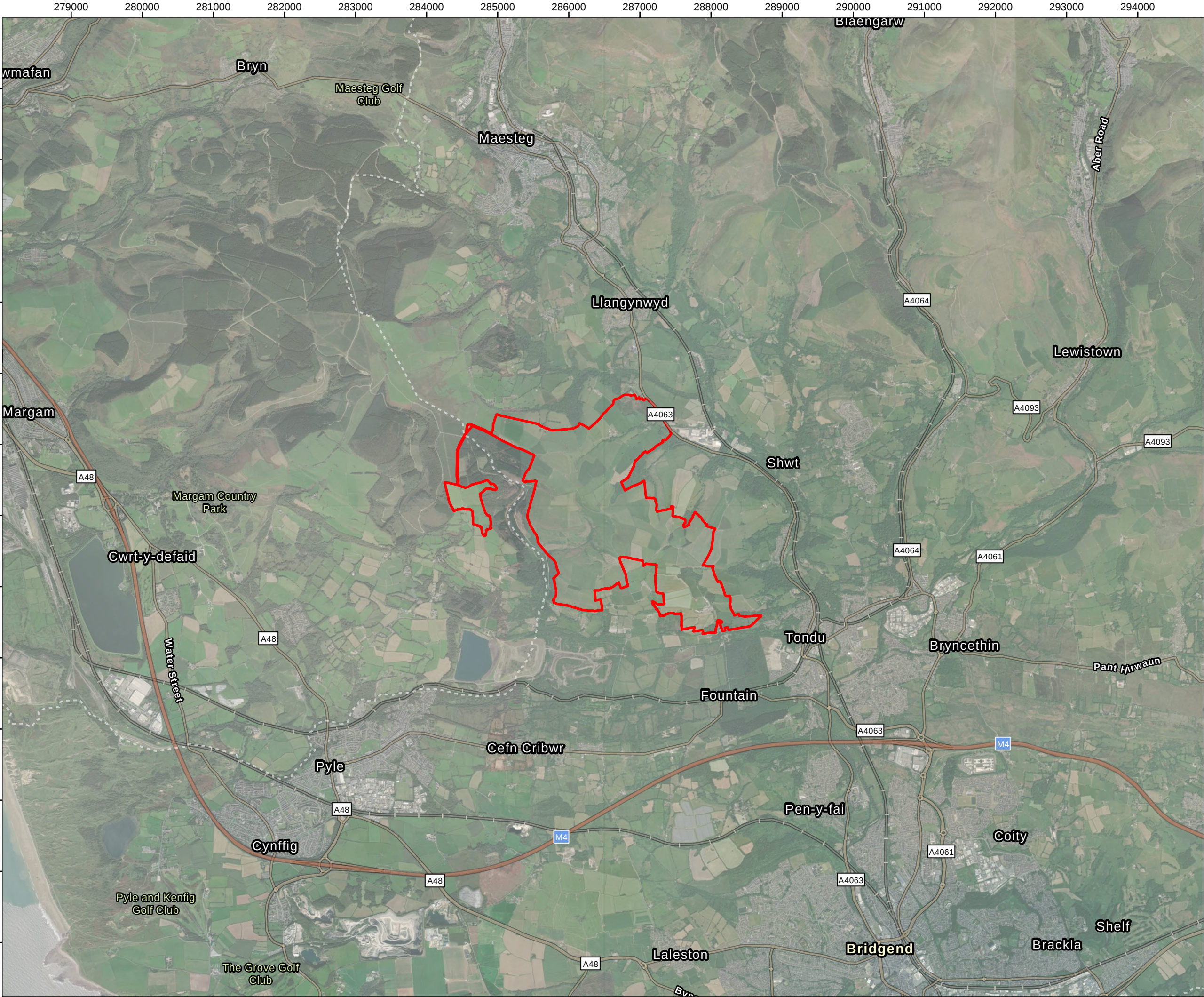
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FIGURES

Figure 1. Site Location Plan

Figure 2. Phase 1 Habitat Plan

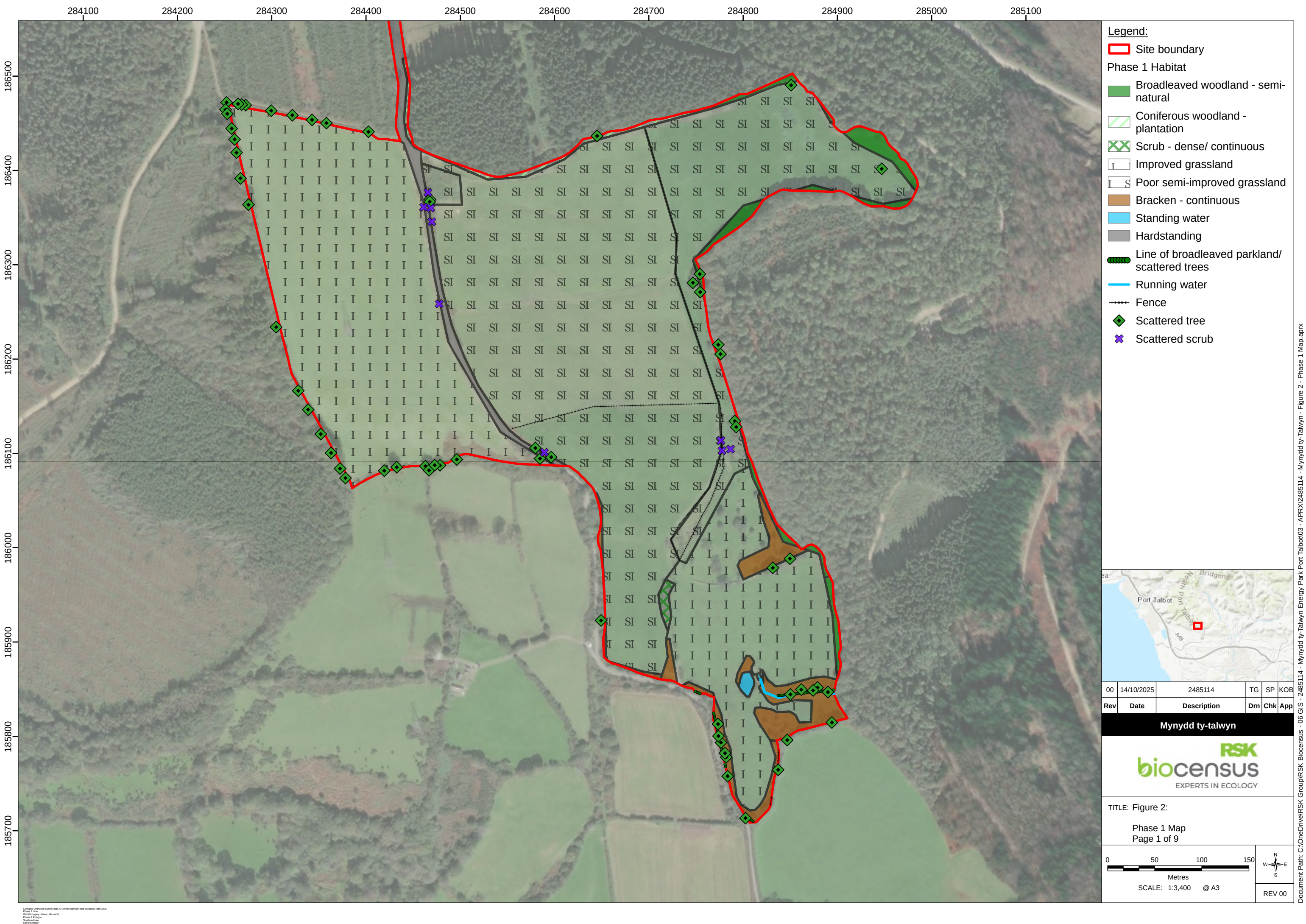
Figure 3. Landscape Mitigation Plan



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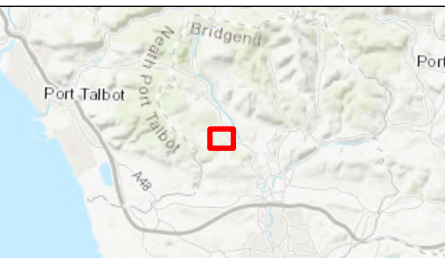
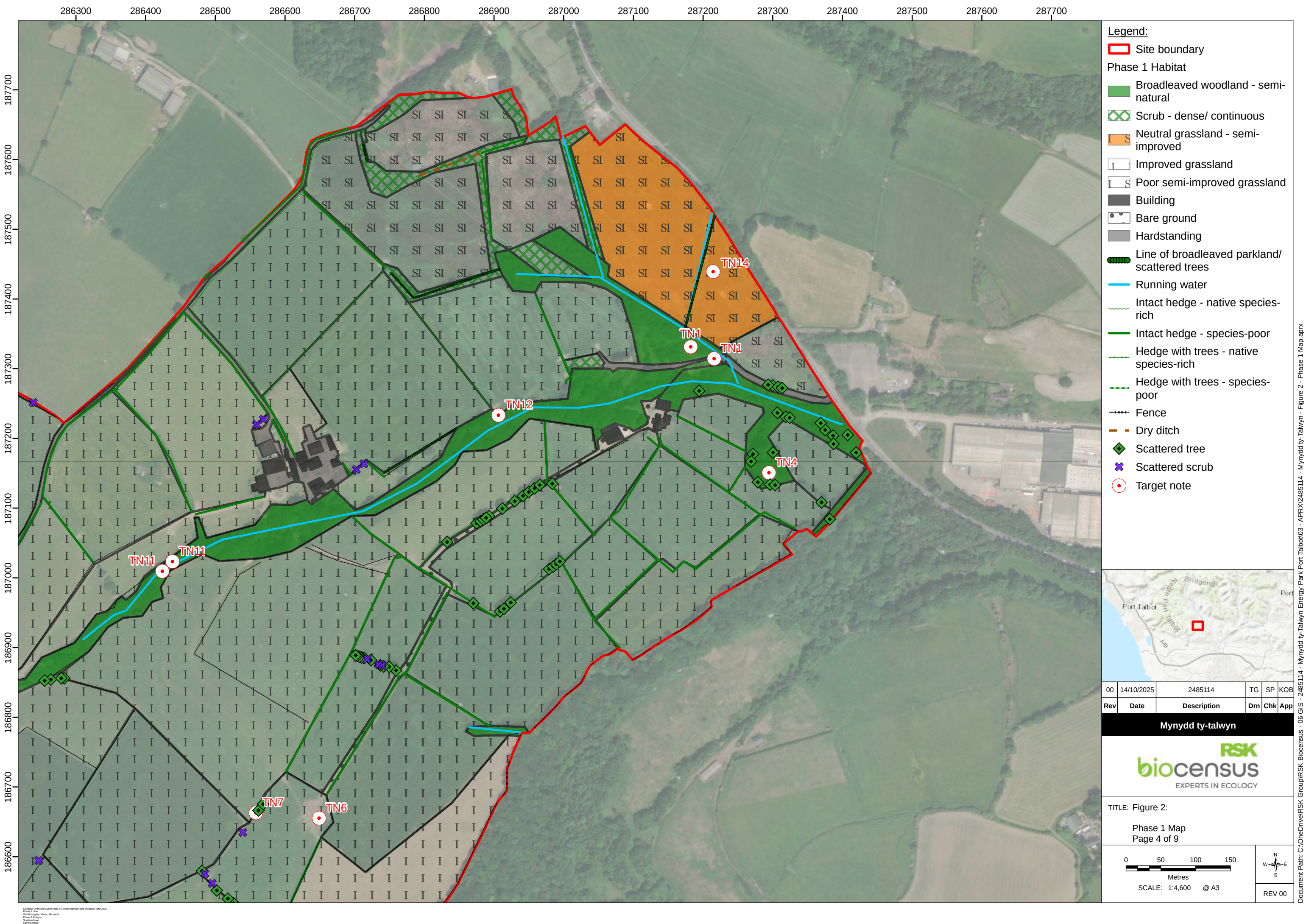
Site boundary

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Rev	Date	Description	Drn	Chk	App
Mynydd ty-talwyn					
RSK biocensus EXPERTS IN ECOLOGY					
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062512501875 Metres SCALE: 1:50,000 @ A3			N W E S REV 00		



Contains Ordnance Survey data © Crown copyright and database right 2025.
Phase 1 Map
Aerial Imagery: Microsoft
Phase 1 Habitat
Scattered tree
Scattered scrub
Site boundary
Phase 1 Point
Aerial Topographic Map: Qaibh, OS, Esri, HERE, Garmin, USGS, NOAA





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Rev	Date	Description	Drm	Chk	App

Mynydd ty-talwyn



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Mynydd ty-talwyn

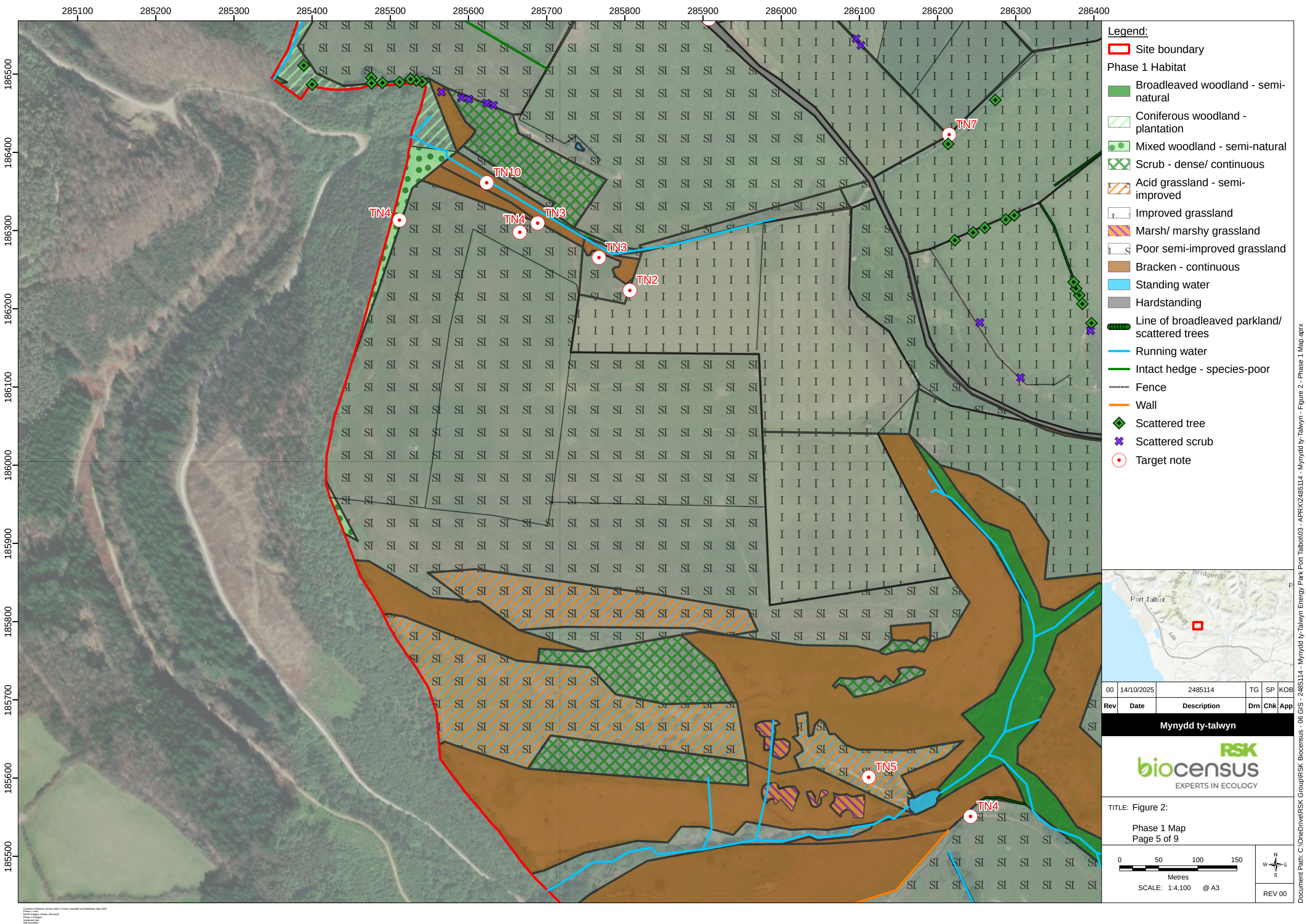
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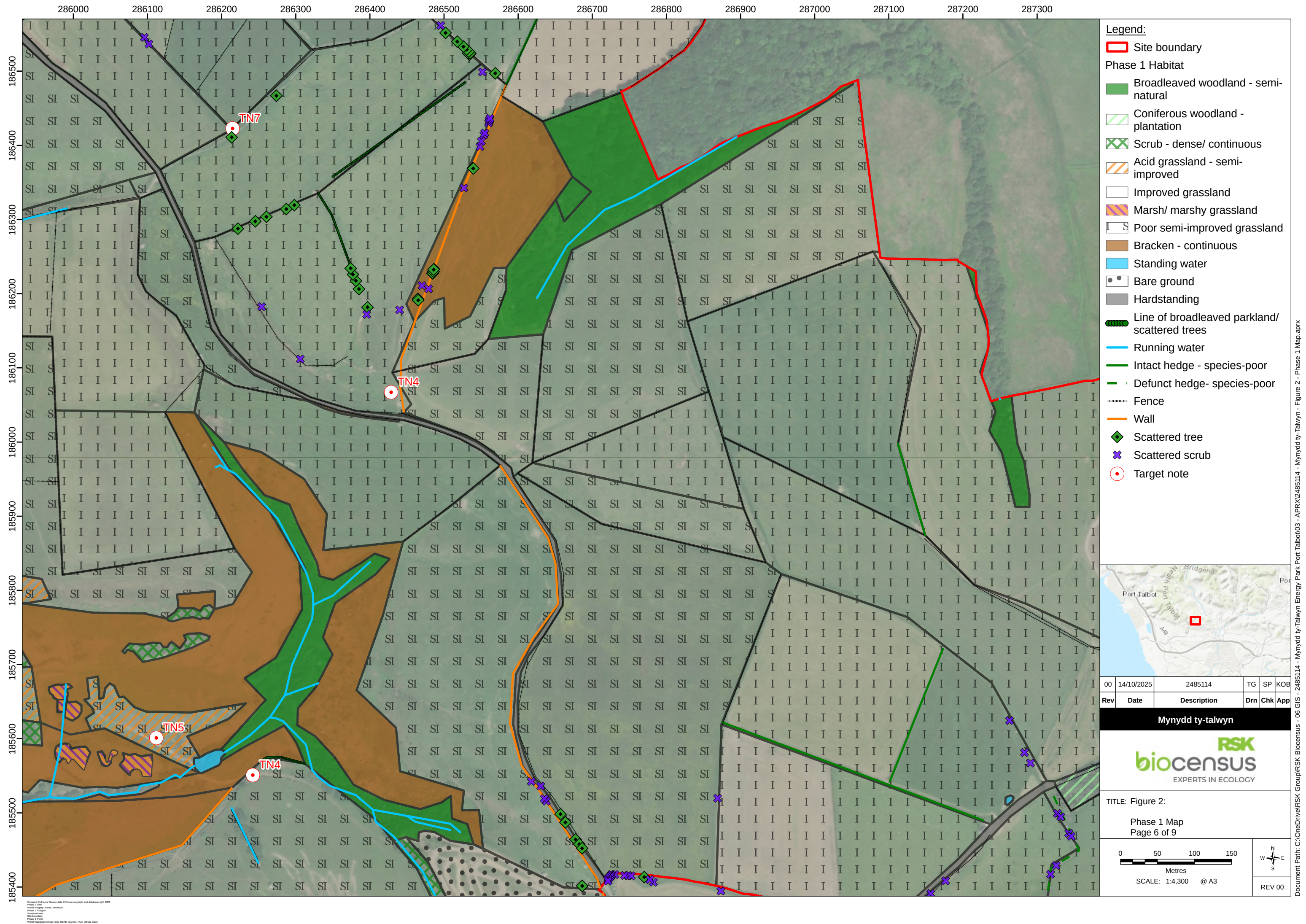
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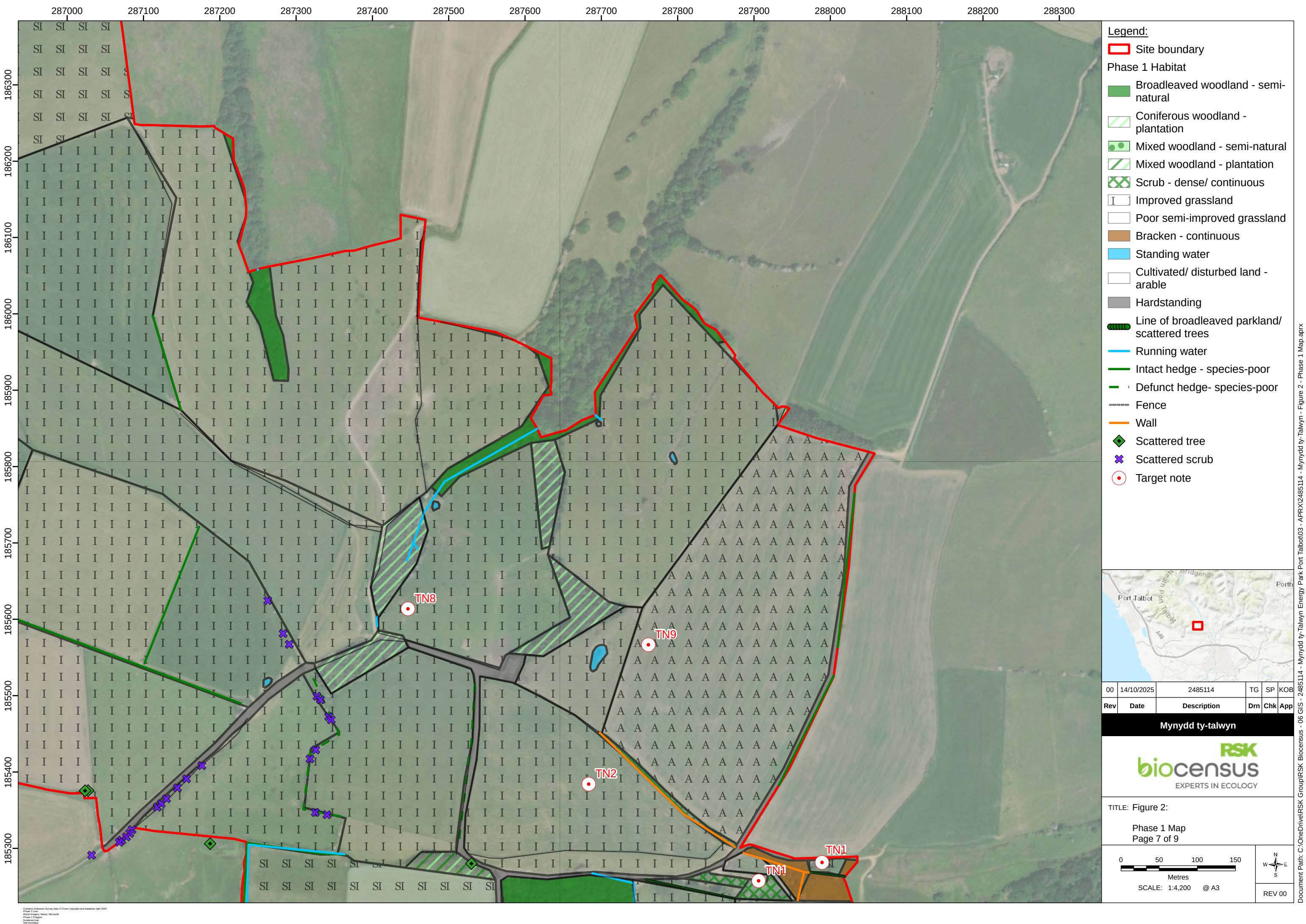
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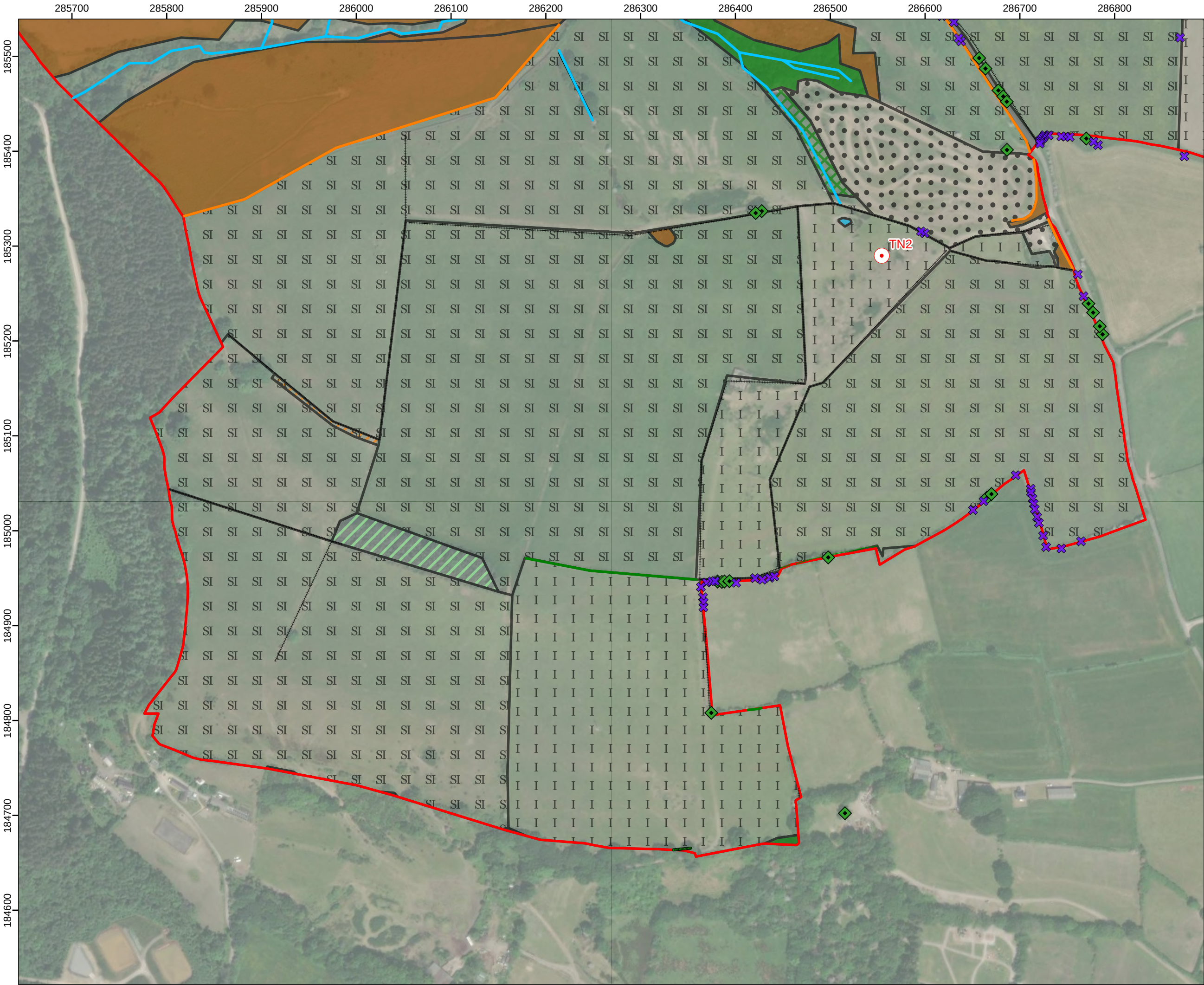
REV 00

Copyright Crown Copyright and database right 2025
Aerial Imagery: Microsoft
Map Data: OpenStreetMap contributors, Imagery © Mapbox
Scale: 1:4,600
Map Projection: UTM
Datum: WGS 84
Units: Metres









- Legend:**
- Site boundary
 - Phase 1 Habitat**
 - Broadleaved woodland - semi-natural
 - Coniferous woodland - plantation
 - Scrub - dense/ continuous
 - Acid grassland - semi-improved
 - Improved grassland
 - Poor semi-improved grassland
 - Bracken - continuous
 - Standing water
 - Bare ground
 - Hardstanding
 - Line of broadleaved parkland/ scattered trees
 - Running water
 - Intact hedge - species-poor
 - Hedge with trees - species-poor
 - Fence
 - Wall
 - Scattered tree
 - Scattered scrub
 - Target note



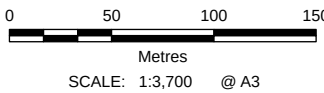
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Rev	Date	Description	Drn	Chk	App

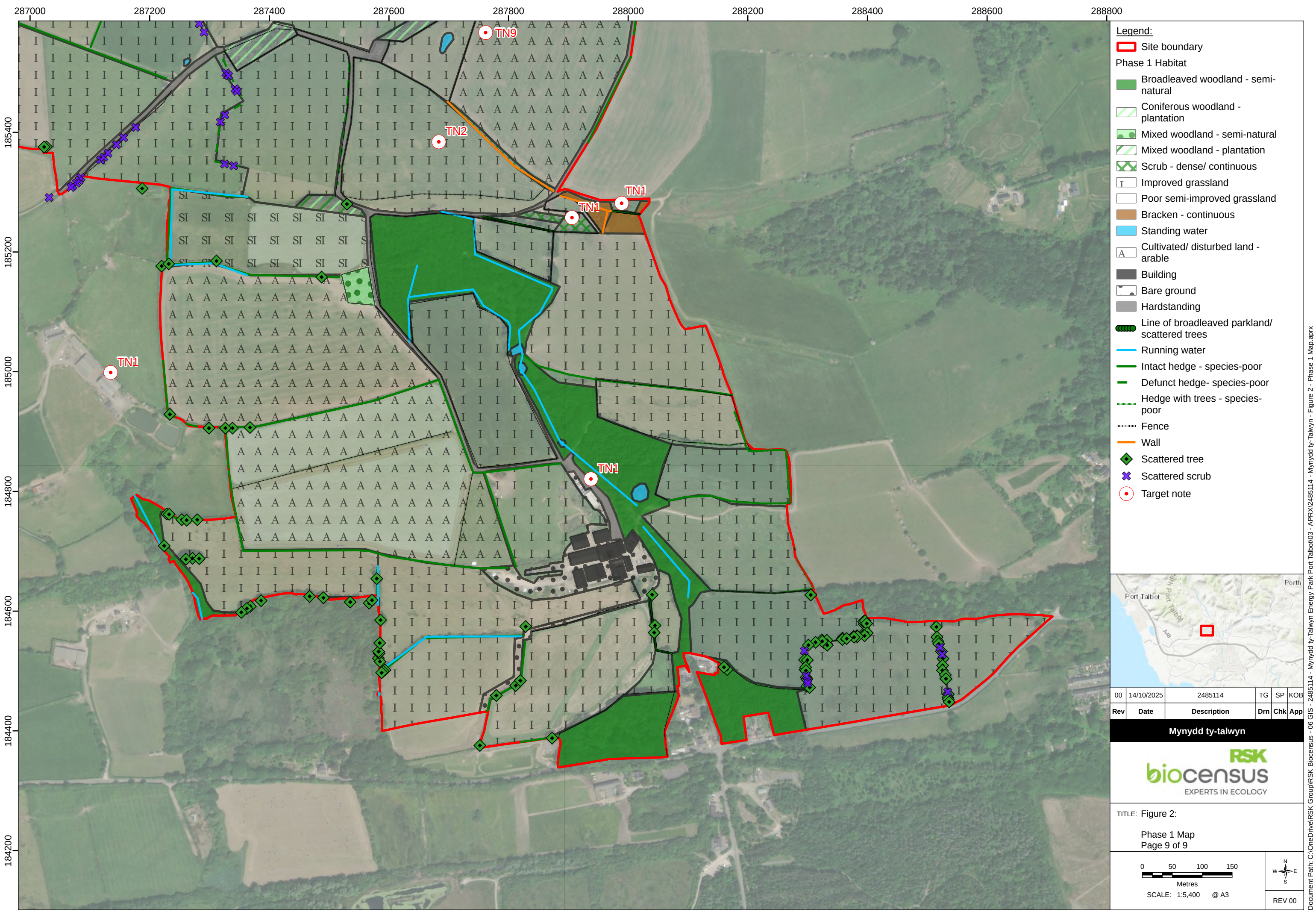
Mynydd ty-talwyn



TITLE: Figure 2:

Phase 1 Map
Page 8 of 9





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Mynydd ty-talwyn



TITLE: Figure 2:
Phase 1 Map
Page 9 of 9

050100150

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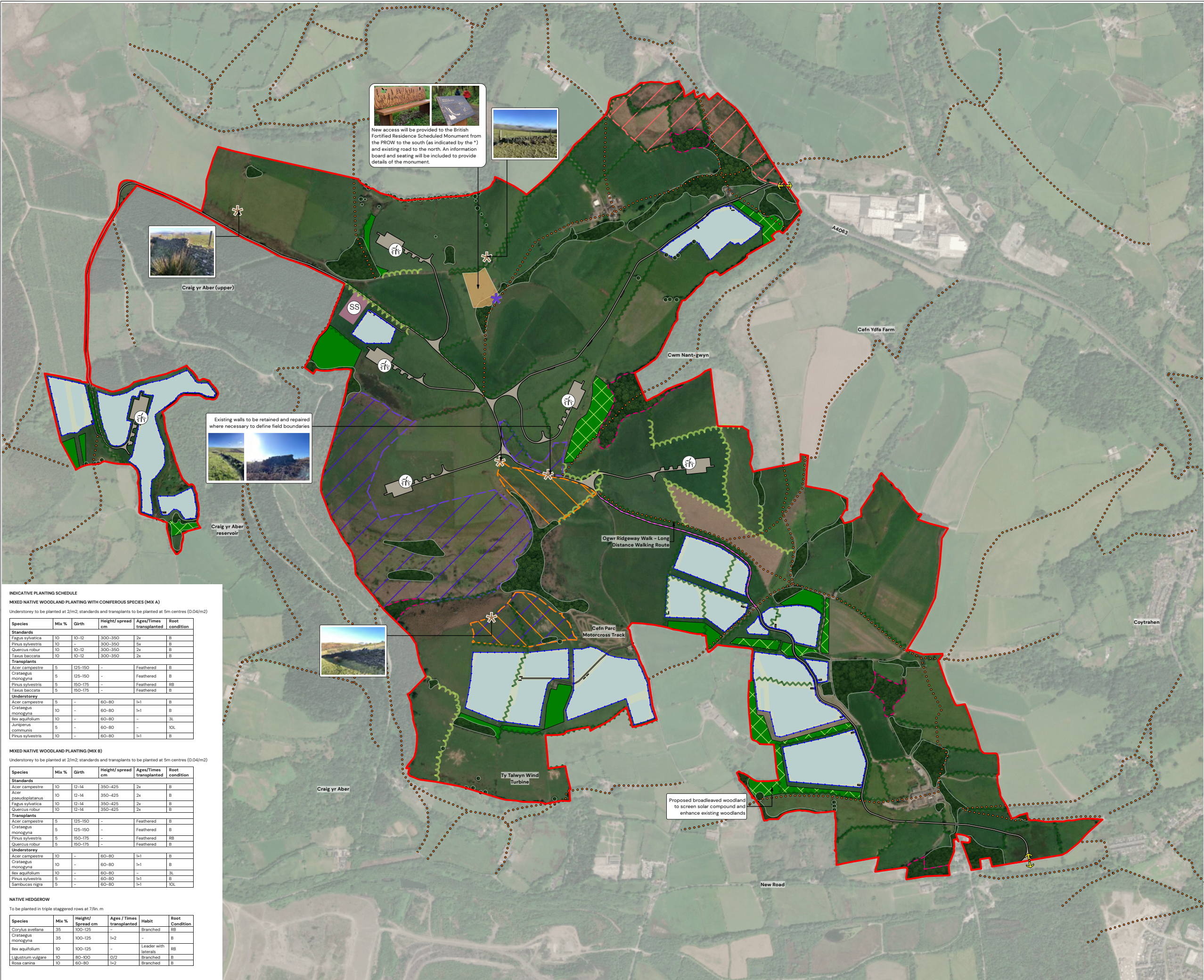
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INDICATIVE PLANTING SCHEDULE
MIXED NATIVE WOODLAND PLANTING WITH CONIFEROUS SPECIES (MIX A)

Understorey to be planted at 2/m²; standards and transplants to be planted at 5m centres (0.04/m²)

Species	Mix %	Girth	Height/ spread cm	Ages/Times transplanted	Root condition
Standards					
Fagus sylvatica	10	10-12	300-350	2x	B
Pinus sylvestris	10	-	300-350	5x	B
Quercus robur	10	10-12	300-350	2x	B
Taxus baccata	10	10-12	300-350	2x	B
Transplants					
Acer campestre	5	125-150	-	Feathered	B
Crataegus monogyna	5	125-150	-	Feathered	B
Pinus sylvestris	5	150-175	-	Feathered	RB
Taxus baccata	5	150-175	-	Feathered	B
Understorey					
Acer campestre	5	-	60-80	1+1	B
Crataegus monogyna	10	-	60-80	1+1	B
Ilex aquifolium	10	-	60-80	-	3L
Juniperus communis	5	-	60-80	-	10L
Pinus sylvestris	10	-	60-80	1+1	B

MIXED NATIVE WOODLAND PLANTING (MIX B)

Understorey to be planted at 2/m²; standards and transplants to be planted at 5m centres (0.04/m²)

Species	Mix %	Girth	Height/ spread cm	Ages/Times transplanted	Root condition
Standards					
Acer campestre	10	12-14	350-425	2x	B
Acer pseudoplatanus	10	12-14	350-425	2x	B
Fagus sylvatica	10	12-14	350-425	2x	B
Quercus robur	10	12-14	350-425	2x	B
Transplants					
Acer campestre	5	125-150	-	Feathered	B
Crataegus monogyna	5	125-150	-	Feathered	B
Pinus sylvestris	5	150-175	-	Feathered	RB
Quercus robur	5	150-175	-	Feathered	B
Understorey					
Acer campestre	10	-	60-80	1+1	B
Crataegus monogyna	10	-	60-80	1+1	B
Ilex aquifolium	10	-	60-80	-	3L
Pinus sylvestris	5	-	60-80	1+1	B
Sambucus nigra	5	-	60-80	1+1	10L

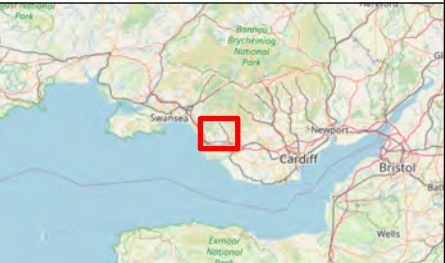
NATIVE HEDGEROW

To be planted in triple staggered rows at 7/lin. m

Species	Mix %	Height/ Spread cm	Ages / Times transplanted	Habit	Root Condition
Corylus avellana	35	100-125	-	Branched	RB
Crataegus monogyna	35	100-125	1+2	-	B
Ilex aquifolium	10	100-125	-	Leader with laterals	RB
Ligustrum vulgare	10	80-100	0/2	Branched	B
Rosa canina	10	60-80	1+2	Branched	B

- Legend:**
- Site boundary
 - Existing vegetation (based on aerial)
 - Existing woodland contained in Ancient Woodland Inventory (based on aerial)
 - Existing hedgerow (based on aerial)
 - Existing public right of way
 - Scheduled monument
 - Site entrance
 - Security fencing to solar compound
 - Area of panels
 - Transformer
 - Area of BESS facility
 - Substation platform
 - Area of grassland to solar arrays
 - Wind turbine
 - Access track/ hardstanding
 - Proposed hedgerow planting as part of reinstatement strategy
 - Proposed mixed native woodland planting with coniferous species (Mix A)
 - Proposed mixed native woodland planting (Mix B)
 - Ecological mitigation (Birds)
 - Ecological mitigation (Fungi)
 - Ecological mitigation (Marsh Frit)
 - Proposed permissive path
 - Approx. location of field boundary wall to be repaired

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter

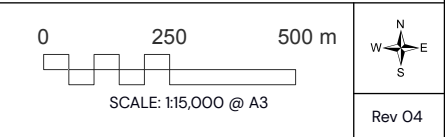


04	15.04.2026	Minor updates to mitigation	KCH	RB	DT
03	17.11.2025	Updated to client comment	LAB	RB	DT
02	30.10.2025	Updated to client comment	LAB	RB	DT
01	26.09.2025	Updated to revised layout	LAB	RB	DT
Rev	Date	Description	Drn	Chk	App

Mynydd Ty-talwyn Energy Park



TITLE:
Landscape Mitigation Pla



Annex 1: Habitat Management Plan (outline)

- 5.1.7 This outline Habitat Management Plan (HMP) has been guided by the various ecological surveys carried out by RSK Biocensus. The measures contained in the HMP uphold the principle of providing a net biodiversity benefit at the local level. This HMP:
- Identifies specific objectives and measurable targets relating to the management of the Site to maintain and enhance its wildlife interest;
 - Lists those activities which will be undertaken to manage the land to achieve the objectives and targets; and
 - Outlines the mechanisms to monitor progress and plan reviews to ensure the management plan remains up-to-date and relevant throughout its duration.
- 5.1.8 It is proposed that this is a working document which will evolve following discussions between the developer, the landowners, the Ecological Clerk of Works (ECoW) and organisations with responsibility for and an interest in key wildlife species, including Bridgend County Borough Council (BCBC) and Neath Port Talbot Council (NPTC). The detailed HMP would be secured through a planning condition.

5.2 Management Objectives

- 5.2.1 Following a review of the habitats and species identified during ecological surveys as well as the assessments made from **ES Volume II, Chapter 10: Terrestrial Ecology** and **ES Volume II, Chapter 11: Ornithology**, six measures have been identified to provide ecological mitigation and enhancements for biodiversity. These were recognised as being capable of achieving considerable enhancements to biodiversity in the local area, whilst also being sufficiently pragmatic that onerous maintenance, management and monitoring regimes would not be required to ensure their success. Objectives and targets are set for each measure to quantify the success of the enhancements. Details for each measure are included in **Table 5**.
- 5.2.2 Measures chosen for enhancement are:
- Woodland planting and enhancement;
 - Dry grassland enhancement;
 - Wet grassland enhancement;
 - Hedgerow planting and enhancement; and
 - Invasive non-native species (INNS) management.

Table 5 Management Objectives and Targets

Feature	Objective	Measurable targets
Woodland planting	Establish new areas of woodland on Site for the benefit of birds, bats, invertebrates, and non-volant mammals.	Creation of a minimum 19.05 ha of woodland habitat.
		Establish a management and monitoring programme to ensure effective establishment.
Dry Grassland enhancement (Fungi mitigation areas)	To convert the existing poor semi-improved grassland into GS2 Dry Meadow, improving biodiversity value of the enhancement area for, grassland fungi, invertebrates and mammals.	Creation of at least 47.97 ha of dry meadow grassland habitat within the Site.
		Establish a management and monitoring programme to determine effective establishment.
Wet grassland management (Bird, Marsh Fritillary enhancement area)	To enhance and create biodiverse Wet Grassland (GA4) within the context of available habitat for the benefit of birds, invertebrate and botanical species.	Ensure the creation of 19.70 ha of wet grassland.
		Ensure the creation of 6.38 ha of wet grassland within the fungi mitigation area through the creation of scrapes.
		Establish a management and monitoring programme to ensure effective establishment.
Hedgerow planting	To increase the extent of high-quality hedgerows within the Site, for the benefit of bats, birds, invertebrates, and non-volant mammals	Creation of at least 3.26 km of hedgerow habitat.
		Establish a management and monitoring programme to ensure effective establishment.
INNS Management	To identify existing areas of invasive species and to remove and control their presence.	To remove and control the extent of invasive species on Site.
		Establish a management and monitoring programme to ensure effective control.

- 5.2.3 As a result of the mitigation and enhancement measures proposed above effective management will lead to the provision of a net benefit for biodiversity. More habitat will be created and enhanced than those that will be impacted as part of the Proposed Development. Creating further diversity and quality of habitats within the Site will increase heterogeneity leading to increased suitability for a greater number of species. All of which will lead to a Net Benefit for Biodiversity.

5.3 Management Prescriptions

Feature 1: Woodland Planting and Enhancement

- 5.3.1 Across Wales the management of woodland has been largely for the production of timber, which typically provides limited opportunity for biodiversity. Woodland habitat within the Site is composed of mixed broadleaved woodland (WD1). Altering the management and extent of this existing woodland will greatly increase the biodiversity value of this habitat. Therefore, planting will be undertaken to provide more opportunities for species such as badger, hedgehog, bats, and woodland bird species, which were all recorded as being present locally during the baseline assessments for the Proposed Development.

Planting

- 5.3.2 Woodland planting would follow best practice guidance (The Woodland Trust, 2022a, 2022b). It is recommended that for successful woodland development the desired composition of species and structure should be considered. This will be achieved through naturalised development where the existing seed bank is rich with tree species. Where regeneration isn't achievable, tree planting will supplement or create woodland habitat. To determine the viability of the habitat, an initial soil test will be undertaken to evaluate the soil conditions as well as the potential for natural regeneration to occur. Such tests will determine an appropriate species mix of trees and shrubs where planting is required. The enhancement sites are currently within areas of arable fields and will be highly enriched, which may prevent tree establishment due to the proliferation of undesirable competitive species including common nettle (*Urtica dioica*), bramble (*Rubus* spp.), or cleavers (*Gallium aparine*). Prior to planting, soil management, wherever necessary, will take place and involve the process of mulching, herbicide treatment, soil inversion or cover crops, helping to improve soil conditions. Fertility reduction measures will facilitate the proliferation of annual wildflowers during the woodland growth improving the available seedbank for open woodland areas.
- 5.3.3 The efficacy of woodland enhancement depends on a variety of factors, one such factor is species selection. If possible, locally sourced juvenile trees or seeds of desired native species will be implemented into the planting regime. Locally sourced tree saplings will have a natural resistance to local factors in periods of environmental strain. If locally sourced saplings cannot be feasibly sourced, then an indicative species mix of appropriate native tree and shrub species would be included, as described on the Landscape proposals plan.

- 5.3.4 Environmental conditions of the habitat need to be considered to improve habitat creation success. Appropriate spacing of saplings within the habitat will allow for less dominant species to establish with more dominant pioneer species capable of being planted closer to one another. Tree planting will be spaced with approximately three trees per square metre with densities of 1,600 to 2,500 stems per hectare, which will allow more open areas to generate. Open areas such as glades will support a variety of notable ancient woodland botanical indicator species, variability of tree age classes, canopy variation and habitat for foraging bats, birds, and invertebrates (especially butterfly species). Other areas of more dense woodland will also be created, since a dense understorey is vital for other bat species including leisler's (*Nyctalus leisleri*) and pipistrelles (*Pipistrellus sps.*) (Hill and Greenaway, 2008), both of which are present on Site. Ensuring there is heterogeneity between open areas for ground flora and invertebrate species and a well-developed understory will be a key objective for the tree planting areas.
- 5.3.5 When introduced to the habitat, vulnerable saplings will be controlled by active management. Eliminating competition at these stages by ground preparation, weeding of undesirable species and protection of shrubs through tree guards / fencing will allow for juvenile trees to establish within the habitat.
- 5.3.6 Planting will follow appropriate best guidance for juvenile saplings which would usually follow slot/notch or pit planting methodologies. Trees will be planted in a random fashion within a total of 19.05 ha of planting. Between saplings there will be between 1.5 m – 3.5 m which will generate open space within the woodland. More intensive weeding will be required to ensure tree growth to generate open areas within the woodland. The gap distance when planting will change depending on the desired density of woodland within the habitat. During growth, weeding would be undertaken to remove undesirable species and tree thinning and coppicing between 5 – 15 years would facilitate greater light penetration to the ground level where needed during the initiation and establishment phases.
- 5.3.7 The woodland would be managed during the operational phase to ensure the prescribed bat buffers (as illustrated in **ES Volume IV, Figure 10.4: Important Ecological Features Protected Species – Bats**) are maintained throughout the operational life of the Proposed Development. Active management of woodland can also include the retention of deadwood within the habitat, removal of weak diseased trees and monitored grazing to generate habitat variation or management of glades, rides and scallops within the woodland areas. The final details will be secured through a detailed Landscape and Ecological Management Plan (LEMP) or Habitat Management Plan via a planning condition.

Feature 2: Dry Meadow Creation (fungi mitigation areas)

- 5.3.8 Abundant improved grassland within the Site was selected to be enhanced to provide greater biodiversity value. The habitat is predominantly managed for grazing, which subsequently limits the diversity of the botanical species present and structural heterogeneity of the habitat. Several parcels of land totaling 47.97 ha are proposed within this management plan to be enhanced into areas of dry meadow, providing an area of greater botanical diversity in benefit for grassland fungi,

protected bee species, farmland birds (particularly ground nesting birds) hedgehogs, badgers, and foraging bats.

- 5.3.9 Management will follow best practice guidance for the creation of dry meadow grassland (Habitat Aid, 2011a & 2011b). This will be achieved through the implementation of a sensitive grazing regime of the current habitat within the Site to allow for natural regeneration. Further efforts will be undertaken for conversion of the GA1 grassland habitat present to produce a dry wildflower meadow. An initial soil test would identify the conditions required for grazing level management or more intensive wildflower meadow conversion and management.

One field parcel (6.38 ha) is proposed to provide mitigation for both fungi and birds, this field will include scrapes in order to retain run-off and provide some wetter areas with tussocks of grass/rushes. These scrapes will be placed strategically to avoid high density fungi locations.

Grazing Levels

- 5.3.10 Minimising grazing efforts to the recommended stocking unit per hectare will be established for management of established meadow grassland habitat. The stocking unit will be represented by the presence of a maximum of six native sheep (excluding lambs) per hectare which will graze short sward grassland. If tall sward vegetation is present within the habitat a single cow per hectare can be used to appropriately graze the habitat. No grazing between 1st March – 1st July to allow for the established seedbank in the soil to develop. Between 1st July – 1st September a hay cut could be undertaken, after which grazing efforts can then increase to an appropriate stocking density (six sheep or one cow per hectare). Alteration of the grazing levels to produce wildflower meadow will provide suitable habitat for farmland birds, mammals, reptiles, and invertebrates. Once a grazing management schedule is implemented further management will be introduced for the creation of dry meadow habitat by natural regeneration and additional sowing of seed if necessary.
- 5.3.11 The field parcel with the proposed scrapes would require some low level grazing between 1st March – 1st July in order to maintain a shorter sward to facilitate lapwing and other ground nesting birds.

Feature 3: Wet Grassland Management (Bird and Marsh Fritillary mitigation area)

- 5.3.12 Two land parcels within the centre and north of the Site are to be used for mitigation for marsh fritillary and birds respectively. In the northern part of the Site lies small sections of GA4 wet grassland characterised by glaucous sedge (*Carex flacca*), devil's bit scabious (*Succisa pratensis*), silverweed (*Potentilla anserina*) and meadowsweet (*Filipendula ulmaria*). In the centre of the Site lies further extents of GA1 improved grassland within the proposed bird mitigation area, this habitat is intended to be enhanced to GA4 wet grassland birds, namely: lapwing (*Vanellus vanellus*) and skylark (*Alauda arvensis*). Good condition wet grassland across both land parcels will provide considerable biodiversity value for botanical, invertebrate and bird species. Both areas are currently grazed by livestock, which at the current

level impedes the establishment of further wet grassland habitat within the nearby improved grassland. Additionally, wet grassland surrounds the habitat to the south indicating a high-water table which can be utilised for natural regeneration of wet grassland in this area. These sections of habitat indicate the surrounding area could regenerate from the pre-established seed bank available in the soil with appropriate management. In total a 19.70 ha area of wet grassland enhancement/ creation is proposed in these two areas, utilising the surrounding wet areas, incorporating a sensitive grazing regime and hydrological management where appropriate.

- 5.3.13 In addition to the 19.70 ha of enhanced and created wet grassland, a 6.38 ha parcel (also providing fungi mitigation) would be enhanced for ground nesting birds through the creation of scrapes to provide wet grassland. Further details regarding the grazing and management requirements of this area is set out in Feature 2.

Grazing

- 5.3.14 Within both areas management will be undertaken via a low intensity cattle grazing regime in general, with some, targeted mowing/topping or potentially use of 'cut and collect' machinery in parts where purple moor grass (*Molinia caerulea*) is dominating or where species such as soft rush (*Juncus effusus*) or similar needs to be managed. Only parts of each field should be cut each year to reduce impacts on existing invertebrate populations and other species, in any, one-year cycle. Sensitive, gradual changes are best for nature conservation but where grass tussocks are dense, more intensive cattle grazing may be an option to consider as a short-term tool to help break up the sward. The stocking unit will be represented by the presence of a maximum of six native sheep (excluding lambs) per hectare which will graze short sward grassland. If tall sward vegetation is present within the habitat a single cow per hectare can be used to appropriately graze the habitat. No grazing between 1st March – 1st July to allow for the established seedbank in the soil to develop. Within the bird mitigation area only a higher stocking density (preferably cattle) would be needed between August to February to maintain a short-grassland habitat for nest creation upon the commencement of the breeding season in March for ground nesting birds (e.g. lapwing and skylark).

Wet Grassland Management

- 5.3.15 Since the existing field surveys identified a plethora of indicator species for wet grassland within the locality, natural regeneration of this habitat can occur and so will likely require less management intervention than the habitat creation for the dry meadow.
- 5.3.16 The composition of the wet grassland habitat will be primarily influenced by the local hydrology, which alters the species present within the grassland sward. Creation of a diverse botanical sward can be achieved by retention of existing wet ditches within the Site and enhancing existing ditches.
- 5.3.17 Initially reduce gazing pressure by excluding grazing during sensitive periods for Marsh Fritillary (May to August inclusive) and birds (March to July inclusive) within the respective mitigation areas to allow natural regeneration of wetland plant species. If natural regeneration is unsuccessful further measures will be required.

The supplementation of this with the planting of local provenance species such as devil's bit scabious to directly assist marsh fritillary butterfly as part of any initial restoration work within the marsh fritillary mitigation area, followed by other species such as meadow thistle, greater bird's foot trefoil, marsh bedstraw and ragged robin amongst others could be incorporated into the management, as well as additional actions such as further restrictions on grazing and mowing and avoiding use of artificial fertilizers, to further promote the success of natural regeneration. Use of commercially sourced seed mixes will be avoided.

- 5.3.18 Additionally, wet grassland within the bird mitigation area should aim to provide a short grassy sward of 3 cm or less (c. 70% of area), occasional bare patches of soil (c. 10% of area), clumps and tussocks of grass and reeds (c. 20% of area), shallow muddy water margins and limited dead plant matter. Furthermore, creation of scrapes and bare ground should be provided if not naturally created through presence of appropriate livestock. As detailed previously, local provenance seed mix and hydrological management should be sought should wet grassland conditions fail to regenerate naturally.
- 5.3.19 No application of fertiliser, manure or lime should be undertaken on these fields. Once established, management should follow the wet grassland grazing rotation by light grazing during late summer and autumn and year-round ditch management recommended.

Feature 4 Hedgerow and Tree Planting and Enhancement

- 5.3.20 The condition of the existing hedgerows present within the Site varies greatly with some being described as poor with presence of large gaps, limited structural diversity and the lack of suitable native species such as hawthorn (*Crataegus monogyna*) or blackthorn (*Prunus spinosa*). The composition of much of the existing hedgerows is evident of management measures typical for agricultural environments, which can often limit habitat value. Some hedgerows were of more suitable condition due to a lack of intensive management, where the hedgerow had become taller, thicker, and provided transitional corridors to treeline habitat. Limited management can also lead to unsuitable hedgerow condition as the valuable scrub layer can be lost or overgrowth and can lead to collapse.
- 5.3.21 To accommodate the Proposed Development, 169 m of hedgerows would be removed, primarily due to accommodating the access tracks as well as accommodating abnormal load deliveries into the Site and maintaining safe sightlines for vehicles exiting the Site. To offset for these losses, 3.26 km of new hedgerow habitat will be planted across the Site as detailed in **Figure 3**. This will create further benefit to species of farmland birds, bats, hedgehogs, badgers, and invertebrates as well as provide significant beneficial environmental services including regulating hydrology, pesticide infiltration, climate, and wind erosion (Hedgelink, 2023).

- 5.3.22 To achieve the targets for hedgerow habitat condition around the Site, hedgerows will be planted and enhanced in accordance with best practice guidance (DEFRA, 2011; Hedgelink, 2013a & 2013b; The Tree Council, 2021). Improving the management of existing hedgerows to provide species-rich habitat can also be achieved by appropriate methods, such as those detailed below.

Planting

- 5.3.23 Planting is proposed to be distributed across the Site in areas where potential enhancement would provide significant benefits to the heterogeneity of the area, and improve connectivity to foraging, commuting, and roosting areas along other hedgerows and woodlands off-Site for species of bats, birds and other fauna. Planting will ensure that collision risk to birds and bats does not increase by strategically placing these newly created habitats away from proposed turbine locations. Hedgerow planting will be arranged following the double row planting methodology, utilising old field boundaries wherever possible and incorporating hedgerow trees to offset the unavoidable losses of treeline habitat.
- 5.3.24 Double hedgerow planting is the preferential option whereby hedgerows are staggered along two rows with 4-6 plants 30-40 cm apart per 1 m length. Double hedgerow planting provides a wider hedgerow with internal gaps within which can be highly beneficial for nesting birds, bats and invertebrates.
- 5.3.25 Pre-planting groundwork will break up the soil by inversion if needed and remove any competing vegetation, which may prevent growth. In deep soil, slot planting or T-notch planting can be undertaken whereas if the soil is composed of heavy clay or difficult soils pit or trenching planting methods will be required. Groundwork will be completed prior to the establishment of the hedgerows in spring.
- 5.3.26 Species composition within the hedgerows will reflect nearby hedgerows with a minimum of five structural native species. Due to the removal of some trees throughout the Site, hedgerow enhancement will retain and enhance existing trees where possible. Further planting of trees within the hedgerows will also be included. Management efforts will allow trees to develop vertically with periodic trimming alongside the hedgerow management schedule.
- 5.3.27 Once the hedgerow is planted in late autumn or winter (September to February inclusive), protection from grazing livestock and wildlife will be required to allow for the immature plants to grow. Stock proof fencing may be required if intensive grazing is present, although plastic mesh guards will prevent damage where low stock density grazing is taking place. Along arable fields where soil enrichment will likely be an issue, weed control will be necessary. Mulch will be spread along the base of the hedge to a 10 cm depth, once applied in summer this can be replaced in subsequent years. After establishment, trimming and eventual coppicing cycles can be undertaken to retain consistent biodiversity value across the lifecycle of the hedgerows.

Trimming and Coppicing

- 5.3.28 Poor condition hedgerows throughout the Site are overgrown, lack species diversity and have significant canopy gaps. By cutting down to the base stumps of such

hedgerows to allow new regrowth and subsequent appropriate management or filling of gaps with saplings of native species, the canopy structure can be reformed. Coppicing allows for the canopy gaps or woody overgrowth to regrow at an appropriate density to provide a thick but traversable growth for species which utilise the habitat. Once an immature hedgerow is established, regular light trimming gradually increasing in cutting height will allow for the canopy to slowly develop in height. Once the hedgerow is established with a trimming cycle, fruiting structural species within the hedgerow will provide significant wintering resources for bird species such as redwing (*Turdus iliacus*) and fieldfare (*Turdus pilaris*).

- 5.3.29 Once established, trimming frequency of hedgerows will reduce to every three years. Hedgerows will increase in size, improve structure, and will allow for structural hedgerow species such as hawthorn and blackthorn to fruit. Care should be taken to avoid frequent trimming to the same cutting level, since this can form a dense woody aggregation that limits the internal space within the hedgerow for nesting or refuge. This can be avoided by raising the cutting height above the previous cutting level after 2-3 trimming cycles. Infrequent trimming management will continue until restarting the coppicing cycle after 20 years of hedgerow growth.
- 5.3.30 Biodiversity value will be improved by incorporating trees of variable ages within the hedgerow, encouraging out-growths of shrub species (i.e. *Rosa* spp.), management of base gap ditches and encouragement of a soft-margin around the base of the hedgerows. Additionally, tree planting of native species around the peripheries of the proposed new substation will help to compensate for the loss of trees as a result of the Project. Further management of field margins, dry meadow grassland, ditches, woodland, and scrub will provide significant heterogeneity across the enhancement areas, which will be linked by hedgerows.

Bird and Bat Boxes

- 5.3.31 Bird boxes will be installed throughout both pockets of woodland within the Site to increase nesting habitat for bird species. Boxes will be positioned sensitively so as to avoid increasing the risk of collisions with turbines, although it is recognised that the species for which the boxes will primarily be aimed at (i.e. passerines) are not particularly susceptible to high levels of collision risk with turbines. The material of the boxes will be made from an insulating wood/concrete compound that is long-lasting and waterproof.
- 5.3.32 Bird boxes, such as the 2M Schwegler nest box with 32 mm hole, will be installed 4-6 m off the ground, avoiding positions that are prone to strong sunlight and strong winds. The manufacturer's instructions will be followed for installation.
- 5.3.33 Where it is necessary to clean (annually), repair or replace damaged or broken bird boxes on monitoring visits, this will be undertaken during October to January inclusive when birds are highly unlikely to be nesting in them. If nesting birds are found, cleaning/repairs will be postponed until the chicks have fledged. If broken or damaged, they will be replaced with boxes with the same or a similar design. Should additional information or advice for the ongoing maintenance and / or replacement of these boxes be required, this will be obtained from the manufacturer.

- 5.3.34 Bat boxes and tubes will be erected in areas of high bat activity and away from proposed turbine locations. 'Self-cleaning' bat boxes such as the 1FF Schwegler bat box and the 2FR Schwegler bat tube, will be mounted on large mature retained trees, c.4-6 m off the ground facing different directions to provide a variety of micro-habitats. This will increase the roost resource for the area within the existing natural features of the Site. The boxes are to be designed to maintain a stable, warm environment and allow bats to roost in clusters. The manufacturer's instructions will be followed for installation.
- 5.3.35 Self-cleaning bat boxes and tubes generally require no maintenance (they have a tilted base to allow droppings to fall out). However, if broken or damaged, they will be replaced during regular monitoring visits. Bat boxes will first be checked by a bat-licensed ecologist before removal to confirm there are no roosting bats present.

Feature 9: INNS Management

- 5.3.36 The presence of INNS species recorded within the Site poses the risk for the spread of such species, potential delays to project programme, potential biodiversity consequences and future baseline impacts throughout the development.
- 5.3.37 The implementation of an INNS management plan (**ES, Volume III, Appendix 10.6: Invasive Non-Native Species Management Plan**), that will be included within the detailed Construction Environmental Management Plan (CEMP), anticipated to be conditioned as part of any permission, will reduce the potential for other invasive species and outline targeted management.

INNS Management Plan

- 5.3.38 Prior to construction of the Proposed Development commencing, an Invasive Species Survey using best practice guidance (Environmental Protection Agency, 2021; Booy, Wade and Roy, 2016) will be undertaken within the Site to map the presence of invasive species encountered. The results of this survey will update the baseline and inform the requirement for any additional management to control such species.
- 5.3.39 After establishing precise locations where invasive species are present, management decisions will be made and should it be necessary, the INNS management plan (**ES, Volume III, Appendix 10.6: Invasive Non-Native Species Management Plan**) will be updated. Control methods for INNS and an outline method statement are presented in **ES, Volume III, Appendix 10.6: Invasive Non-Native Species Management Plan**.

5.4 Maintenance Tasks

- 5.4.1 This section of the management plan sets out the actions required for the initial period of maintenance for the first five years after completion of construction as well as the long-term maintenance requirements for those newly created or enhanced habitats described above in Section 4. **Table 7** below provides for each feature (habitat or species) a description of the initial management to be undertaken, the rationale for it, and frequency. **Table 8** then outlines the long-term management prescriptions that are to be implemented for 35 years of the lifetime of the Proposed Development, after the initial management period has concluded.

Table 7 Initial Maintenance Tasks

	Task	Management to be undertaken	Rationale	Timing	Year				
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Habitats									
Woodland and other tree planting	Watering	Assuming that guidance periods for planting trees and shrubs are adhered to no watering of trees/shrubs will be required. However, given recent weather patterns exceptionally dry spring may require watering of planted whips.	Tree planting to be undertaken outside of the summer months. Large scale watering of planted trees is unlikely to be feasible. Any losses of planted material will be replaced.		-	-	-	-	-
	Check tree guards	Check and secure tree guards and fencing. Re-firm planted trees and stakes by treading around the base. To be undertaken 3 times per year for at least the first three years, and after storm events. At end of year 3 consider requirement for ongoing checks and maintenance. Continue where necessary. Remove when appropriate.	Ensure tree protection is maintained during the period it is required.	March, July and October	✓	✓	✓	✓	✓

	Task	Management to be undertaken	Rationale	Timing	Year				
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
	Plant inspections and replacements	Plant replacement inspections shall be made in August/September annually for all planted tree stock, to identify dead, diseased and dying tree stock. Plant replacements shall be carried out annually between the start of November and end of March. Priority shall be given to completing replacement planting before the end of December each year. Through monitoring the establishment of tree species it may be necessary to consider tailoring replacements in response to success/failure of individual species. Replacement plants to match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.	Inspect planting to identify dead, diseased and dying plants.	Check: August/September. Replacement planting: November to end of March (ideally by end of December)	✓	✓	✓	✓	✓
	Control of grass and weeds within areas of tree planting	During first five years maintain a 1 m diameter clear of vegetation around the base of planted trees, or a 1 m free strip where rows	Reduce competition from weeds and grasses and encourage	Late April/early May and August/September	✓	✓	✓	✓	✓

	Task	Management to be undertaken	Rationale	Timing	Year				
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
		occur. Mechanical, chemical or mulching methods of vegetation control acceptable, assuming that they act to maintain a 1 m free strip. Where chemical methods are used select an appropriate selective herbicide. Where using mechanical methods ensure weeds are removed prior to setting seed. Remaining vegetation except trees and coppice shoots to be cut annually and arisings removed, avoiding damage to planting and associated tree guards etc. Cut to height of 100 mm twice annually in late April/early May and August/September.	establishment of tree planting.						
Grassland (dry meadow)	Watering	During Year 1 only water seeded areas if unseasonal conditions result in a lack of adequate rainfall to aid germination of seed, water as necessary to ensure the establishment and continued thriving of all seeding.	Watering to be undertaken if required to ensure establishment of grassland sward.	May to September	✓				

	Task	Management to be undertaken	Rationale	Timing	Year				
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
	Initial grassland cut to height of 50mm	For seeded areas of new grassland creation no grazing will be undertaken during at least the first three years following sowing. During Year 1 commence cutting in seeded areas once the sward has reached a height of 100-150 mm. Once this trigger point has been reached undertake single cut to 50 mm during each month stated. Cuts during Year 1 should leave a 6 m uncut margin around the field (s). Cut material from the remaining grassland areas should be removed.	Initial cutting will be required to ensure that seedlings of newly sown species are not shaded out by remnants of the original sward or undesirable weed species.	July, August, September (cut in each month as soon as trigger height has been reached)	✓				
	Control of undesirable species	Cover of undesirable species including docks, thistles and ragwort should be reviewed annually and spot treatment with herbicide and suitable portable applicator (or pulling where appropriate) to be undertaken to maintain overall presence in the Mitigation Site at 5% or less.	Aims to prevent undesirable species gaining dominance within the grassland sward.	August	✓	✓	✓	✓	✓

	Task	Management to be undertaken	Rationale	Timing	Year				
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
	Cut grassed areas to height of 150 mm	No grazing will be undertaken during at least the first three years following sowing. During Years 2 to 5 inclusive, all grassland areas except a 6 m field margin will be subject to a single cut to a height of 150 mm during mid-July. Cuttings are either to be used to provide habitat piles where the original ones have deteriorated with any excess collected and removed.	Cutting aims to ensure structural diversity in the sward and provide habitat that is suitable for invertebrates, reptiles and amphibians.	Mid-July		✓	✓	✓	✓
Wet grassland	Reduce grazing pressure	Exclude grazing from marshy grassland during period May to end of August	Allow wetland plants to establish		✓	✓	✓		
	Light grazing up to year 6	Exclude grazing from wet grassland during period May to July to allow plants to establish and set seed with light grazing during late summer and autumn.	Allow wetland plants to establish					✓	✓
Hedgerows / Hedgerow trees	Control grasses and weeds in vicinity of new hedgerow planting	Keep a 1 m strip either side of hedgerow planting free of grasses and weeds.	During the establishment period the strip of ground adjoining hedgerows will be managed to	March, July and October	✓	✓	✓	✓	✓

	Task	Management to be undertaken	Rationale	Timing	Year				
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
		Use suitable herbicide or hand pulling (as appropriate). Where utilising herbicide allow recommended period for herbicide to take effect before clearing dead weeds.	limit competition from weeds and grasses.						
	Check rabbit guards and tree shelters on new hedge planting	Checks and secure tree guards and fencing. Re-firm planted trees and stakes. To be undertaken 3 times per year for at least the first three years. At end of year 3 consider requirement for ongoing checks and maintenance. Continue where necessary. Remove when appropriate.	Ensure hedgerow protection and limit competition during establishment period.	March, July and October	✓	✓	✓	✓	✓
	Plant inspections and replacements	Plant replacement inspections shall be made on an annual basis for all newly planted hedgerows (or infilling of existing hedgerows) in August/ September for the first five years after planting. Plant replacements shall be carried out annually between the start of November and end of March. Priority shall be given to	Inspect planting to identify dead, diseased and dying plants	Inspections - August-September. Replacement planting - November to March	✓	✓	✓	✓	✓

	Task	Management to be undertaken	Rationale	Timing	Year				
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
		complete replacement planting before the end of December each year.							
	Cut new hedgerows	New hedgerow planting shall not be cut during Years 1 to 3 inclusive. Pre-existing hedgerows (and planted hedgerows from Yr 4 onwards) to be cut every two years using a side-arm mounted flail during dormant period from November to February. Do not cut hedgerow trees. Where possible adjacent lengths of hedge shall be cut in different years leaving short sections of shrubs untrimmed.	Promote growth of flowers, nuts and berries.	November to February				✓	
	Watering	Assuming that guidance periods for hedgerow planting are adhered no watering of trees/shrubs will be required.	Hedgerow planting to be undertaken outside of the summer months. Large scale watering of planting is unlikely to be feasible. Any losses will be replaced.		-	-	-	-	-

	Task	Management to be undertaken	Rationale	Timing	Year				
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
	Pruning of hedgerow trees	- Do not prune whips or feathered trees. - Do not prune during the late winter/early spring sap flow period, unless specified otherwise. - Crown prune young trees up to 4 m high by removing dead branches and reducing selected side branches by one third to preserve a well-balanced head, ensuring the development of a single strong leader and the removal of duplicated branches and potentially weak or tight forks. In each case cut back to live wood.	Pruning to promote development of healthy hedgerow trees.	Inspect: January and July. Pruning (as required avoiding later winter/early spring sap flow period)	✓	✓	✓	✓	✓
Species									
Birds and bats	Maintain bird boxes and bat boxes	Undertake annual check that bird boxes and bat boxes remain in place and repair or replace any missing/damaged poles and boxes.	Ensure habitat features remain suitable for use.	March	✓	✓	✓	✓	✓
Invasive non-native species	Undertake an annual check for the presence of invasive non-native species	Pre-construction walkover to identify and map all INNS to ensure no additional spread / new growth has taken place from the time of the baseline surveys.	Ensure biosecurity protocols during construction have been successfully implemented and	May to September	✓	✓	✓	✓	✓

	Task	Management to be undertaken	Rationale	Timing	Year				
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
		Implement INNS management plan in sufficient time ahead of any Site clearance to remove any potential for spread of INSS during the pre-construction stage. Annual walkover survey to be undertaken alongside other survey/maintenance tasks by a suitably qualified ecologist. Where invasive non-native species are identified then an appropriate management regime should be agree with the Energy Park operator.	identify any invasive species issues at an early stage.						

Table 8 Long-term Maintenance Tasks

Subject	Task	Management to be undertaken	Rationale	Timing	Years
Habitats					
Woodland	Thinning	Thinning and felling of selected woodland trees shall remove the less healthy or less desirable trees and give the remaining trees more space to develop. Cut to ground level. Cut some of the material into 1 m lengths and create brash piles to promote invertebrate habitat. Prolific colonisers shall be removed to favour desired species to establish or to maintain designated open areas. A mixed age class across the species with reduced canopy cover will create light for the field layer to develop; however, drastic interventions which cause abrupt changes in light regimes should be avoided Requirement for thinning to be considered after ten years, and periodically at five-year intervals thereafter.	Create a diverse woodland structure and promote development.	Sep to March	10, 15, 20, 25, 30 & 35.
	Coppicing (woodland edge)	Once tree planting has begun to establish coppice management should be undertaken. Commence coppicing of woodland edge planting in Year 10.	Promote variation in the age structure and provide suitability for a range of faunal species.	Sep to March Woodland edge - consider from Yr 10.	10, 15, 20, 25, 30 & 35.

Subject	Task	Management to be undertaken	Rationale	Timing	Years
		Divide woodland edge habitats into sections of 20-30 m in length. Clear non-adjacent areas on a 5-10 year rotation. Cut stumps to height of 150 mm using chain saw or bow saw. Cut should be at 45 degrees to allow run-off and promote regrowth. Clear compartments year in rotation to develop a diverse age structure.			
	Coppicing (main woodland areas)	Main areas of woodland planting to be coppiced from around Year 15 onwards under a 7-10 year regime in rotation. Divide woodland into suitable management parcels and clear in rotation to create a chequerboard effect. Dependent on rate of establishment it may not be suitable to commence coppice management of main woodland areas until later in the establishment period.	Promote variation in the age structure and provide suitability for a range of faunal species.	Sep to March Main woodland - consider from Yr 15 onwards	15-35
Grassland (dry meadow and wet grassland)	Maintain grassland sward	From Years 6 onwards grassland areas shall be managed through either cutting or grazing (preferable). Where grazing is proposed consideration should be given to the requirement for fencing around water bodies (this could be temporary in nature) in order to prevent excessive grazing and/or poaching of marginal vegetation.	Manage grassland to maintain grassland diversity and provide suitable habitat for amphibians and reptiles.	<u>Cutting</u> mid-July. <u>Grazing only</u> All year. <u>Cut & aftermath grazing</u> Cut: Mid-July.	Each year from Yr 6 onwards

Subject	Task	Management to be undertaken	Rationale	Timing	Years
		<u>Cutting</u> Each year grassland areas will be subject to a single cut to a height of 150 mm between July and September, with the following exceptions: - a 6m uncut margin will be retained around the field margins to maximise structural complexity. Cuttings are to be removed or (where applicable) used to replenish habitat piles where the original ones have deteriorated with any excess collected and removed.		Graze: August to end-October.	
		<u>Grazing only</u> Where grazing only it shall be light (maximum of six sheep or one cow per hectare) and extend throughout the year to provide a mosaic of sward structures and prevent the grassland sward from becoming rank. Annual reviews of the grazing regime shall be carried out to get the timing and numbers of stock to a level where the grassland is maintained in good condition, but excessive natural regeneration of scrub is prevented.			
		<u>Cut and graze</u> Where treated as hay meadow (mowing and aftermath grazing) then all areas would be subject to a single cut in July-			

Subject	Task	Management to be undertaken	Rationale	Timing	Years
		September with light aftermath grazing until the beginning of March. No grazing to take place between March and July during the main botanical growth period. Annual reviews of the grazing regime shall be carried out to get the timing and numbers of stock to a level where the grassland is maintained in good condition, but excessive natural regeneration of scrub (more than 30% cover) is prevented.			
	Control of undesirable species	Cover of undesirable species including docks, thistles and ragwort should be reviewed annually and spot treatment with herbicide and suitable portable applicator (or pulling where appropriate) to be undertaken to maintain overall presence in the at 5% or less.	Aims to prevent undesirable species gaining dominance within the grassland sward.	June	Each year from Yr 6 onwards
	Scrape creation	Creation of areas of bare ground for ground nesting waders, undertaken within bird mitigation area if bare ground (c. 10% area) not created naturally through livestock.	Aims to promote use of habitat within bird mitigation area by nesting lapwing and other ground nesting wader species	September - February	Conditional
	Hydrological management	Management of hydrological features (e.g. ditches) within mitigation areas to ensure correct hydrology present for wet grassland to naturally recolonise	Aims to balance hydrology within wet grassland habitats to promote benefits for mitigation target	September - February	Conditional

Subject	Task	Management to be undertaken	Rationale	Timing	Years
			species (e.g. marsh fritillary and lapwing)		
Hedgerow/ Hedgerow Trees	Cut hedgerows	Hedgerows are to be cut every two years during dormant period January to February using a tractor mounted side arm flail. Adjacent lengths of hedge shall be cut in different years. Hedgerow trees shall not be cut. Where appropriate short sections of hedgerow should be left untrimmed to promote diversity.	Ensure ongoing management of hedgerows that will maintain and enhance value for wildlife.	January/February (N.B. Cutting in rotation - each hedge to be cut every other year)	Each year in rotation from Yr 6 onwards
	Lay new hedge	Target hedge laying to be carried out 10 years post-planting, depending on soil and climatic conditions. Only to be undertaken once untrimmed stems reach 2.5 m-4 m high with a stem diameter at base of between 50 mm-100 mm. All hedge laying to be undertaken by an experienced hedge laying contractor. Hedgerow trees to be retained and method to match local and historic hedgerow characteristics.	Maintain structural diversity within hedgerow network	November to February	Yr 10 onwards

Subject	Task	Management to be undertaken	Rationale	Timing	Years
Species					
Birds and bats	Maintain bird boxes and bat boxes	Undertake annual check that bird boxes and bat boxes remain in place and repair or replace any missing/damaged boxes.	Ensure habitat features remain suitable for use.	March	10, 15, 20, 25, 30 & 35.
Invasive non-native species	Undertake an annual check for the presence of invasive non-native species	Annual walkover survey to be undertaken alongside other survey/maintenance tasks by a suitably qualified ecologist. Where invasive non-native species are identified then an appropriate management regime should be agreed with the Energy Park operator.	Ensure biosecurity protocols during construction have been successfully implemented and identify any invasive species issues at an early stage.	May to September	10, 15, 20, 25, 30 & 35.

5.5 Monitoring

Monitoring of Management Measures

- 5.5.1 Monitoring is necessary to measure the extent to which the objectives of the management plan are being met and to allow any remedial action to be implemented if appropriate. During monitoring visits, the status of the habitats created, enhanced, and controlled will be assessed by the monitoring regime identified in **Table 7** and **Table 8**. Commencing in the first year after construction, general habitat condition assessments of all the management features will be undertaken to confirm whether habitats have been successfully established. Remedial measures will be implemented wherever necessary according to the prescriptions and feedback loops described within Section 4. Before decommissioning takes place, a final assessment of the condition and success of the various habitat prescriptions will be undertaken (in year 35). The results of this monitoring will be used to inform the management prescriptions for the remainder of the 50 year operational life of the Proposed Development.
- 5.5.2 A short annual report will be produced following the monitoring visits to ensure documentation of the ongoing success of the HMP, and to identify and communicate any necessary and required actions. These reports will be submitted for the attention of the Planning Authority and other relevant stakeholders.

5.6 Responsibilities

- 5.6.1 The management and monitoring strategies laid out within this document will be the responsibility of the Energy Park operator to implement. It is their obligation to uphold the objectives and targets included in this management plan and to be accountable for the maintenance of the habitats that will be created. The specified management prescriptions under each management feature will be carried out by the Energy Park operator in conjunction with the relevant landowners, for which agreement to these prescriptions has been secured as part of the legal agreement and associated letters of consent.
- 5.6.2 A reporting schedule will be agreed with Bridgend County Borough Council (BCBC) and Neath Port Talbot Council (NPTC). A HMP implementation report should be compiled at the end of each monitoring year detailing the findings of all management and monitoring activities. The HMP implementation report should present a summary of the activities undertaken over the course of each monitoring year, stating whether these activities meet the requirements of the HMP and relevant planning conditions. The HMP should be considered as a dynamic document and it should be reviewed at the end of each monitoring year and modified as required, pending submission to and approval by the BCBC, NPTC and NPWS.
- 5.6.3 Monitoring and reporting on the HMP measures will be undertaken by independent, suitably experienced and qualified ecologists employed by the Energy Park operator and submitted to BCBC, NPTC and the NPWS on behalf of the Energy Park operator.