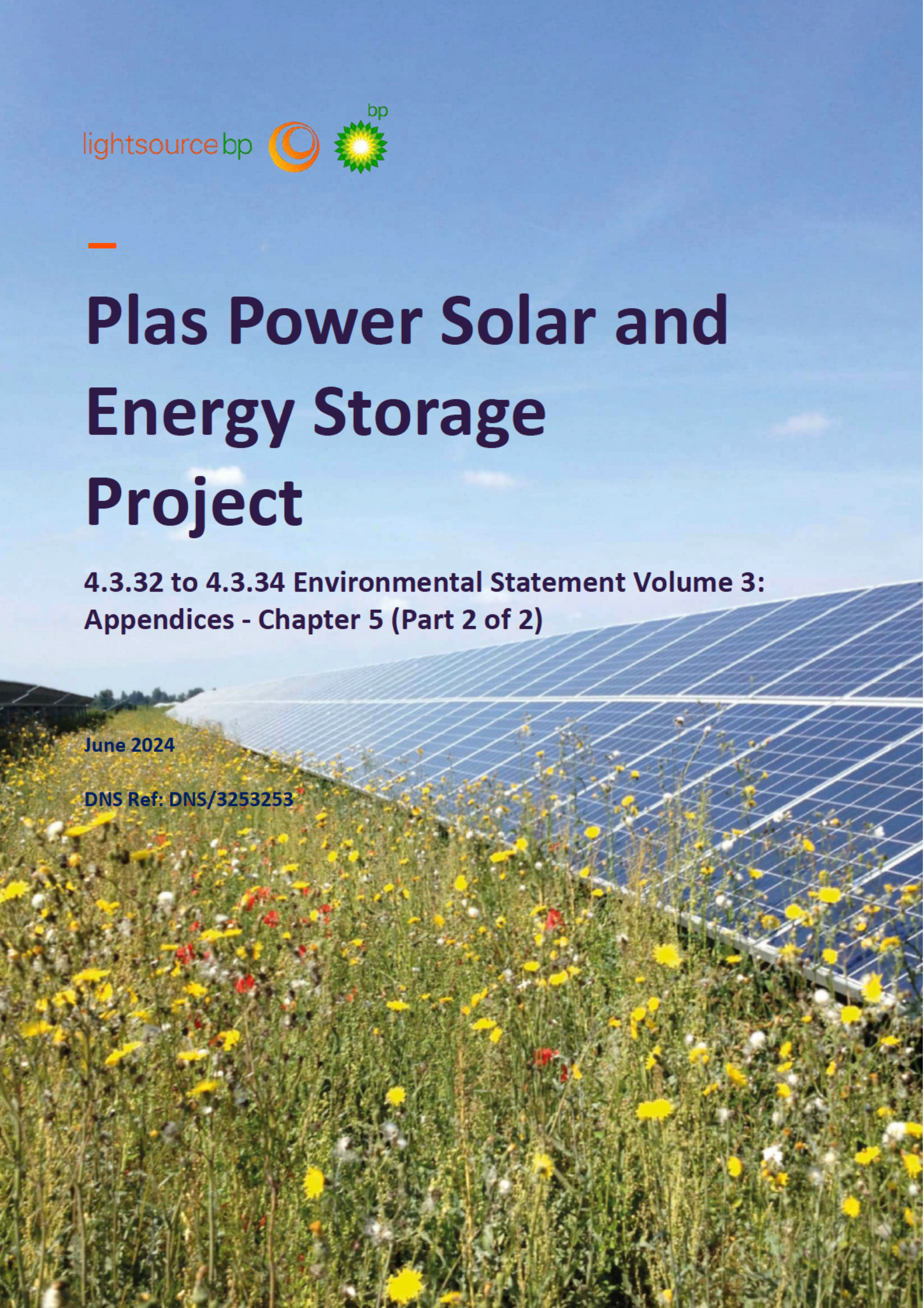


Plas Power Solar and Energy Storage Project

4.3.32 to 4.3.34 Environmental Statement Volume 3: Appendices - Chapter 5 (Part 2 of 2)

June 2024

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Appendix 6.8: OUTLINE LANDSCAPE AND ECOLOGY MANAGEMENT PLAN

Plas Power Solar and Energy Storage Project



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Prepared for:

Lightsource bp

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1 INTRODUCTION

1.1 General Summary

1.1.1 RPS was commissioned by Lightsource bp to prepare an outline Landscape and Ecological Management Plan (oLEMP) for the installation of a solar farm and energy storage facility at the Plas Power site. The site lies within the Plas Power Estate at Wrexham, North Wales.

1.1.2 Landscape and ecology elements, and their management, are intrinsically linked. As such, this report includes input from both landscape and ecology professionals to ensure the management meets the required aims and objectives intended following the related survey work, and the design and habitat provision intentions. Expectedly there is some overlap and repetition within the guidance provided.

1.1.3 The purpose of this report is to provide details for the long-term management and maintenance requirements of landscape and ecology elements that will be incorporated into the landscape scheme at the Plas Power Solar and Energy Storage facility, from herein referred to as 'Proposed Development'. The Illustrative Landscape and Ecology Masterplan and Typical Planting Schedule are included within this report at **Drawing 1** and **Appendix B** respectively. The detailed landscape design will be prepared in consultation with Wrexham Council and this oLEMP will be updated accordingly.

1.1.4 The report defines general species protection measures that will be implemented as part of the Proposed Development. Species specific mitigation measures which will be implemented during the construction and decommissioning of the Proposed Development are also provided.

1.1.5 This report details the biodiversity and landscape aims and objectives for the habitats at the site during the operation of the Proposed Development. It sets out the proposed management actions / specifications which are designed to achieve these objectives. The report also details the monitoring programme and targets which will assess the outcomes of initial habitat creation and the ongoing management. It also provides a detailed landscape maintenance schedule within **Appendices C – G.** Standard management considerations are detailed within **Appendix H**.

1.1.6 Monitoring will inform future management decisions, confirming where the specific target habitat conditions are being achieved and identifying if there are shortfalls to be addressed through remedial actions or modifications to management. This process of habitat management for biodiversity, supported by monitoring, will be a long-term commitment that will continue over the lifetime of the Proposed Development.

1.2 Site Description

1.2.1 The Proposed Development is approximately 136 ha in size located to the west of Wrexham, North Wales, centred at grid reference SJ 301 501.

1.2.2 The site comprises two sections of land located to the north and south of the A525. The majority of the survey area lies to the south of the A525 and covers majority farmland, most of which is pasture. A section of the survey area lies to the north of the A525 and largely comprises arable farmland (grass ley fields). Small sections of amenity grassland and tall ruderal are present.

1.2.3 The fields are bounded by hedgerows, mature and semi-mature trees and woodland.

1.2.4 Big Wood Wildlife Site (WS) adjoins the survey area to the south with the River Clywedog flowing through this block of woodland. Higher Berse Marsh WS adjoins the survey area at the north and Afon Gwenfro WS lies beyond the B5430 (Higher Berse Road) to the north of the survey area.

1.2.5 The A483 dual carriageway is located to the east of the survey area, adjoining the site boundary to the south-east.

1.2.6 The wider landscape comprises farmland, the city of Wrexham to the east and smaller villages to the north and east.

1.3 Delivery Mechanism

1.3.1 Implementation and maintenance of all hard and soft landscape areas (including planting) shall be covered by the main contractor under the terms of the 12-month defects period. The defects period will commence following the agreed Practical Completion (PC) date. The main contractor shall be responsible for all reasonable plant failures and defects with the landscape and ecology works for the duration of this period. Following completion of the 12-month defects period, at an agreed date, responsibility for all future maintenance and management shall be passed to Lightsource bp.

1.3.2 Lightsource bp will be responsible for the full implementation of the management actions and monitoring activities in accordance with the plan and work schedule. Lightsource bp will document progress in relation to the nature conservation aims and objectives and monitoring reports will be circulated to the LPA.

1.3.3 The implementation of the management prescriptions at the correct time of year will continue over the lifetime of the Proposed Development. Lightsource bp will appoint suitably experienced contractors and ecologists as required to assist in the delivery.

1.3.4 A full LEMP report will be prepared for the Site and will include details of tenure, site liaison and wardening, persons or bodies responsible for commissioning and undertaking management and surveillance together with required skills and competencies.

1.3.5 The mechanism through which the long-term funding can be guaranteed will be agreed with the local planning authority prior to the start of construction. Funding will cover the physical management on the ground following good ecological practice, targeted biological monitoring and the associated reporting and when necessary remedial measures.

1.4 Responsibilities for Management

1.4.1 All maintenance and management of soft landscape areas within the Proposed Development will be undertaken by a suitably qualified landscape management contractor and/or other specialist contractors (as required) on behalf of Lightsource bp, following the end of the 12-month defects period and satisfactory completion of any landscape defects or necessary reinstatement works. Due to the presence of protected species, the ecology parts of this oLEMP detail protection and management requirements during the construction phases as well.

1.4.2 Periodically the landscape and ecology maintenance and monitoring works shall be inspected by suitably qualified and experienced persons to ensure that the landscape management operations are being completed in accordance with the approved report.

1.4.3 The nature of soft landscape elements as a dynamic entity means that the management requirements shall be required to be reviewed periodically to ensure that they are still achieving the overarching objectives and any adjustments made to practices and / or frequency to bring the scheme in line with the management requirements.

2 LANDSCAPE DESIGN OBJECTIVES AND MANAGEMENT AIMS

2.1 Landscape Design Objectives

2.1.1 The landscape design was developed in co-ordination with the other related environmental disciplines including ecologists, flood risk, heritage and arboricultural teams to ensure a responsive and multi-functional design was created.

2.1.2 The overall design objectives of the landscape proposals are as follows;

- **Landscape Integration and Local Character:**

  To respond to the setting, scale and character of the site and to provide screening to the Proposed Development from within the local area and from elevated areas to the west. Provide an appropriate setting for the proposals, responding to adjacent pastoral/arable land uses where appropriate, ensuring that the landscape proposals include native species planting appropriate to the local area. Enhancing and protecting the existing landscape fabric.

- **Landscape Amenity:**

  Enhance the local residents and visitors experience within this landscape, including the retention and enhancement of public access along waymarked footpaths and introduction of interpretation boards, and some flexible amenity and recreation areas.

- **Biodiversity:**

  To protect, manage, enhance and monitor the nature conservation value of the site, creating a biodiversity rich environment – in line with all biodiversity objectives listed in Section 8 below. Provision of designated Biodiversity Enhancement Areas which are areas designed for habitats and have low human intervention.

2.2 Management Aims

2.2.1 The management of the site shall seek to balance the integration of the Proposed Development and its operational objectives / needs within the existing mature vegetation and context of the locality. It will lead to the retention, enhancement and management of the existing hedgerows and trees. Particularly strengthening and maintaining hedgerow boundaries at 3m high. Ensure longevity of new tree and hedge planting, and the establishment of species rich grassland, tussock grassland and wildflower meadow areas.

2.2.2 To ensure the longevity of the landscape scheme to provide the biodiversity enhancements proposed and the required screening to the Proposed Development, the recommendations contained within this report should be implemented post practical completion of all soft landscape elements within the site.

3 LANDSCAPE ELEMENTS

3.1.1 For the purposes of this oLEMP, the landscape elements have been grouped into hard and soft landscape elements, these have been identified below and the various elements shall be managed in accordance with best practice guidance and specific works outlined in **Appendix C – G** (Landscape and Ecological Maintenance Schedule). Due to the intrinsic nature of landscape and ecology, there is an overlap with the biodiversity features listed on the following page.

3.2 Soft Landscape Elements

3.2.1 The landscape elements listed below have been incorporated into the Illustrative Landscape and Ecology Masterplan. Mixes of tree and shrub species that could be included in the planting areas are given in the Typical Planting Schedule included in **Appendix B** along with recommended planting densities and mature heights.

- Existing Hedgerow and Trees (individual and groups);
- Existing Wooded Areas;
- Proposed Native tree and shrub planting;
- Native hedgerows;
- Tussocky grassland field margins;
- Wildflower grassland incl. hedgerow and woodland meadow, wet meadow and amenity meadow;
- Amenity Grass Areas (within informal recreation area);

3.3 Hard Landscape Elements

3.3.1 The various hard landscape elements are listed below, for further detail regarding the maintenance of these areas refer to **Appendix C – G** (Landscape and Ecological Maintenance Schedule).

- Permeable Crushed Stone Pedestrian Pathways
- Vehicular Access Asphalt Areas (non-adoptable);
- Fencing; and,
- Interpretation boards

4 BIODIVERSITY FEATURES

4.1 Habitats

4.1.1 The Proposed Development will comprise the following retained/enhanced and created habitats which will be subject to management to specifically promote their value for biodiversity. These habitats and the location of the Biodiversity Areas are shown on the Illustrative Landscape and Ecology Masterplan (**Drawing 1**) and Typical Planting Schedule (**Appendix B**).

Solar Arrays

- Grassland beneath solar arrays – previously improved grassland fields
- Grassland beneath solar arrays to be subject to low intensity grazing (Fields I and N) – previously improved grassland fields
- Grassland beneath solar arrays – previously arable fields
- Tussocky grassland field margins
- Retained hedgerows (some with mature and semi-mature trees)
- Winter cover crop
- New native species-rich hedgerows

Biodiversity Areas

- Wildflower grassland
- Tussocky grassland
- Winter cover crop
- Native tree and shrub planting
- New native species-rich hedgerows
- Three new ponds with native marginal planting
- Invertebrate banks

4.1.2 The majority of fields within the existing site comprise short-grazed improved grassland with a low species diversity. The remaining fields comprise ryegrass leys and fields used for potato crop production.

4.1.3 The fields will be sown with a grazing mixture and once established can be grazed by sheep during the operational life of the Proposed Development. Fields I and N will be subject to low intensity grazing with the aim of enhancing their biodiversity value.

4.1.4 The existing field boundaries comprise both species-rich and species-poor hedgerows with limited hedgerow base flora. The species-poor hedgerows, many of which have gaps, will be enhanced through the planting of a mixture of native species shrubs. The hedgerows will be sensitively managed to promote the development of dense structure with fruiting and flowering shrubs. New hedgerows will be created using a mixture of native species.

4.1.5 Hedgerows at the north of the site include mature and semi-mature trees which will be retained. The sensitive management of mature trees will minimise tree surgery operations.

4.1.6 The strips of field boundary grassland between the perimeter fence and hedgerow will be managed as tussocky grassland, allowing them to develop a more varied structure and greater species diversity compared to the short, grazed pasture.

4.1.7 Areas of winter cover crop will be sown with a mixture of species to create a replacement foraging resource for wintering birds.

4.1.8 In the Biodiversity Areas the following habitats will be created on formerly arable fields: new ponds, wildflower grassland, tussocky grassland, winter cover crop, dense scrub and tree planting and invertebrate banks.

4.1.9 New ponds will be created, and a range of marginal native species planted at the edges. A wildflower rich seed mixture and tussocky grassland mixture will be sown and sensitively managed to promote the biodiversity value of the habitat. Native shrubs will be planted and managed to promote the development of dense scrub. An area of winter cover crop will be created at the north of the area. Individual native trees will also be planted. Invertebrate banks will also be created in the area as per the specification in **Appendix A.**

4.2 Species

Great Crested Newt

4.2.1 Breeding populations of great created newts (GCN) *Triturus cristatus* have been recorded in nearby ponds, the closest being pond P3, 60 m west of the site boundary (RPS, 2023a, ES Appendix 6.4 and Appendix 6.5). The short-grazed improved pasture and arable, which constitutes the majority of the existing site, is considered to have low value for GCN. Taller grassland along the hedgerow margins provides greater cover and is more likely to be used by this species.

4.2.2 The majority of the construction activity will be located within arable and short grazed pasture where there is a very low likelihood of GCN being present. There is a low likelihood of GCN being present within the field margins and works within this habitat have potential to result in harm to GCN if present.

4.2.3 Species specific mitigation will be undertaken to protect GCN during construction and decommissioning.

4.2.4 The changes in the management of field boundaries will create a tussocky grassland structure which will provide significant cover and support a higher abundance of invertebrate prey than the close grazed pasture increasing the value of the field margins for GCN.

4.2.5 The planting of new hedgerows and creation of additional tussocky grassland strips will further increase the habitat extent. The tussocky grassland will improve the connectivity for GCN and other fauna across the site.

4.2.6 New ponds being created within the Biodiversity Areas will be designed to provide additional breeding habitat for amphibians. The deepest areas of open water will be designed to be at least 1m deep (as an average water depth) and a range of marginal native species for territorial display and egg-laying respectively.

4.2.7 Wildflower grassland will also provide a potential foraging habitat for amphibians with areas of dense scrub also providing cover.

Bats

4.2.8 Mature and semi-mature sycamore, oak and ash trees are distributed within hedgerows and boundary woodland throughout the site and, rarely, as stand-alone trees within the fields (RPS, 2023b, ES Appendix 6.1). These trees are of a sufficient age and size to contain potential roost features which may support bats.

4.2.9 The majority of trees within the site and the offsite woodland will be retained and protected.

4.2.10 A small number of trees may be felled to facilitate access into the site. None of the trees proposed for removal have features suitable for roosting bats.

4.2.11 The landscape proposals include several features which will benefit bats. The planting of new hedgerows will create new potential flight lines between areas of woodland and the planting of new

shrubs within the Biodiversity Areas will create new habitat boundaries suitable for foraging bats. The creation of new ponds and wildflower and tussocky grassland will promote the abundance of invertebrate prey.

Dormouse

4.2.14 There is potential for dormouse to be present in hedgerows bounding the onsite fields and adjoining woodland (RPS, 2023b, ES Appendix 6.1).

4.2.15 The majority of hedgerows within the site are intact, dense and scrubby providing suitable cover for dormouse and food sources. The have good connectivity to areas of offsite woodland.

4.2.16 There are several treelines and defunct hedgerows which are less suitable due to their poor connectivity and lower levels of cover. The area of Big Wood immediately adjoining the Proposed Development has a sparse understorey shrub layer, limiting its potential value for dormouse.

4.2.17 The retention of the hedgerows and trees and protection of offsite woodland limit the potential for impacts on dormouse to be associated with the localised widening of existing access points/gateways in hedgerows.

4.2.18 The loss of small sections of hedgerow (and a few hedgerow trees) will be compensated through the planting of new hedgerows and areas of scrub. These measures will result in an increase in the extent of suitable habitat for dormouse within the Proposed Development.

4.2.19 Species specific mitigation will be undertaken to protect dormouse during construction and decommissioning.

Wintering Birds

4.2.20 The existing arable and improved fields along with boundary hedgerows and woodland provide a foraging resource for wintering birds which feed (RPS, 2023c, ES Appendix 6.3).

4.2.21 The grassland beneath solar panels will be retained and can continue to be sheep grazed. The planting of new shrubs, trees and hedgerows and sensitive management of these habitats will increase the abundance of berries available in autumn and early winter.

4.2.22 The arable fields (sown as ryegrass and potato crop in 2023) will be converted to grassland. New areas of winter cover crop will be sown with a mixture of cereal species to provide a winter food resource for farmland passerines including meadow pipit, skylark, linnet and yellowhammer. The winter cover crop will be resown annually with a mixture of crop species valuable to wintering birds.

Breeding Birds

4.2.23 Up to two pairs of skylark and one pair of meadow pipit were recorded as probably breeding within the pasture fields during the breeding bird survey undertaken by RPS (RPS, 2021, ES Appendix 6.2).

4.2.24 The following birds of conservation concern have also been recorded as confirmed, probable or possible breeding species within adjoining woodland: kestrel, whitethroat, goldcrest, willow warbler,

grey wagtail, house sparrow, mistle thrush, song thrush and dunnock (RPS, 2021, ES Appendix 6.2).

4.2.25 The majority of the breeding species recorded during the survey were using the off-site woodlands adjoining the boundary of the site.

4.2.26 Ground nesting birds were the only species recorded as probably breeding within the development footprint (skylark and meadow pipit) and are both assumed to be nesting in the fields in low numbers.

4.2.27 The removal of small sections of hedgerow or trees may be required to facilitate access into the site. The retained hedgerows and trees will continue to provide nesting habitat during the operation of the Proposed Development. New hedgerows, trees and dense scrub will increase the extent of habitat available.

4.2.28 Species specific mitigation will be undertaken to protect nesting birds during construction and decommissioning, both ground nesting birds in fields and species nesting in hedgerows.

4.2.29 Dense scrub, hedgerows and trees will be sensitively managed to promote fruiting and flowering providing foraging resources.

4.2.30 New and retained habitats will be associated with invertebrate abundance providing food for nesting birds and their fledglings.

Reptiles

4.2.31 The short-grazed pasture fields and arable which constitute the majority of the site have very low value for reptiles (RPS, 2023b, ES Appendix 6.1). Taller vegetation alongside hedgerows and ditches provide areas of cover and potential foraging habitat and provide a narrow extent of higher value reptile habitat.

4.2.32 The small sections of hedgerow and tree removal required will affect the taller grassland field margins where reptiles may be present.

4.2.33 Species specific mitigation will be undertaken during construction and decommissioning where works could affect reptiles.

4.2.34 The creation of areas of grassland, scrub and ponds within the Biodiversity Areas will significantly increase areas of habitat suitable for reptiles within the site.

Invertebrates

4.2.35 The range of habitats which will be created in the Biodiversity Areas will provide promote invertebrate diversity:

- Ponds with open water and a range of native marginal species
- Native species-rich dense scrub
- Native trees
- Invertebrate banks close to wildflower grassland which will be of value for soil-dwelling solitary bees and wasps
- Wildflower grassland subject to low intensity grazing.

4.2.36 Tussocky grassland and hedgerows around the fields containing solar panels will also be managed to promote their value for invertebrates by increasing the diversity of native plant species, creating a more varied grassland structure and promoting fruiting and flowering of shrubs.

4.2.37 The sensitive management of trees in hedgerow and retention of deadwood will also retain habitat of value for invertebrates.

4.2.38 The sowing of a grazing mix throughout the fields where solar panels will be installed has potential to increase the niches and food sources for invertebrate populations.

5 GENERAL SPECIES PROTECTION MEASURES

5.1.1 An Ecological Clerk of Works (ECoW) will provide advice and undertake ecological supervision where required and where specified in the protection measures detailed below. The ECoW will be experienced in site work supervision including issues relating to the species affected and the specific task being undertaken (e.g. checks for nesting birds, dormouse etc).

5.1.2 Work carried out under a Natural Resources Wales EPS mitigation license for GCN will be supervised by the ecologist named on the licence or their accredited agent.

5.1.3 Prior to any works being carried out which risk harming animals, the landscape management contractor and his operatives will be given a toolbox talk by the project ecologist, ECoW, or licensed ecologist if the work relates to an EPS mitigation licence. The toolbox talk will brief all staff on the following:

- Species of animals that may be encountered and their legal status;
- How the work could affect animal species that may be present;
- Summary of EPS mitigation licensing (where relevant) including levels of protection, potential offences and how the licence conditions relate to the work being carried out;
- Any specific working method required to minimise harm to animals;
- What to do if any animals are encountered while carrying out the work; and,
- The ecologist's role in the work.

5.1.4 The ecologist will provide contractors (and Lightsource bp) with an information pack containing contact details of the project ecologist and all the material used for the toolbox talk. The information pack will be kept securely in the site office for reference for the duration of the works.

5.1.5 Any new staff arriving after the toolbox talk will be expected to attend a toolbox talk briefing delivered either by the ecologist or the landscape management contractor's site manager, before starting work.

5.1.6 During the construction phase an Ecological Compliance Audit will be implemented for all defined ecological features.

5.1.7 Hedgerows, trees and offsite woodland will be protected during construction. The tree protection fencing will provide an effective barrier ensuring any fauna (particularly dormice, reptiles and birds) using the protected hedgerows and field margin will not be harmed during construction. Fencing will be fixed to the ground to prevent disturbance of the root protection area (RPA) and the canopy in accordance with BS 5837:2012 Trees in relation to design, demolition and construction.

5.1.8 Best practice in construction site hygiene management will minimise the risk of harm to animals which may stray into the construction area. will also minimise the risk of harm to other small mammals.

5.1.9 All excavations left overnight will either be covered, or if left open will be provided with a means of escape such as a shallow sloping scaffolding plank, earth slope or similar, to allow any individuals that enter excavations to easily escape.

5.1.10 Open pipework larger than 150mm external diameter will be blanked off at the end of each working day.

5.1.11 In the unlikely event that a small mammal is encountered, an ecologist will be contacted immediately for further advice.

5.1.12 Chemicals or other hazardous materials will be contained and stored so they cannot be accessed or knocked over by roaming animals.

5.1.13 To minimise the risk of animals being attracted into the working area, food and litter will not be left overnight in the construction zone.

5.1.14 Storage mounds of soft material into which animals could dig to establish setts (such as topsoil) will be kept to a minimum. Where such storage is essential the materials will be subject to daily inspections to ensure badgers have not established setts.

5.1.15

6 SPECIES SPECIFIC MITIGATION MEASURES

6.1.1 Where there is potential for impacts on protected species, the species-specific mitigation measures described below will be implemented during the construction and decommissioning of the Proposed Development.

6.2 Great Crested Newt

6.2.1 Measures which will be undertaken to protect GCN are detailed in the GCN Mitigation Strategy (RPS, 2023, ES Appendix 6.9). The GCN Mitigation Strategy will be fully implemented during the installation of the solar arrays, access tracks and infrastructure to ensure that the Proposed Development avoids any harm to GCN.

6.2.2 A Welsh Government species mitigation licence for GCN will be obtained for the site.

6.2.3 Many of the measures detailed in the licence will be implemented prior to the start of any site works that have the potential to affect habitats in which GCN could be present.

6.2.4 The method statement attached to the licence will include precautionary species protection measures which will be implemented during the excavations for foundations, construction of new sections of road and piling of the solar panel supports designed to protect individuals and maintain the favourable conservation status of GCN in the locality.

6.2.5 Fingertip searches will be undertaken by an ecological clerk of works (ECoW) where foraging habitat will be disturbed during the active season.

6.3 Bats

6.3.1 All trees subject to removal to enable access will be surveyed by a suitably experienced ecologist to confirm whether potential roost features are present.

6.3.2 Should potential roost features be present, further inspection undertaken by a qualified tree climber who also holds a Natural Resources Wales bat survey and handling licence to confirm whether these are in use by bats.

6.3.3 In the event that bats, or signs of bats are found indicating a roost, tree felling would be postponed and no works affecting the trees, or which could indirectly affect the roost would be carried out until a Welsh Government bat mitigation licence has been obtained.

6.4 Dormouse

6.4.1 If dormouse are present within the on-site hedgerows there is potential for individuals to be harmed during localised works to hedgerows at access points if the works are not carried out sensitively and at the appropriate time of year.

6.4.2 Where short sections of hedgerow removal (up to 10m) are required to widen the access points precautionary working measures will be undertaken. This will follow a non-licenced method statement.

6.4.3 Vegetation clearance will be supervised by a licensed ecologist. The ecologist will undertake hand search of areas of dense canopy where necessary to ensure no dormice are present prior to and throughout the vegetation clearance.

6.4.4 Hedgerows and dense scrub will first be cut to between 150mm and 300mm above ground level. Cutting will be carried out using only hand tools (i.e. chainsaws and brush cutters) and ensuring that there is no ground disturbance.

6.4.5 Hedgerows and scrub will be cut systematically in the direction of retained habitat to enable any active dormice to move away from harm.

6.4.6 The second stage of clearance to ground level will be carried out only once the licensed ecologist has confirmed it is safe to do so. This will be between April – October when daytime temperatures are over 9°C.

6.4.7 In the very unlikely event that a dormouse is encountered during vegetation removal, it would be carefully captured by the licensed ecologist and placed in suitable habitat away from the works. Any works which could affect dormouse would be postponed until a Natural Resources Wales EPS mitigation licence has been obtained.

6.5 Nesting birds

6.5.1 Works affecting hedgerows, trees or within pasture fields have potential to impact upon nesting birds if carried out during the main breeding season (March to August inclusive).

6.5.2 Where possible all hedgerow removal and tree felling will be undertaken outside of the main bird nesting period (March to August Inclusive). Provided this is the case, the risk of damage or disturbance of active nests within this habitat will be negligible, and no ecological supervision is required.

6.5.3 If for any reason this is not possible, the ECoW will check the vegetation for active nests or nesting activity indicating birds are buildings nests. Checks will be carried out no more than 48 hours prior to vegetation removal.

6.5.4 Where works are planned within pasture fields during the active season, a walkover should be undertaken prior to works commencing in the field by the ECoW to check for the presence of ground nesting birds.

6.5.5 Any active nests found will be protected and must remain undisturbed until the ECoW has confirmed and they are no longer in use.

6.5.6 The ECoW will define an appropriate exclusion area around the nest within which no works would be permitted.

6.6 Reptiles

6.6.1 In the absence of mitigation there is a risk of harming reptiles during habitat removal. This risk is greatly increased in late autumn through to early spring when reptiles are hibernating. Animals present at this time would be likely to be hibernating and would be unable to escape harm during habitat clearance.

6.6.2 During the active season, measures to protect great crested newts will also provide protection to reptiles.

7 ECOLOGICAL TRENDS AND CONSTRAINTS

7.1 Establishment of Created Habitats

7.1.1 A series of new habitats will be created on formerly arable land. During the initial establishment phase (initial five years) there is potential for the natural colonisation of undesirable species (ruderals and bramble scrub in grassland; algae, bulrush and duckweed in new ponds) or for some of the sown species to poorly establish.

7.1.2 Habitat monitoring will assess the establishment of each habitat and inform where remedial measures are required to achieve the biodiversity objectives and targets defined in Section 4 of this report.

7.2 Mature and Semi-Mature Trees

7.2.1 The mature and semi-mature trees within the hedgerows have high existing value with a wide range of niches that will be associated with a diversity of invertebrates. This existing value will continue to develop over time as more deadwood features and cavities form in the structure of the trees.

7.2.2 Areas of decay on trees can have specific value for biodiversity and in the absence of management these features will naturally form in old trees increasing the value of the tree. Conversely the removal of rot, cavities and deadwood would reduce the importance of the tree and could adversely affect legally protected nesting birds and roosting bats if present (see Section 7.3).

7.3 Wildlife Legislation

7.3.1 Wildlife Legislation relevant to the management and monitoring of the site is described below.

7.3.2 Details of licensing requirements for undertaking habitat management and surveillance will be provided in the full LEMP for the Site.

Great Crested Newt

7.3.3 Great created newts are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (and as amended), which affords the species protection under Section 9. The species is also listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017. In combination, this makes it an offence to:

- intentionally kill, injure or take (capture etc.) a great crested newt;
- possess a great crested newt; or,
- intentionally or recklessly damage, destroy, obstruct access to any structure or place used by Great Crested Newt for shelter or protection, or disturb any animal occupying such a structure or place; and sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative) or advertise for buying or selling such things.

7.3.4 Great crested newts are also a Species of Principal Importance under Section 7 of the Environment (Wales) Act 2016. This legislation requires the conservation of great crested newt and their habitats to be given consideration in planning decisions.

7.3.5 There is potential for the new ponds within the Biodiversity Area to be colonised by GCN. Monitoring surveys will assess whether the species is present in the ponds. The management of the ponds outside of the GCN breeding season will avoid impacts on breeding GCN.

7.3.6 In the event that essential works are required on the ponds during the GCN breeding season, the advice of a licenced ecologist will be sought to ensure that all work is lawful and complies with wildlife legislation.

7.3.7 The newly created invertebrate banks, as well as tree roots, rocks, and deadwood such as logs have potential to be used as hibernacula by amphibians, reptiles and invertebrates and will be left undisturbed during winter (broadly mid-October to mid-March though dependent on the weather conditions each year).

Bats

7.3.8 All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. All British bats are also included on Schedule 2 of The Conservation of Habitats and Species Regulations 2017 as European Protected Species. It is an offence to:

- intentionally or recklessly kill, injure or capture bats;
- deliberately or recklessly disturb bats (whether in a roost or not); and
- damage, destroy or obstruct access to bat roosts.

7.3.9 A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey.

7.3.10 A licence will therefore be required by those who carry out any operation that would otherwise result in offences being committed.

7.3.11 The following bat species are listed as being of principal importance for the conservation of biodiversity in Wales: barbastelle, Bechstein's bat, noctule, soprano pipistrelle, common pipistrelle, brown long-eared bat, greater horseshoe bat and lesser horseshoe bat.

7.3.12 In the future bats could be present in cavities in any of the semi-mature or mature trees within the Site. Therefore, should any essential arboricultural works be required on semi-mature or mature trees during the operation of the Proposed Development, the absence of bat roosts will be confirmed prior to works commencing to ensure that the work is lawful and complies with wildlife legislation.

Dormouse

7.3.13 Hazel dormice *Muscardinus avellanarius* receive full protection under Schedule 2 of The Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended). In combination, this makes it an offence to:

- intentionally, recklessly or deliberately kill, injure or take a dormouse;
- intentional or reckless disturbance of dormouse (at any level);
- damage or destroy a breeding site or resting place (nest);
- obstruct access to any place of shelter, breeding or rest; and
- possess or transport dormice or any other part of.

7.3.14 Dormouse are also a UK Biodiversity Action Plan (UKBAP) priority species and listed as Species of Principal Importance under Section 7 of the Environment (Wales) Act 2016. This legislation requires the conservation of dormouse and their habitats to be given consideration in planning decisions.

Nesting Birds

7.3.15 All birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. It is an offence to:

- intentionally kill, injure or take any wild bird;

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

7.3.16 In addition, Schedule 1 birds cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. Licences can be issued to visit the nests of such birds for conservation, scientific or photographic purposes but not to allow disturbance during a development even in circumstances where that development is fully authorised by consents such as a valid planning permission.

7.3.17 The bird nesting season generally runs from March to the end of August inclusive, but some species can be nest outside this period.

7.3.18 Woodland, scrub, hedgerows, tall ruderal and pond margins will be managed outside of the nesting season to avoid potential damage of active nests in accordance with the requirements of the legislation.

7.3.19 Any management within the nesting season would be subject to ecological checks in advance of the works.

7.3.20 No Schedule 1 bird species have been recorded at the site and it is not anticipated that any of these species would nest within the site in the future.

Reptiles

7.3.21 All UK reptiles are protected from intentional or reckless injuring or killing through part of Section 9(1 and 5) of the Wildlife & Countryside Act 1981 (as amended).

7.3.22 There is potential for new habitats within the Biodiversity Areas to be colonised by reptiles, primarily slow worm *Anguis fragilis*, grass snake *Natrix helvetica* and common lizard *Zootoca vivipara*.

7.3.23 All three species are also a Species of Principal Importance under Section 7 of the Environment (Wales) Act 2016. This legislation requires the conservation of reptiles and their habitats to be given consideration in planning decisions.

7.3.24 The protection of potential hibernacula features during winter will protect reptiles alongside other species.

8 BIODIVERSITY OBJECTIVES AND TARGETS

8.1 Biodiversity Aims

8.1.1 The key aims for biodiversity are defined as:

- Create and maintain areas of grassland supporting a mixture of grasses and wildflower species within the Biodiversity Areas.
- Develop tussocky grassland around the boundaries of fields and in Fields I and N within the solar farm which will provide habitat for invertebrates and amphibians.
- Create and maintain new areas of scrub, hedgerows and trees providing nesting habitat and foraging resources for birds.
- Create and maintain new ponds providing additional habitat for amphibians and invertebrates.
- Protect the mature tree resource and allow deadwood features (invertebrates, bats and nesting birds).
- Promote habitat connectivity across the site.
- Maintain areas of grassland suitable for ground-nesting birds.
- Maintain winter food source for farmland birds.
- Maintain the accessibility of habitats across the solar farm for fauna species including badgers.
- Identify any negative habitat trends and effectively address through management and/or remedial actions.
- Ensure that all management actions comply with all wildlife legislation.

8.1.2 A full LEMP report will be prepared for the site and will include:

- defined aims and objectives for each identified ecological feature (including targets that can be used as key performance indicators for monitoring purposes)
- a location plan of ecology ecological features
- detailed habitat management prescriptions

8.2 Biodiversity Objectives

Grasslands

- Maintain moderate wildflower diversity in the wildflower grassland within the Biodiversity Areas.
- Maintain varied sward height tussocky grassland as continuous habitat corridors on the field perimeters and in Fields I and N.
- Maintain the health and structure of grassland below and between solar panel arrays.
- Meet the target conditions set for each area of retained and created grassland (see Section 6) including the frequency/abundance of positive and negative indicator species.
- Ensure that grassland habitats within the Biodiversity Areas provide food, cover and prey for faunal species (invertebrates, amphibians and reptiles)

Native Shrub and Tree Planting

- Maintain dense, closed structure of scrub.

- Establish and maintain trees and scrub comprising a mixture of native species.
- Promote flowering/ fruiting of shrubs and trees through low intensive management.

Hedgerows

- Increase the diversity of native woody species in species-poor hedgerows.
- Establish and maintain new native species-rich hedgerows.
- Increase the diversity of hedgerow ground flora.
- Establish and maintain new hedgerows with a dense structure.
- Promote flowering/ fruiting of shrubs and trees through sensitive management.
- Protect mature and semi-mature trees allowing them to continue to develop value for biodiversity.
- Avoid all unnecessary tree management works maintaining a balance between health and safety, arboricultural value and biodiversity value.

Winter Cover Crop

- Recreate areas of mixed crops each spring and leave uncropped to provide foraging resources for wintering birds.

Ponds

- Create and maintain areas of open water over 1m in depth.
- Establish and maintain a diversity of non-competitive herbaceous wetland plant species on the pond margins.
- Control algal blooms.
- Avoid establishment of invasive non-native species and fish populations in all of the ponds.
- Identify any negative trends and implement remedial actions.

9 HABITAT MANAGEMENT

9.1 Grassland

New Grassland Establishment (Year 1)

9.1.1 Newly sown grassland should be cut monthly throughout the first year of establishment to a height of 40-60mm. Any residual perennial weeds such as docks, thistles, and common nettle should be carefully dig out or spot treated.

9.1.2 As the sown wildflowers and grass species are perennial they will be slow to germinate and grow and will not usually flower in their first growing season. There will often be a flush of annual weeds from the soil in the first growing season which may grow up and obscure the meadow seedlings beneath. The management actions will control annual weed growth, prevent significant spread and help maintain balance between faster growing grasses and slower developing wildflowers.

Grassland Management (Year 2 onwards)

9.1.3 In all subsequent years, the grassland should be managed as described in **Table 9-1**.

9.1.4 The soil fertility of the arable field will increase the growth of a few species and over time would be likely to adversely affect the populations of wildflower species. Consequently, weed growth should be managed at a higher rate during the first five years to control the growth of the most dominant grasses.

Table 9-1 Grassland Management Specifications

Grassland types	Management Specification	Timing
Wildflower and tussocky grassland (Biodiversity Areas)	The grassland should be cut up to three times per year. A hay cut of the whole of each grassland area should be undertaken annually between mid-August to mid-September. The grassland should be cut close to ground level (50mm). Arising should be left for 1-7 days to shed seed before being collected and removed from site. Additional cuts in April and mid-July may be undertaken as required where coarse grasses are prevalent.	August November (as required) March (as required)
Tussocky grassland field margins	Removal of weeds as required throughout the year. No mowing between May and the end of August to promote the development of a tussocky structure and flower growth – except for access strips and around buildings as necessary for operational purposes. Cut once annually in August to a height of 50mm. Cut the re-growth through late Summer to 50mm and again in Spring if needed.	September - April
Grazed grassland beneath solar arrays - Fields I and N	Removal of weeds as required throughout the year. Low intensity sheep grazing, or cutting regime, with an initial cut in early spring and again in August-September, and additional cuts if needed.	April – September

Grassland types	Management Specification	Timing
Grazed grassland beneath solar arrays - all remaining fields	Removal of weeds as required throughout the year. Sheep grazing or cutting regime, with an initial cut in early spring and again in August-September, and additional cuts if needed.	Year-round

9.2 Native Tree and Shrub Planting

9.2.1 Patches of native shrubs and individual trees will be planted within the Biodiversity Areas. The shrubs will be managed to create dense patches of scrub which will provide areas of cover while individual trees will be allowed to mature into larger trees.

9.2.2 To maximise the chances of the successful establishment of new planting, any bare root stock would have their whole root system dipped in mycorrhizal fungi slurry following approved concentrations. Where rabbit or deer grazing results in the loss of planted stock, protection measures would be employed such as fencing. All dead, dying or diseased plants recorded during the first five years will be replaced in the following winter planting season with stock of similar specification to the original. Formative pruning would be adopted in the first five years to promote dense growth follow methods in accordance with BS:3998.

9.2.3 Low key management actions include annually cutting back bramble where there is potential for encroachment into neutral grassland and the maintenance of any fencing for as long as the shrubs are at risk could be damaged by grazing/browsing animals.

9.2.4 The rate of establishment of self-seeded and planted shrubs; and the structure they develop will inform management decisions following on from the initial aftercare period. Where practical, long term management decisions will promote the extent of dense scrub cover for nesting birds. Options would include the coppicing of selected shrub species including hazel.

9.3 Hedgerows

New Hedgerows

9.3.1 New native species hedgerows will be planted in the Biodiversity Areas and in the Proposed Development area, providing additional links between blocks of off-site woodland.

9.3.2 A mixture of native species will be used.

9.3.3 During the aftercare period both sides of the whole of the new hedgerow will cut after the first growing season at the end of Year 1 and again at the end of Year 3 to encourage dense growth and maintain an even shape. Where gaps occur, infill with native stock appropriate to planted hedge.

9.3.4 From Year 5 onwards the sides of the hedgerow will be trimmed back on a 3-year rotation in late Autumn (i.e. with a third-fifth of the hedgerow cut each year). The hedgerow will be maintained as a broadly A shaped structure to continue to encourage dense growth to ground level and avoiding creating a wide flat top.

9.3.5 Trees within hedgerows should be allowed to continue to mature and should be protected during hedgerow cutting. Minimal management of larger trees is required, and deadwood features should be allowed to develop where safe and practical. Where limb removal is required, the wood should be retained within the site to provide habitat for invertebrates.

9.3.6 Cavities in trees may provide potential roost features for bats and should be left undisturbed. If works affecting tree cavities are planned, an inspection should be undertaken by an ecologist prior to the works to ensure no roosts will be affected.

9.3.7 Works should be undertaken outside of the bird nesting season (March-August inclusive) or after confirmation by an ecologist that no active nests are present in the affected habitat.

Retained Hedgerows

9.3.8 Gappy and species-poor hedgerows will be supplemented by species infill planting. A mixture of native species will be used.

9.3.9 The hedgerows will be trimmed back on a 3-year rotation in late autumn (i.e. with a third-fifth of the hedgerow cut each year) to a broadly A shape structure and arisings removed off site.

9.4 Winter Cover Crop

9.4.1 A tailored mix of plants will be selected and sown into the winter cover crop areas providing a food source for wild birds in late summer, autumn and winter.

9.4.2 Existing grassland / arable will be stripped and shallowly ploughed prior to the sowing of the crop in spring. The plants will be left uncropped for 12 months and will provide food in winter. Every spring over the lifetime of the Proposed Development the area with the previous years' crop will be shallowly ploughed in spring and resown with the wild bird seed crop.

9.4.3 The control of injurious weeds (docks, thistles) could become a requirement if there is significant spread from the areas of cover crop but this would be through mechanical means with no use of herbicides or pesticides.

9.5 New Ponds

9.5.1 There is potential for algal booms in the new ponds after their creation due to the release of nutrients from the excavated arable soil. A bale of barley straw will be placed in each pond following its creation to discourage algae formation.

9.5.2 Highly competitive emergent plant species (including common reed, bulrush) and any non-native invasive species should be uprooted and removed with caution to allow a wider diversity of plants to establish. Algae and duckweed should also be removed from the pond surface.

9.5.3 All plant removal should be undertaken between October to November, avoiding the GCN breeding period (March-June). Removed material should be left on the pond bank adjacent to water edge for 24 hours before removal from site.

9.5.4 Where non-native invasive or competitive species are present in a pond, equipment should be cleaned prior to use in further ponds to prevent the spread of the species.

9.5.5 Where a significant amount of sediment has accumulated within the pond, this should be removed during winter (November to January).

9.6 Invertebrate Banks

9.6.1 Areas of bare ground are desirable on the invertebrate banks, providing opportunities for insects to burrow into the bank.

9.6.2 Depending on the level of vegetation growth, annual scarification using hand tools may be beneficial to provide areas of bare ground.

10 MONITORING PROCEDURE

10.1 Grassland Monitoring

Post-development Grassland Areas

10.1.1 The long-term monitoring of habitats and their biodiversity value will specifically assess the extent to which the management actions are achieving the defined objectives. Each of the grassland areas in the operational site will be subject to condition assessment monitoring. The monitoring will assess the following categories of grassland within the operational site:

- Wildflower grassland in Biodiversity areas
- Tussocky grassland in Biodiversity areas, field margins and Fields I and N
- Grazed grassland beneath solar arrays – previously improved grassland fields
- Grazed grassland beneath solar arrays – previously arable fields

Outline Monitoring Method

10.1.2 Monitoring data for grasslands will be collected using a whole habitat assessment, multiple presence/absence point counts (1m x 1m) for positive and negative indicator species. DAFOR recording will be carried out for the four different grassland habitat types.

10.1.3 A minimum of ten 1m x 1m quadrats will be completed for the tussocky grassland field margins and a minimum of ten 1m x 1m quadrats or five 2m x 2m quadrats will be recorded in the Biodiversity Areas.

10.1.4 Data will be collected on the percentage cover of grasses, herbs, bryophytes and bare ground averaging out patchiness. In tall grassland where the grasses form a canopy the cover of herb species will be assessed below the canopy.

10.1.5 The monitoring data will be supported by photography to provide a visual record of each of the grassland areas, their structure and cover.

Target Conditions

10.1.6 Measurable targets have been set for each habitat type. The targets for each grassland habitat at Year 10 are defined in Table 10.1.

10.1.7 The key measurable values will relate to the extent, structure and botanical species composition of each habitat.

Table 10-.1 Grassland target conditions at Year 10

Attribute	Wildflower grassland in Biodiversity Areas	Tussocky grassland - Biodiversity Area, field margins and fields I and N	Grazed grassland beneath solar arrays – previously improved grassland fields (all fields except I and N)	Grazed grassland beneath solar arrays – previously arable fields
Species diversity per m2 (i.e. average number of species	8+	6+	4+	4+

Attribute	Wildflower grassland in Biodiversity Areas	Tussocky grassland - Biodiversity Area, field margins and fields I and N	Grazed grassland beneath solar arrays – previously improved grassland fields (all fields except I and N)	Grazed grassland beneath solar arrays – previously arable fields
present in a 1m^2 area).				
Grass / herb ratio	Minimum 20% herb cover	Minimum 10% herb cover	N/A	N/A
Sward \composition – negative indicators*	Species no more than occasional Overall no more than 5% cover	Species no more than occasional	Species no more than occasional	Species no more than occasional
Sward height	Sward height is varied with at least 20% of the sward less than 7 cm and at least 20% is more than 7 cm	Sward height is varied with at least 20% of the sward less than 7 cm and at least 20% is more than 7 cm	N/A	N/A
Scrub	<5%	<5%	<5%	<5%
Bare ground	No more than 5%	No more than 5%	No more than 10%	No more than 10%

** Undesirable species include injurious weeds and all invasive non-native plant species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Secondary negative indicator species will be considered where their abundance is a negative factor reducing the overall species diversity. Secondary negative species include the most widespread coarse grasses (false oat-grass and cock's-foot) and ubiquitous herbs that can become abundant within a grassland sward (white clover and creeping buttercup).*

10.2 Native Tree and Shrub Planting

10.2.1 Native trees and shrubs planted within the Biodiversity Areas will be monitored to assess the establishment and growth of the different planted species.

10.2.2 Any failures will be recorded along with negative factors requiring remedial measures such as excessive grazing/browsing pressure.

10.3 Hedgerows

10.3.1 The new and retained hedgerows will be monitored to assess their condition and the establishment of newly planted areas.

10.3.2 The following attributes will be recorded:

- Height and width of hedgerows
- Density
- Number of woody species present and their abundance
- Structure of hedgerow base flora

10.3.3 Any failed areas of planting will be recorded along with negative factors requiring remedial measures such as excessive grazing/browsing pressure.

10.4 Ponds

10.4.1 Each of the new ponds within the Biodiversity Areas will be monitored to assess the condition of the habitat and its value for wildlife. A visual inspection will be undertaken from the pond margin.

10.4.2 The following attributes will be recorded:

- Water depth;
- Extent and diversity of marginal vegetation;
- Extent of invasives specie such as bulrush, common reed and duckweed;
- The presence of non-native invasive species such as New Zealand pygmyweed and water fern;
- The presence of fish; and
- The presence of algae.

10.5 Invertebrate Banks

10.5.1 The invertebrate banks will be monitored on an annual basis to assess their condition and value for invertebrates.

10.5.2 The monitoring will check for any changes to the structure of the banks and levels of vegetation cover.

10.6 Great Crested Newt

10.6.1 The monitoring programme will assess all ponds within the site for their suitability for and presence of GCN. This will include the new ponds within the Biodiversity Enhancement Area. The continued use and suitability of pond P3 within the wider landholding by GCN will also be assessed. The pond lies outside of the Site boundary, but access will be sought for monitoring surveys and recommendations will be made for management actions where appropriate.

10.6.2 The retention of grassland habitats and creation of new ponds and terrestrial habitats suitable for GCN should result in the continued use of breeding ponds near the Proposed Development by great crested newt.

10.6.3 An eDNA survey will be undertaken between mid-March – June. Two – three population size class assessment survey visits will be undertaken between April and mid-May.

10.6.4 Monitoring will be undertaken biennially, or annually where the presence of fish or invasive species is found.

10.6.5 The survey methodology will accord with, and results will be reported through the Wales GCN Monitoring scheme.

10.6.6 The suitability of each pond will be assessed using Habitat Suitability Index (HSI) assessment.

10.6.7 The findings of the monitoring will be presented in a letter or short report supported by plans and photographs indicating locations of all GCN populations.

10.6.8 The monitoring will confirm the continued presence or likely absence of GCN populations in the operational site and nearby pond and the suitability of the ponds to support GCN.

11 MONITORING PROGRAMME

11.1.1 All habitat monitoring will be undertaken in Years 1, 2, 4, 6 and 10, followed by once every 5 years. GCN monitoring will be undertaken biennially, or annually where the presence of fish or invasive species is found. The proposed monitoring programme is set out in Table 11.1.

Table 11-.1: Programme of Habitat and Species Monitoring

Feature	Monitoring	Timing
Habitats		
Grassland: • Wildflower grassland in Biodiversity Area • Tussocky grassland in Biodiversity Areas, field margins and fields I and N • Grazed grassland beneath solar arrays – previously improved grassland fields • Grazed grassland beneath solar arrays – previously arable fields	Habitat condition survey	June
Native shrub and tree planting	Habitat condition survey	September
Hedgerows: • Retained species-rich hedgerows • Retained species-poor hedgerows • New hedgerows	Habitat condition survey	September
Ponds	Habitat condition survey	June
Invertebrate banks	Habitat condition survey	June
Species		
Great Crested Newt	eDNA and population size class estimated survey	Mid-March – June

12 MANAGEMENT REVIEWS AND ACTIONS

12.1.1 The review will consider the extent to which the objectives and aims are being achieved through the ongoing implementation of management actions over the lifetime of the Proposed Development.

12.1.2 The effectiveness of the prescriptions, methods and timing of works will be assessed based on the status of habitats.

12.1.3 The assessments will consider trends in habitat change, drawing upon the results of previous years and the known the pre-development habitat conditions.

12.1.4 The monitoring results will be compiled in monitoring reports. The report will highlight positive and negative outcomes for biodiversity, nature conservation and species. The monitoring reports will highlight any unforeseen changes to factors influencing management decisions and actions and the continued relevance of each of the management prescriptions.

12.1.5 Any shortfalls in achieving the management objectives will be highlighted such as adverse habitat changes and trends or habitat establishment failures or damage. The monitoring reports would include additional management actions in the work schedules to address unexpected changes such as the colonisation of invasive non-native plants, actions to repair the adverse effects of prolonged drought or where a current management specification is not effective.

12.1.6 Remedial measures could also become a requirement with examples listed in **Table 12.1** below. The need for the implementation of any of these would be triggered by monitoring. This Management Plan will be a working document with flexibility allowing the management prescriptions can be tailored to achieving the biodiversity objectives and targets.

Table 12-1: Example of Modifications to Management and Remedial Measures

Feature	Example of Management Modifications and Remedial Measures
New Wildflower Grassland	Supplemental wildflower seeding Changes to levels of grazing stock or timing of grazing Removal of areas of coarse grass and nutrient rich topsoil and reseed native grass mix into prepared subsoil
Tussocky Grassland	Changes in frequency and timing of grass cutting Strip back areas with high % cover coarse grasses Supplemental wildflower seeding
Hedgerows	Selective cutting back of dominant species to promote diversity Adapting cutting regime/method to promote dense growth to ground level; and Supplementary planting to infill gaps and replace losses
Ponds	Removal of any fish if introduced into ponds* Removal of any non-native species if introduced into ponds* Removal of bulrush, common reed, duckweed or algae Placement of barley hay bale to reduce algae

Feature	Example of Management Modifications and Remedial Measures
	Removal of sediment / leaf litter
New shrub and tree planting	Supplement planting to infill gaps and replace losses Adapting cutting regime/method to promote dense growth to ground level
Invertebrate banks	Repairs to structure if damaged

*Methodology for removal will be provided in full LEMP report

12.1.7 The full LEMP will include details of reporting requirements and proposed dates for updating or revising the management plan.

12.1.8 The management prescriptions and timing will be reviewed after each monitoring visit. The review will focus on the structure, features and nature conservation value of habitats, to ensure that they remain an important resource for wildlife within the Proposed Development and make a contribution to nature conservation value in the local area.

12.1.9 The review will inform if changes are required to the future management prescriptions, actions and/or timing. Additional management actions could be added to the work schedule to address unexpected changes or where additional remedial measures not listed in this plan become a requirement.

12.1.10 The full LEMP will include details of proposals that are capable of being implemented in the event of failure to undertake or to appropriately implement identified or contingency actions

12.1.11 Maintaining flexibility will be essential in ensuring that the management prescriptions can be tailored as necessary to achieve the desired outcomes. Many of the management prescriptions during the first five years post construction will be undertaken as required based on the checks and monitoring to assess the habitats condition specified in the plan.

REFERENCES

- RPS (2023a). Great Crested Newt Report: Plas Power Estate.
- RPS (2023b). Preliminary Ecological Appraisal: Plas Power Estate.
- RPS (2023c). Wintering Bird Survey: Plas Power Estate.
- RPS (2021). Breeding Bird Survey: Plas Power Estate.
- RPS (2023). Landscape and Visual Impact Assessment: Plas Power Solar and Energy Storage

DRAWINGS

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Notes

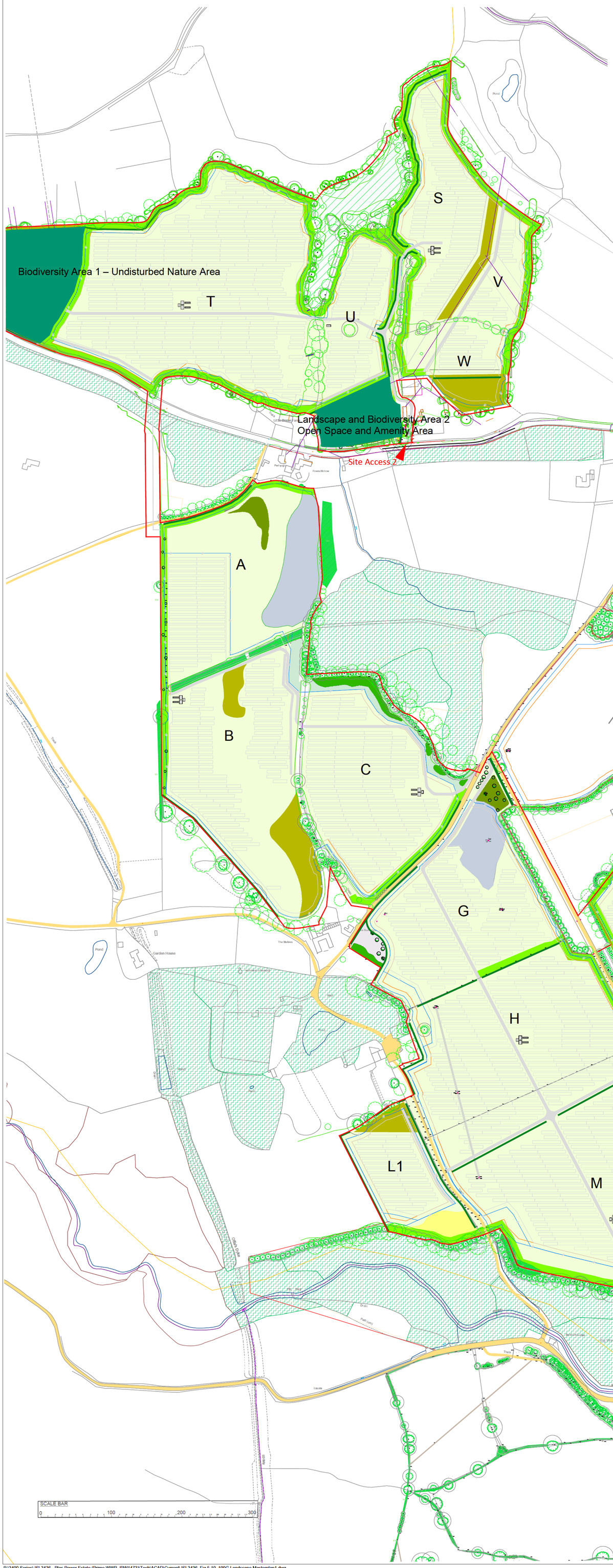
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Biodiversity Area 1 – Undisturbed Nature Area - Scale 1:1000



Landscape and Biodiversity Area 2 – Open Space and Amenity Area - Scale 1:1000



Key

Proposed elements

- APPLICATION SITE BOUNDARY
- SITE ACCESS
- MODULE PANELS (See Layout for further details)
- SECURITY FENCE TBC
- PROPOSED ACCESS TRACK
- STRUCTURES (See Layout for further details)
- FIELD REFERENCE For LVIA and G&G

SOFT LANDSCAPE

Proposed elements

- DEC DUOUS TREE Varied native species and stock sizes
- CONIFEROUS TREE Varied native species
- SPEC MEN SHRUB In shrub border or gravel area
- NATIVE HEDGEROW (WITH SPACED STANDARD TREES) Complementing existing hedge lines and providing new field boundaries
- NATIVE CL PPED HEDGEROW Complementing existing hedge lines and providing new field boundaries
- STRUCTURAL WOODLAND AND SHRUB Varied structure native woodland planting
- WOODLAND EDGE SHRUB Varied structure native shrub planting
- GRAZING GRASSLAND
- FIELD MARG N MEADOW
- TUSSOCKY GRASSLAND
- WOODLAND MEADOW
- W LDFLOWER MEADOW
- WETLAND MEADOW
- MOWN AMENITY GRASS
- SPRING FLOWERING BULB PLANTING

HARD LANDSCAPE

Proposed elements

- INTERPRETATION BOARD Varied information, refer to notes for details
- FOOTPATH Compacted gravel

BIODIVERSITY ENHANCEMENTS

- W LD BIRD SEED CROP 6m wide on southern side of hedgerows
- ECOLOGICAL ENHANCEMENTS As per ecological reports
- ECOLOGICAL ENHANCEMENT AREA See inserts for details

Existing features

- TREES To be retained and protected. New tree planting would complement existing species and provide ongoing variation and structure.
- WOODLAND To be retained, protected and managed appropriately for longevity
- HEDGEROW / SCRUB To be retained, protected and gapped up where appropriate and managed on rotational basis to a height of 2.5-3m
- PUBLIC RIGHTS OF WAY Maintained and opportunities to further connect (As traced from OS Explorer 1:25,000)
- ANCIENT WOODLAND CLASSIFICATION Ref to Arb reports for further detail
- WATERBODY To be retained, protected and enhanced as possible and recommended within ecological reports
- GRAVEL TRACK Existing gravel track to be retained

Note

The illustrated landscape treatment would not alter if the proposed development included PVs instead of the BESS

Field D has been removed from the development

N

Rev	Description	By	CB	Date
G	REVISED LAYOUT	JN	CL	05.24
F	REVISED LAYOUT	JN	CL	05.24
E	Additional screening to Biodiversity Area 1 and Field T	PL	CL	05.24
D	REVISED LAYOUT	PL	GL	01.24
C	REVISED LAYOUT	CL	KH	11.23
B	OPEN SPACE AMENITY AREA	CL	KH	10.23
A	REVISED LAYOUT 2023	CL	KH	09.23

MAKING COMPLEX EASY
A TETRA TECH COMPANY

Lakesbury House, Hiltingbury Road, Chandlers Ford, Hampshire SO53 5SS

T: 02380 810 440 **E:** rpsso@rpsgroup.com

Client: Lightsource bp

Project: Plas Power Solar and Energy Storage Project

Title: Illustrative Landscape and Ecology Masterplan

Status	Drawn By	PM/Checked by
Final	KH	GL

Job Ref	Scale @ A0	Date Created
JSL3436	See Scale Bar	Feb 2024

RPS Drawing / Figure Number: Figure 5.10

Rev: G

rpsgroup.com

P:\3400 Series\JSL3436 - Plas Power Estate (Prime WWP-JPW1473)\Tech\ACAD\Current\JSL3436_Fig 5.10_100G Landscape Masterplan1.dwg

Xref .\XREF\GBR_Plas Power_LP2-PDL-PV-BESS_15-PL.dwg

APPENDICES

Appendix A Invertebrate Bank Specification

- The banks should be situated in sunny areas away from trees and hedgerows to provide a warm and light environment, ideally south-facing.
- The banks should measure be no more than 1m height, approximately 4m in length and 2m in width.
- Locally sourced soils should be used where possible, such as that from the excavated ponds within the Biodiversity Area. Land adjoining the bank may also be excavated to create a ditch and bank.
- The centre of the bank should be constructed from clean, un-contaminated rubble, hardcore or small logs.
- Where possible, a steep south-facing bank should be created to allow the bank to be warmed up by sunshine and to provide a range of niches.
- The bank should be capped with subsoil and topsoil. Enough soil should be used to ensure that there are only small holes into the interior.

Appendix B Typical Planting Schedule

Typical Planting Palette

Client: BP Lightsource
Project: Plas Power Solar Park
Dwg Ref: JSL3436_100
Doc Ref: JSL3436_550

Status: For Comment
Date: Oct 2023
Revision: B

Abbr	Botanical name	Common name	Girth / size	Stock	Density / %	Height after 25 years
A. Trees						
i. Specimen Native Tree Planting						
	Acer campestre	Field Maple	10-12cm/12-14cm	C / SR / RB		10m
	Alnus glutinosa	Alder	10-12cm/12-14cm	C / SR / RB		12m
	Fagus sylvatica	Common Beech	10-12cm/12-14cm	C / SR / RB		10m
	Quercus robur	English Oak	10-12cm/12-14cm	C / SR / RB		12m
	Salix caprea	Goat Willow	10-12cm/12-14cm	C / SR / RB		
ii. Specimen Native Evergreen Planting						
	Pinus syvelstris	Scots Pine	2m	C		
B.Hedge Planting						
i. Native Hedgerow Mix (with spaced Standard Trees) (2m wide)						
	Acer campestre	Field Maple	60-80cm	B	10%	Maintained at 3m
	Cornus sanguinea	Dogwood	60-80cm	B	5%	
	Corylus avellana	Hazel	60-80cm	B	10%	
	Crataegus monogyna	Hawthorn	60-80cm	B	40%	
	Prunus spinosa	Blackthorn	60-80cm	B	20%	
	Rosa canina	Dog Rose	60-80cm	B	5%	
	Salix caprea	Goat Willow	60-80cm	B	5%	
	Viburnum opulus	Guelder Rose	60-80cm	B	5%	
	Planted at 7.00p/m in three staggered rows, native specimen trees (as above) planted a 10 m intervals				100%	
C. Woodland and Shrubs						
i. Structural Woodland and Shrub Mix						
	Acer campestre	Field Maple	80-100cm	B	20%	Structual
	Corylus avellana	Hazel, Cobnut	80-100cm	B	10%	Woodland
	Crataegus monogyna	Hawthorn	80-100cm	B	10%	and Shrub Mix
	Fagus sylvatica	Common Beech	80-100cm	B	10%	between 6-12m
	Malus sylvestris	Crab Apple	80-100cm	B	20%	
	Ilex aquifolium	Holly	80-100cm	C	5%	
	Quercus robur	English Oak	80-100cm	C	20%	
	Pinus syvelstris	Scots Pine	80-100cm	C	5%	
	Planted at 1.5m centres, in single species clusters of 3 - 10No.				100%	
ii. Woodland Edge Shrub Mix						
	Cornus sanguinea	Dogwood	60-80cm	B	10%	Woodland Edge
	Corylus avellana	Hazel	60-80cm	B	20%	Shrub Mix
	Crataegus monogyna	Hawthorn	60-80cm	B	30%	between 3-6m
	Prunus spinosa	Blackthorn	60-80cm	B	20%	
	Ilex aquifolium	Holly	3L	C	10%	
	Rosa canina	Dog Rose	60-80cm	B	5%	
	Viburnum opulus	Guelder Rose	60-80cm	B	5%	
	Planted at 1m centres, in single species clusters of 3 - 7No.				100%	
iv. Specimen Native Shrubs						
	Crataegus monogyna	Hawthorn	5L	C		6m
	Corylus avellana	Hazel	5L	C		6m
	Ilex aquifolium	Holly	5L	C		6m

D. Grass and Meadow areas

i. Amenity Grass		
Mown Amenity Grass	Mix A22 by BSH (or similar and approved)	S
ii. Meadow		
Grazing Grassland	EG26/27 Old Fashioned Grazing Mixture by Emorsgate (or similar and approved)	S
Field Margin Meadow	EH1 Hedgerow Mixture by Emorsgate (or similar and approved)	S
Tussock Grassland	EM10 Tussock Mixture by Emorsgate (or similar and approved)	S
Woodland Meadow	EG9 Grass Mixture for Hedgerows and Woodland by Emorsgate (or similar and approved)	S
Wildflower Meadow	EM2 Standard General Purpose Meadow Mixtureby Emorsgate (or similar and approved)	S
Wetland Meadow	EM8 Meadow Mixture for Wetlands by Emorsgate (or similar and approved)	S
Wildbird seed crop	KEAUT1 Enhanced Autumn Sown Wild Bird Seed Mix by Kings Crops (or similar and approved)	S

Stock Abbreviations: C = Container grown
SR = Spring ringed
S = Seeded
T = Turfed

Abbr	Botanical name	Common name	Girth / size	Stock	Density / %	Height after 25 years
	RB = Root balled B = Bagged	Cl = Cell grown Bl = Bulb				

BIOSECURITY STATEMENT

RPS GROUP ARE COMMITTED TO THE PROTECTION OF THE UK ENVIRONMENT AND RECOGNISE THE IMPORTANCE OF RISKS POSED BY IMPORTED PESTS AND DISEASES

- All trees and shrubs are to be sourced responsibly, in the first instance, from UK Nurseries / suppliers, where they have been propagated and/or grown on for a minimum of 5 years in the UK (2 years for shrubs);

- In light of this, all suppliers shall be approved, shall share our values and must have a sound Biosecurity Policy / Management Systems in place to demonstrate the traceability of their stock, and an awareness of the prevalence of all current biosecurity threats, both domestically and abroad;

- The contractor is responsible for ensuring that they operate in strict accordance with the latest guidelines set out by DEFRA, including regularly checking for updates in relation to the latest plant health controls / diseases; i.e. (https://planthealthportal.defra.gov.uk/)

- Inspections will be carried out at selected nurseries and plant health certification / passports will be sought to identify traceability of tree and shrub stock as required.

Appendix C Maintenance Schedule Year 1

APPENDIX C – MAINTENANCE SCHEDULE YEAR 1

	MAINTENANCE ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting: General	Remove litter, leaf litter, rubbish and debris from all planted areas (including grassed areas). Dispose of arisings from all specified operations off site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Planting: General	Watering of all planted areas sufficient to maintain healthy growth, irrespective of season or weather conditions*, until restrained from doing so by statutory legislation. Specimen trees to be irrigated by means of dedicated irrigation tubes where provided. (*Do not water when ground is frozen / likely to freeze).			✓	✓	✓	✓	✓	✓	✓	✓		
Planting: General	Treat diseased plants with an appropriate insecticide / fungicide as necessary to maintain healthy growth.			✓	✓	✓	✓	✓	✓	✓	✓		
Planting: General	Maintain a weed free environment. Remove unwanted weed growth within planted areas manually or by treatment with glyphosate-based herbicide to maintain weed free environment as required. Remove all weed growth from site. 14 Visits total. Fork over beds as necessary to keep soil loose, taking care not to reduce depth or effect of mulch. Herbicide to be of a type approved by the Environment Agency where impact is likely upon any nearby watercourse and in any case in accordance with current legislation. Spray out grass / weeds in a 300mm diameter area around any tree set into grassed areas. Adjacent paths and surfaces to be swept clean as the work proceeds, and the site left tidy.			✓ (1)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (1)		
Planting: General	Re-firm all plants affected by frost heave / wind rock / vandalism by treading around the base. Re-stake trees if necessary. Collars at the base of tree stems created by tree movement to be broken up by fork, avoiding damage to roots, backfilled with topsoil as necessary, and re-firmed.			✓						✓			
Planting: General	Check all existing trees and hedging with regard to public safety. Report any trees that appear to pose a risk to public safety and conduct remedial work as necessary in accordance with good arboricultural practice.			✓							✓		
Planting: General	Prune trees / shrubs only to remove vandalised, dead / dangerous branches or to promote healthy growth / natural shape. Remove all cuttings from site. Except where specified otherwise, prune trees and shrubs as recommended by BS:7370 Part 4 clause 3.6.3 to 3.6.5. Confirm which trees are covered by Tree Preservation Orders and seek appropriate permission prior to conducting any arboricultural work. All trees to be checked for safety by a suitably trained arboricultural specialist. Pruning shall be conducted by skilled labour only. Do not apply growth retardants, fungicide or sealant unless instructed otherwise. Herbaceous plants to be trimmed according to their growth habit.			✓						✓			

APPENDIX C – MAINTENANCE SCHEDULE YEAR 1

	MAINTENANCE ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting: General	Check / replace / adjust tree stakes, ties and rabbit / strimmer guards as required. Remove redundant tapes, tags, ties, labels and other encumbrances.	✓		✓		✓		✓		✓		✓	
Planting: General	Ensure 50mm of 50-75mm grade bark mulch is maintained to all planted areas and to base of individual trees set into grass.												✓
Planting: General	Apply Enmag CRF granular fertilizer, or equal approved, at ~140g per individual tree pits and 70g / sqm to planted areas (quantities to be confirmed by manufacturer).			✓									
Planting: General	Replace any diseased, damaged or dead plants with plant stock of the same size / species (unless otherwise directed by the Landscape Architect or LPA). A schedule of all dead plant material removed is to be kept by the Maintenance Operator.										✓		
Planting: General	Generally, make good all ridges, ruts, depressions and dead areas.			✓	✓	✓	✓	✓	✓	✓	✓		
Planting: General	Treat pernicious weeds (e.g. Japanese Knotweed), with an appropriate herbicide immediately after identification on site, and continue treating as necessary to achieve complete eradication.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Existing Wildlife Corridors	Where possible and where it is safe to do so, standing dead wood to be retained to provide opportunities for wildlife. Where dead wood must be thinned, this should be retained within habitat areas and stacked into piles to provide wildlife habitats. Additional wood resulting from pruning or other tree works to be similarly retained within discrete piles where possible. Surplus / additional pruning's / clippings to be removed. Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Where gaps are present, supplementary planting of native species to match those already present should be undertaken and managed accordingly. Use of herbicides, pesticides and fertilisers to be avoided.										✓		

APPENDIX C – MAINTENANCE SCHEDULE YEAR 1

	MAINTENANCE ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Existing Hedgerow	To ensure that the hedgerows retain dense growth and value to wildlife, clipping should be minimised where possible. No more than one side of the hedgerow should be trimmed in any one year, with the remainder left un-trimmed to allow continuity of cover and opportunities for wildlife. Trimming should take place during late winter to maximise food and cover availability for wildlife and also to avoid detrimental effects on breeding birds. Where gaps are present, supplementary planting of native species to match those already present should be undertaken and managed accordingly. Use of herbicides or pesticides to be avoided. Hedge should be managed to a minimum height of 3m.	✓											
Native Hedgerow	New hedgerows to be trimmed / faced up to promote healthy growth. Where infill planting within an existing hedgerow, new planting to be maintained at a height to match existing hedgerow. Check that there are no nesting birds present prior to any hedgerow works. It is an offence under the Wildlife & Countryside Act 1981 to damage or destroy the nest of any wild bird while it is in use or being built. Invasive species (e.g. bramble) should be controlled to allow new planting to establish, taking care not to damage new hedgerow plants.				✓			✓			✓		
Structural Woodland and Shrub Mix	Monitor initial establishment of planting to ensure trees and shrubs remain upright, stable and in good condition. Where necessary, cut back or spot treat excessive bramble or other invasive / ruderal weeds to allow planted species to establish, taking care not to damage new planting. Use of herbicides or other pesticides to be avoided where possible.				✓					✓			
Woodland Edge Mix	Monitor initial establishment of planting to ensure trees and shrubs remain upright, stable and in good condition. Where necessary, cut back or spot treat excessive bramble or other invasive / ruderal weeds to allow planted species to establish, taking care not to damage new planting. The use of herbicides or other pesticides to be avoided where possible.				✓					✓			
Grassland: General	Mowing: Remove litter, rubbish and debris from grassed areas before mowing. Do not allow mowing machinery closer than 500mm to any plant stems. Avoid damage to stems by nylon filament rotary cutters or other mechanical tools. Complete operations close to stems, corners and edges using handheld strimmer with special care taken not to cause whipping / damage to the base of tree trunks.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	All grassed areas to be watered so as to maintain healthy growth / establishment.			✓	✓	✓	✓	✓	✓	✓	✓		

APPENDIX C – MAINTENANCE SCHEDULE YEAR 1

	MAINTENANCE ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Grassland: General	Re-seed any gaps / hollows in lawns / meadows with a seed mix selected to match existing grass in quality and appearance.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	Weed material within sward to be eradicated manually or spot treated with suitable herbicide.				✓					✓			
Amenity Grass and mown Paths: A22	Areas to be cut to 25mm height on 2 weekly basis during growing season and cuttings removed from site. Use edging equipment to maintain neat / tidy edge as necessary. 16 No. cuts total.			✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)		
Amenity Grass and mown Paths: A22	Apply ICI Summer & Spring Feed (14:4:4) or equal approved at 30g / sqm to all lawn areas.			✓									
Grazing Grassland Old Fashioned Grazing Mixture: EG26/27	Area to be mown mid-summer after first flush weeds have flowered. Remove cuttings from site. Apply ICI Summer & Spring Feed (14:4:4) or equal approved at 30g / sqm to all lawn areas.			✓									
Field Margin Meadow - Hedgerow Mixture: EH1	In the first-year annual weed growth is to be cut back to encourage development of perennial ground cover.			✓			✓			✓			
Tussock Grassland Tussock mix: EM10	Low intensity cutting regime (as required – review annually)									✓			
Woodland Meadow - Grass Mixture for Hedgerows and Woodland: EG9	Area to be mown mid-summer after first flush weeds have flowered. Remove cuttings from site. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks). Mow regularly in the first year until sown grasses are established.								✓	✓	✓	✓	

APPENDIX C – MAINTENANCE SCHEDULE YEAR 1

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wildflower Meadow - Standard General Purpose Meadow Mixture: EM2	Area to be mown late summer after annual weeds have flowered and late autumn (2 No. cuts total). Remove cuttings from site. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks).								✓ (1)		✓ (1)		
Wetland Meadow - Meadow Mixture for Wetlands: EM8	Area to be mown late summer after annual weeds have flowered and late autumn (2 No. cuts total). Remove cuttings from site. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks).								✓ (1)		✓ (1)		
Wild bird Seed Crop - Enhanced Autumn Sown Wild Bird Seed Mix KEAUT1	See Section 9.4 Winter Cover Crop for information												
Bulbs + Corms	Maintain area in a weed free condition. Cease mowing and weed control prior to emergence of leaves. Do not cut grass until foliage die back has begun. No chemical weed control until foliage dies back completely.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bulbs + Corms	Lift and divide as appropriate just after mowing.			✓	✓	✓							
Ponds / Attenuation Basins (Year 1)	Seasonally wet margins will be sown with a wet grassland seed mix (EM8) in spring or late summer. Margins of permanent standing water will be sown with a water's edge seed mix (EP1) in spring or late summer when water levels have receded and once established will be managed on a rotational basis with other marginal planting. In addition to the marginal seed mix, pockets of native aquatic and marginal plants will be planted within and around the margins of standing water in the attenuation basins. Checks for presence of non-native invasive plant species to be conducted at least once annually.				✓					✓			
Hard Surfacing	Clear soil, mulch, litter or other debris from hard surfaced areas and remove from site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

APPENDIX C – MAINTENANCE SCHEDULE YEAR 1

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hard Surfacing	Hard surfaces in communal areas to be treated with glyphosate-based non-residual herbicide (Roundup or equal approved), in full accordance with manufacturer's recommendations & COSHH regulations.			√				√					
Fencing	Report any damage (including rabbit fencing); provide temporary barriers to secure fence line where damage poses a risk to public safety.	√	√	√	√	√	√	√	√	√	√	√	√
Interpretation Boards	Visually inspect for vandalism / damage, make safe and report any damage to the relevant party.	√	√	√	√	√	√	√	√	√	√	√	√
General	Collect fallen leaf litter and remove from site (do not blow away). Allow for 2 weekly visits.	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)
General	Report any remaining element that through failure, fatigue or vandalism poses a risk to public safety.	√	√	√	√	√	√	√	√	√	√	√	√

Appendix D Maintenance Schedule Year 2

APPENDIX D – MAINTENANCE SCHEDULE YEAR 2

	MAINTENANCE ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting: General	Remove litter, leaf litter, rubbish and debris from all planted areas (including grassed areas). Dispose of arisings from all specified operations off site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Planting: General	Watering of all planted areas sufficient to maintain healthy growth, irrespective of season or weather conditions*, until restrained from doing so by statutory legislation. Specimen trees to be irrigated by means of dedicated irrigation tubes where provided. (*Do not water when ground is frozen / likely to freeze).			✓	✓	✓	✓	✓	✓	✓	✓		
Planting: General	Treat diseased plants with an appropriate insecticide / fungicide as necessary to maintain healthy growth.			✓	✓	✓	✓	✓	✓	✓	✓		
Planting: General	Maintain a weed free environment. Remove unwanted weed growth within planted areas manually or by treatment with glyphosate-based herbicide to maintain weed free environment as required. Remove all weed growth from site. 8 Visits total. Fork over beds as necessary to keep soil loose, taking care not to reduce depth or effect of mulch. Herbicide to be of a type approved by the Environment Agency where impact is likely upon any nearby watercourse and in any case in accordance with current legislation. Spray out grass / weeds in a 300mm diameter area around any tree set into grassed areas. Adjacent paths and surfaces to be swept clean as the work proceeds, and the site left tidy.			✓ (2)		✓ (2)		✓ (2)		✓ (2)			
Planting: General	Re-firm all plants affected by frost heave / wind rock / vandalism by treading around the base. Re-stake trees if necessary. Collars at the base of tree stems created by tree movement to be broken up by fork, avoiding damage to roots, backfilled with topsoil as necessary, and re-firmed.			✓						✓			
Planting: General	Check all existing trees and hedging with regard to public safety. Report any trees that appear to pose a risk to public safety and conduct remedial work as necessary in accordance with good arboricultural practice.			✓							✓		
Planting: General	Prune trees / shrubs only to remove vandalised, dead / dangerous branches or to promote healthy growth / natural shape. Remove all cuttings from site. Except where specified otherwise, prune trees and shrubs as recommended by BS:7370 Part 4 clause 3.6.3 to 3.6.5. Confirm which trees are covered by Tree Preservation Orders, and seek appropriate permission, prior to conducting any arboricultural work. All trees to be checked for safety by a suitably trained arboricultural specialist. Pruning shall be conducted by skilled labour only. Do not apply growth retardants, fungicide or sealant unless instructed otherwise. Herbaceous plants to be trimmed according to their growth habit.			✓						✓			

APPENDIX D – MAINTENANCE SCHEDULE YEAR 2

	MAINTENANCE ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting: General	Check / replace / adjust tree stakes, ties and rabbit / strimmer guards as required. Remove redundant tapes, tags, ties, labels and other encumbrances.	✓		✓		✓		✓		✓		✓	
Planting: General	Ensure 50mm of 50-75mm grade bark mulch is maintained to all planted areas and to base of individual trees set into grass.												✓
Planting: General	Apply Enmag CRF granular fertilizer, or equal approved, at ~140g per individual tree pits and 70g / sqm to planted areas (quantities to be confirmed by manufacturer).			✓									
Planting: General	Replace any diseased, damaged or dead plants with plant stock of the same size / species (unless otherwise directed by the Landscape Architect or LPA). A schedule of all dead plant material removed is to be kept by the Maintenance Operator.										✓		
Planting: General	Treat pernicious weeds (e.g. Japanese Knotweed), with an appropriate herbicide immediately after identification on site, and continue treating as necessary to achieve complete eradication.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Existing Wildlife Corridors	Where possible and where it is safe to do so, standing dead wood to be retained to provide opportunities for wildlife. Where dead wood must be thinned, this should be retained within habitat areas and stacked into piles to provide wildlife habitats. Additional wood resulting from pruning or other tree works to be similarly retained within discrete piles where possible. Surplus / additional pruning's / clippings to be removed. Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Where gaps are present, supplementary planting of native species to match those already present should be undertaken and managed accordingly. Use of herbicides, pesticides and fertilisers to be avoided.										✓		
Existing Hedgerow	To ensure that the hedgerows retain dense growth and value to wildlife, clipping should be minimised where possible. No more than one side of the hedgerow should be trimmed in any one year, with the remainder left un-trimmed to allow continuity of cover and opportunities for wildlife. Trimming should take place during late winter to maximise food and cover availability for wildlife and also to avoid detrimental effects on breeding birds. Use of herbicides or pesticides to be avoided. Hedge should be managed to a minimum height of 3m.	✓											

APPENDIX D – MAINTENANCE SCHEDULE YEAR 2

	MAINTENANCE ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Native Hedgerow	New hedgerows to be trimmed / faced up so as to promote healthy growth and effective screening, albeit trimming of native hedges to be kept to a minimum to allow dense, bushy vegetation to develop. Where infill planting within an existing hedgerow, new planting to be maintained at a height to match existing hedgerow. Check that there are no nesting birds present prior to any hedgerow works. It is an offence under the Wildlife & Countryside Act 1981 to damage or destroy the nest of any wild bird while it is in use or being built. Invasive species (e.g. bramble) to be thinned if required to ensure continued establishment of planted species, taking care not to damage new hedgerow plants.				✓			✓			✓		
Structural Woodland Mix	Monitor initial establishment of planting to ensure trees and shrubs remain upright, stable and in good condition. Where necessary, cut back or spot treat excessive bramble or other invasive / ruderal weeds to allow planted species to establish, taking care not to damage planted species. Use of herbicides or other pesticides to be avoided where possible.				✓					✓			
Woodland Edge Mix	Monitor initial establishment of planting to ensure trees and shrubs remain upright, stable and in good condition. Where necessary, cut back or spot treat excessive bramble or other invasive / ruderal weeds to allow planted species to establish, taking care not to damage planted species. The use of herbicides or other pesticides to be avoided where possible.				✓					✓			
Grassland: General	Mowing: Remove litter, rubbish and debris from grassed areas before mowing. Do not allow mowing machinery closer than 500mm to any plant stems. Avoid damage to stems by nylon filament rotary cutters or other mechanical tools. Complete operations close to stems, corners and edges using handheld strimmer with special care taken not to cause whipping / damage to the base of tree trunks.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	All grassed areas to be watered so as to maintain healthy growth / establishment.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	Re-seed any gaps / hollows in lawns with a seed mix selected to match existing grass in quality and appearance. Top dress where necessary with fine topsoil to BS 3882.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	Weed material within sward to be eradicated manually or spot treated with suitable herbicide.				✓					✓			

APPENDIX D – MAINTENANCE SCHEDULE YEAR 2

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Amenity Grass and mown Paths: A22	Areas to be cut to 25mm height on 2 weekly basis during growing season and cuttings removed from site. Use edging equipment to maintain neat / tidy edge as necessary. 16 No. cuts total.			√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)		
Amenity Grass and mown Paths: A22	Apply ICI Summer & Spring Feed (14:4:4) or equal approved at 30g / sqm to all lawn areas.			√									
Field Margin Meadow - Hedgerow Mixture: EH1	Keep semi-shade weeds such as nettles and brambles in check. Grass swards to be selectively sprayed to control docks and thistles every 2-3 years on a rotational basis so that no more than half of the area is cut in any one year. Less intensive management over time will develop an open tussocky nature as a refuge for wildlife.											√	
Tussock Grassland - Tussock mix: EM10	Low intensity cutting regime (as required – review annually)									√			
Woodland Meadow - Grass Mixture for Hedgerows and Woodland: EG9	Annual mid-summer mid cut (no shorter than 30mm) and avoid cutting if prolonged dry spell. Keep weeds of semi-shade such as nettles and brambles in check. Grass swards that do not contain wildflowers can be selectively sprayed to controls docks and thistles. Less intensive management over time will develop an open tussocky nature as a refuge for wildlife.								√				
Wildflower Meadow - Standard General Purpose Meadow Mixture: EM2	Areas to be mown in spring after early annual weeds have flowered (remove cuttings from site). Areas to be cut late summer after annuals have flowered and set seed with a scythe or petrol strimmer to ~50mm. Cuttings are to be left to dry and shed seed for 5-7 days and then removed from site. Areas to be mown early winter to ~50mm (remove cuttings from site). 3 No. cuts total. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks).			√ (1)					√ (1)			√ (1)	

APPENDIX D – MAINTENANCE SCHEDULE YEAR 2

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wetland Meadow - Meadow Mixture for Wetlands: EM8	Areas to be mown in spring after early annual weeds have flowered (remove cuttings from site). Areas to be cut late summer after annuals have flowered and set seed with a scythe or petrol strimmer to ~50mm. Cuttings are to be left to dry and shed seed for 5-7 days and then removed from site. Areas to be mown early winter to ~50mm (remove cuttings from site). 3 No. cuts total. Localised differences may require a targeted approach. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks).			✓ (1)					✓ (1)			✓ (1)	
Pond Edge Mixture: EP1F	In second and subsequent years create variety of vegetation structures by cutting back and removing short sections of vegetation every 2-3 years in rotation. Remove wedges (like slices of cake) of vegetation and selectively thin Yellow Iris and any dense stands of single species. Machines and heavy equipment may only be used with care to avoid damage to soil and vegetation.										✓		
Wild bird Seed Crop - Enhanced Autumn Sown Wild Bird Seed Mix KEAUT1	See Section 9.4 Winter Cover Crop for information												
Bulbs + Corms	Maintain area in a weed free condition. Cease mowing and weed control prior to emergence of leaves. Do not cut grass until foliage die back has begun. No chemical weed control until foliage dies back completely.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bulbs + Corms	Lift and divide as appropriate just after mowing.			✓	✓	✓							

APPENDIX D – MAINTENANCE SCHEDULE YEAR 2

	MAINTENANCE ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Attenuation Basins / Ponds (Year 2+)	Checks for presence of non-native invasive plant species to be conducted at least once annually. Other native aquatic or marginal species may colonise naturally and will be allowed to establish or be managed as appropriate to enhance floral diversity and maintain suitability for a range of wildlife. Aquatic and marginal vegetation will be managed by cutting or hand pulling on an 'as needed' basis to ensure a third of the pond surface remains free from vegetation from September to November within semi-permanent ponds and a variety of edge habitats. Marginal and emergent vegetation to be maintained at a maximum extent of 20%. Any removed aquatic or marginal vegetation will be left at the pond edge for up to 3 days (minimum 1 day) to allow any pond life to re-enter the pond. Some piles may be left to provide refuge opportunities for amphibians, invertebrates and reptiles, but generally all arisings will be removed from the management area. Removal of sediment from the ponds will be as required. No more than 25% of marginal vegetation or silt will be removed from the pond during management in any one year. This work would be conducted during the winter. Management of planted and self-seeded scrub will be conducted during winter months to prevent excessive shading and encroachment into wetland areas. This will be conducted by hand pulling and cutting. No fish will be introduced to the ponds in order to maintain optimal conditions for other native wildlife including invertebrates and amphibians. If non-native invasive plant species are recorded during survey, they will be subject to control using a methodology appropriate to the species present (and the presence of a waterbody).			✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)			✓ (2)
Hard Surfacing	Clear soil, mulch, litter or other debris from hard surfaced areas and remove from site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hard Surfacing	Hard surfaces in communal areas to be treated with glyphosate-based non-residual herbicide (Roundup or equal approved), in full accordance with manufacturer's recommendations & COSHH regulations.			✓				✓					
Fencing	Report any damage (including rabbit fencing); provide temporary barriers to secure fence line where damage poses a risk to public safety.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Interpretation Boards	Visually inspect for vandalism / damage, make safe and report any damage to the relevant party.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
General	Collect fallen leaf litter and remove from site (do not blow away). Allow for 2 weekly visits.	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)

APPENDIX D – MAINTENANCE SCHEDULE YEAR 2

	MAINTENANCE ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
General	Report any remaining element that through failure, fatigue or vandalism poses a risk to public safety.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Appendix E Maintenance Schedule Year 3

APPENDIX E – MAINTENANCE SCHEDULE YEAR 3

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting: General	Remove litter, leaf litter, rubbish and debris from all planted areas (including grassed areas). Dispose of arisings from all specified operations off site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Planting: General	Watering of all planted areas sufficient to maintain healthy growth, irrespective of season or weather conditions*, until restrained from doing so by statutory legislation. Specimen trees to be irrigated by means of dedicated irrigation tubes where provided. (*Do not water when ground is frozen / likely to freeze).			✓	✓	✓	✓	✓	✓	✓	✓		
Planting: General	Treat diseased plants with an appropriate insecticide / fungicide as necessary to maintain healthy growth.			✓	✓	✓	✓	✓	✓	✓	✓		
Planting: General	Maintain a weed free environment. Remove unwanted weed growth within planted areas manually or by treatment with glyphosate-based herbicide to maintain weed free environment as required. Remove all weed growth from site. 4 Visits total. Fork over beds as necessary to keep soil loose, taking care not to reduce depth or effect of mulch. Herbicide to be of a type approved by the Environment Agency where impact is likely upon any nearby watercourse and in any case in accordance with current legislation. Spray out grass / weeds in a 300mm diameter area around any tree set into grassed areas. Adjacent paths and surfaces to be swept clean as the work proceeds, and the site left tidy.			✓		✓		✓		✓			
Planting: General	Check all existing trees and hedging with regard to public safety. Report any trees that appear to pose a risk to public safety and carry out remedial work as necessary in accordance with good arboricultural practice.			✓							✓		
Planting: General	Prune trees / shrubs only to remove vandalised, dead / dangerous branches or to promote healthy growth / natural shape. Remove all cuttings from site. Except where specified otherwise, prune trees and shrubs as recommended by BS:7370 Part 4 clause 3.6.3 to 3.6.5. Confirm which trees are covered by Tree Preservation Orders, and seek appropriate permission, prior to conducting any arboricultural work. All trees to be checked for safety by a suitably trained arboricultural specialist. Pruning shall be conducted by skilled labour only. Do not apply growth retardants, fungicide or sealant unless instructed otherwise. Herbaceous plants to be trimmed according to their growth habit.			✓						✓			
Planting: General	Check / replace / adjust tree stakes, ties and rabbit / strimmer guards as required. Remove redundant tapes, tags, ties, labels and other encumbrances.	✓		✓		✓		✓		✓		✓	

APPENDIX E – MAINTENANCE SCHEDULE YEAR 3

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting: General	Replace any diseased, damaged or dead plants with plant stock of the same size / species (unless otherwise directed by the Landscape Architect or LPA). A schedule of all dead plant material removed is to be kept by the Maintenance Operator.										✓		
Planting: General	Treat pernicious weeds (e.g. Japanese Knotweed), with an appropriate herbicide immediately after identification on site, and continue treating as necessary to achieve complete eradication.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Existing Wildlife Corridors	Where possible and where it is safe to do so, standing dead wood to be retained to provide opportunities for wildlife. Where dead wood must be thinned, this should be retained within habitat areas and stacked into piles to provide wildlife habitats. Additional wood resulting from pruning or other tree works to be similarly retained within discrete piles where possible. Surplus / additional pruning's / clippings to be removed. Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Where gaps are present, supplementary planting of native species to match those already present should be undertaken and managed accordingly. Use of herbicides, pesticides and fertilisers to be avoided.										✓		
Existing Hedgerow	To ensure that the hedgerows retain dense growth and value to wildlife, clipping should be minimised where possible. No more than one side of the hedgerow should be trimmed in any one year, with the remainder left un-trimmed to allow continuity of cover and opportunities for wildlife. Trimming should take place during late winter to maximise food and cover availability for wildlife and also to avoid detrimental effects on breeding birds. Use of herbicides or pesticides to be avoided. Hedge should be managed to a minimum height of 3m.	✓											
Native Hedgerows	Native hedgerows to be cut on a biennial basis, such that no more than 50% of the hedgerows to be cut during any one year to allow continuity of habitats for wildlife. Vegetation should be maintained to a height of *at least* 3m above ground level, or to match pre-existing established hedgerow. Trimming should take place ideally during late winter to maximise food and cover availability for wildlife and also avoid detrimental effects on breeding birds. Use of herbicides or pesticides to be avoided. Check that there are no nesting birds present prior to any hedgerow works. It is an offence under the Wildlife & Countryside Act 1981 to damage or destroy the nest of any wild bird while it is in use or being built.	✓											

APPENDIX E – MAINTENANCE SCHEDULE YEAR 3

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Structural Woodland and Shrub Mix	Where possible and where it is safe to do so, standing dead wood to be retained to provide opportunities for wildlife. Where dead wood must be thinned, this should be retained within habitat areas and stacked into piles to provide wildlife habitats. Additional wood resulting from pruning or other tree works to be similarly retained within discrete piles where possible. Surplus / additional pruning's / clippings to be removed. Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Use of herbicides and fertilisers to be avoided.										✓		
Woodland Edge Mix	Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Use of herbicides and fertilisers to be avoided.										✓		
Grassland: General	Mowing: Remove litter, rubbish and debris from grassed areas before mowing. Do not allow mowing machinery closer than 500mm to any plant stems. Avoid damage to stems by nylon filament rotary cutters or other mechanical tools. Complete operations close to stems, corners and edges using handheld strimmer with special care taken not to cause whipping / damage to the base of tree trunks.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	All grassed areas to be watered so as to maintain healthy growth / establishment.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	Re-seed any gaps / hollows in lawns with a seed mix selected to match existing grass in quality and appearance. Top dress where necessary with fine topsoil to BS 3882.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	Weed material within sward to be eradicated manually or spot treated with suitable herbicide.				✓					✓			
Amenity Grass and mown Paths: A22	Areas to be cut to 25mm height on 2 weekly basis during growing season and cuttings removed from site. Use edging equipment to maintain neat / tidy edge as necessary. 16 No. cuts total.			✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)		
Amenity Grass and mown Paths: A22	Apply ICI Summer & Spring Feed (14:4:4) or equal approved at 30g / sqm to all lawn areas.			✓									

APPENDIX E – MAINTENANCE SCHEDULE YEAR 3

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Field Margin Meadow - Hedgerow Mixture: EH1	Keep semi-shade weeds such as nettles and brambles in check. Grass swards to be selectively sprayed to control docks and thistles every 2-3 years on a rotational basis so that no more than half of the area is cut in any one year. Less intensive management over time will develop an open tussocky nature as a refuge for wildlife.											✓	
Tussock Grassland Tussock mix: EM10	Low intensity cutting regime (as required – review annually)									✓			
Woodland Meadow - Grass Mixture for Hedgerows and Woodland: EG9	Annual mid-summer mid cut (no shorter than 30mm) and avoid cutting if prolonged dry spell. Keep weeds of semi-shade such as nettles and brambles in check. Grass swards that do not contain wildflowers can be selectively sprayed to controls docks and thistles. Less intensive management over time will develop an open tussocky nature as a refuge for wildlife.								✓				
Wildflower Meadow: EM2	Areas to be mown in spring after early annual weeds have flowered (remove cuttings from site). Areas to be cut late summer after annuals have flowered and set seed with a scythe or petrol strimmer to ~50mm. Cuttings are to be left to dry and shed seed for 5-7 days and then removed from site. Areas to be mown early winter to ~50mm (remove cuttings from site). 3 No. cuts total. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks).			✓ (1)					✓ (1)			✓ (1)	
Wetland Mixture: EM8	Areas to be mown in spring after early annual weeds have flowered (remove cuttings from site). Areas to be cut late summer after annuals have flowered and set seed with a scythe or petrol strimmer to ~50mm. Cuttings are to be left to dry and shed seed for 5-7 days and then removed from site. Areas to be mown early winter to ~50mm (remove cuttings from site). 3 No. cuts total. Localised differences may require a targeted approach. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks).			✓ (1)					✓ (1)			✓ (1)	

APPENDIX E – MAINTENANCE SCHEDULE YEAR 3

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pond Edge Mixture: EP1F	In second and subsequent years create variety of vegetation structures by cutting back and removing short sections of vegetation every 2-3 years in rotation. Remove wedges (like slices of cake) of vegetation and selectively thin Yellow Iris and any dense stands of single species. Machines and heavy equipment may only be used with care to avoid damage to soil and vegetation.										✓		
Wild bird Seed Crop - Enhanced Autumn Sown Wild Bird Seed Mix: KEAUT1	See Section 9.4 Winter Cover Crop for information												
Bulbs + Corms	Maintain area in a weed free condition. Cease mowing and weed control prior to emergence of leaves. Do not cut grass until foliage die back has begun. No chemical weed control until foliage dies back completely.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bulbs + Corms	Lift and divide as appropriate just after mowing.			✓	✓	✓							

APPENDIX E – MAINTENANCE SCHEDULE YEAR 3

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Attenuation Basins / Ponds (Year 3+)	Checks for presence of non-native invasive plant species to be conducted at least once annually. Other native aquatic or marginal species may colonise naturally and will be allowed to establish or be managed as appropriate to enhance floral diversity and maintain suitability for a range of wildlife. Aquatic and marginal vegetation will be managed by cutting or hand pulling on an 'as needed' basis to ensure a third of the pond surface remains free from vegetation from September to November within semi-permanent ponds and a variety of edge habitats. Marginal and emergent vegetation to be maintained at a maximum extent of 20%. Any removed aquatic or marginal vegetation will be left at the pond edge for up to 3 days (minimum 1 day) to allow any pond life to re-enter the pond. Some piles may be left to provide refuge opportunities for amphibians, invertebrates and reptiles, but generally all arisings will be removed from the management area. Removal of sediment from the ponds will be as required. No more than 25% of marginal vegetation or silt will be removed from the pond during management in any one year. This work would be conducted during the winter. Management of planted and self-seeded scrub will be conducted during winter months to prevent excessive shading and encroachment into wetland areas. This will be conducted by hand pulling and cutting. No fish will be introduced to the ponds in order to maintain optimal conditions for other native wildlife including invertebrates and amphibians. If non-native invasive plant species are recorded during survey, they will be subject to control using a methodology appropriate to the species present (and the presence of a waterbody).			✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)			✓ (2)
Hard Surfacing	Clear soil, mulch, litter or other debris from hard surfaced areas and remove from site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hard Surfacing	Hard surfaces in communal areas to be treated with glyphosate-based non-residual herbicide (Roundup or equal approved), in full accordance with manufacturer's recommendations & COSHH regulations.			✓				✓					
Fencing	Report any damage (including rabbit fencing); provide temporary barriers to secure fence line where damage poses a risk to public safety.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Interpretation Boards	Visually inspect all areas and play equipment for vandalism / damage, make safe and report any damage to the relevant party.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
General	Collect fallen leaf litter and remove from site (do not blow away). Allow for 2 weekly visits.	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)

APPENDIX E – MAINTENANCE SCHEDULE YEAR 3

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
General	Report any remaining element that through failure, fatigue or vandalism poses a risk to public safety.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Appendix F Maintenance Schedule Year 4

APPENDIX F – MAINTENANCE SCHEDULE YEAR 4

	MAINTENANCE ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting: General	Remove litter, leaf litter, rubbish and debris from all planted areas (including grassed areas). Dispose of arisings from all specified operations off site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Planting: General	Watering of all planted areas sufficient to maintain healthy growth, irrespective of season or weather conditions*, until restrained from doing so by statutory legislation. Specimen trees to be irrigated by means of dedicated irrigation tubes where provided. (*Do not water when ground is frozen / likely to freeze).				✓	✓	✓	✓	✓	✓			
Planting: General	Treat diseased plants with an appropriate insecticide / fungicide as necessary to maintain healthy growth.			✓	✓	✓	✓	✓	✓	✓	✓		
Planting: General	Maintain a weed free environment. Remove unwanted weed growth within planted areas manually or by treatment with glyphosate-based herbicide to maintain weed free environment as required. Remove all weed growth from site. 4 Visits total. Fork over beds as necessary to keep soil loose, taking care not to reduce depth or effect of mulch. Herbicide to be of a type approved by the Environment Agency where impact is likely upon any nearby watercourse and in any case in accordance with current legislation. Spray out grass / weeds in a 300mm diameter area around any tree set into grassed areas. Adjacent paths and surfaces to be swept clean as the work proceeds, and the site left tidy.			✓		✓		✓		✓			
Planting: General	Check all existing trees and hedging with regard to public safety. Report any trees that appear to pose a risk to public safety and conduct remedial work as necessary in accordance with good arboricultural practice.			✓							✓		
Planting: General	Prune trees / shrubs only to remove vandalised, dead / dangerous branches or to promote healthy growth / natural shape. Remove all cuttings from site. Except where specified otherwise, prune trees and shrubs as recommended by BS:7370 Part 4 clause 3.6.3 to 3.6.5. Confirm which trees are covered by Tree Preservation Orders, and seek appropriate permission, prior to conducting any arboricultural work. All trees to be checked for safety by a suitably trained arboricultural specialist. Pruning shall be conducted by skilled labour only. Do not apply growth retardants, fungicide or sealant unless instructed otherwise. Herbaceous plants to be trimmed according to their growth habit.			✓						✓			
Planting: General	Check / replace / adjust tree stakes, ties and rabbit / strimmer guards as required. Remove redundant tapes, tags, ties, labels and other encumbrances.	✓		✓		✓		✓		✓		✓	

APPENDIX F – MAINTENANCE SCHEDULE YEAR 4

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting: General	Replace any diseased, damaged or dead plants with plant stock of the same size / species (unless otherwise directed by the Landscape Architect or LPA). A schedule of all dead plant material removed is to be kept by the Maintenance Operator.										✓		
Planting: General	Treat pernicious weeds (e.g. Japanese Knotweed), with an appropriate herbicide immediately after identification on site, and continue treating as necessary to achieve complete eradication.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Existing Wildlife Corridors	Where possible and where it is safe to do so, standing dead wood to be retained to provide opportunities for wildlife. Where dead wood must be thinned, this should be retained within habitat areas and stacked into piles to provide wildlife habitats. Additional wood resulting from pruning or other tree works to be similarly retained within discrete piles where possible. Surplus / additional pruning's / clippings to be removed. Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Where gaps are present, supplementary planting of native species to match those already present should be undertaken and managed accordingly. Use of herbicides, pesticides and fertilisers to be avoided.										✓		
Existing Hedgerow	To ensure that the hedgerows retain dense growth and value to wildlife, clipping should be minimised where possible. No more than one side of the hedgerow should be trimmed in any one year, with the remainder left un-trimmed to allow continuity of cover and opportunities for wildlife. Trimming should take place during late winter to maximise food and cover availability for wildlife and also to avoid detrimental effects on breeding birds. Use of herbicides or pesticides to be avoided. Hedge should be managed to a minimum height of 3m.	✓											
Native Hedgerows	Native hedgerows to be cut on a biennial basis, such that no more than 50% of the hedgerows to be cut during any one year to allow continuity of habitats for wildlife. Vegetation should be maintained to a height of *at least* 3m above ground level, or to match pre-existing established hedgerow. Trimming should take place ideally during late winter to maximise food and cover availability for wildlife and also avoid detrimental effects on breeding birds. Use of herbicides or pesticides to be avoided. Check that there are no nesting birds present prior to any hedgerow works. It is an offence under the Wildlife & Countryside Act 1981 to damage or destroy the nest of any wild bird while it is in use or being built.	✓											

APPENDIX F – MAINTENANCE SCHEDULE YEAR 4

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Structural Woodland and Shrub Mix	Where possible and where it is safe to do so, standing dead wood to be retained to provide opportunities for wildlife. Where dead wood must be thinned, this should be retained within habitat areas and stacked into piles to provide wildlife habitats. Additional wood resulting from pruning or other tree works to be similarly retained within discrete piles where possible. Surplus / additional pruning's / clippings to be removed. Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Use of herbicides and fertilisers to be avoided.										✓		
Woodland Edge Mix	Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Use of herbicides and fertilisers to be avoided.										✓		
Grassland: General	Mowing: Remove litter, rubbish and debris from grassed areas before mowing. Do not allow mowing machinery closer than 500mm to any plant stems. Avoid damage to stems by nylon filament rotary cutters or other mechanical tools. Complete operations close to stems, corners and edges using handheld strimmer with special care taken not to cause whipping / damage to the base of tree trunks.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	All grassed areas to be watered so as to maintain healthy growth / establishment.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	Re-seed any gaps / hollows in lawns with a seed mix selected to match existing grass in quality and appearance. Top dress where necessary with fine topsoil to BS 3882.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	Weed material within sward to be eradicated manually or spot treated with suitable herbicide.				✓					✓			
Amenity Grass and mown Paths: A22	Areas to be cut to 25mm height on 2 weekly basis during growing season and cuttings removed from site. Use edging equipment to maintain neat / tidy edge as necessary. 16 No. cuts total.			✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)		
Amenity Grass and mown Paths: A22	Apply ICI Summer & Spring Feed (14:4:4) or equal approved at 30g / sqm to all lawn areas.			✓									

APPENDIX F – MAINTENANCE SCHEDULE YEAR 4

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Field Margin Meadow - Mixture: EH1	Keep semi-shade weeds such as nettles and brambles in check. Grass swards to be selectively sprayed to control docks and thistles every 2-3 years on a rotational basis so that no more than half of the area is cut in any one year. Less intensive management over time will develop an open tussocky nature as a refuge for wildlife.											✓	
Tussock Grassland Tussock mix: EM10	Low intensity cutting regime (as required – review annually)									✓			
Woodland Meadow - Grass Mixture for Hedgerows and Woodland: EG9	Annual mid-summer mid cut (no shorter than 30mm) and avoid cutting if prolonged dry spell. Keep weeds of semi-shade such as nettles and brambles in check. Grass swards that do not contain wildflowers can be selectively sprayed to controls docks and thistles. Less intensive management over time will develop an open tussocky nature as a refuge for wildlife.								✓				
Wildflower Meadow - Standard General Purpose Meadow Mixture: EM2	Areas to be mown in spring after early annual weeds have flowered (remove cuttings from site). Areas to be cut late summer after annuals have flowered and set seed with a scythe or petrol strimmer to ~50mm. Cuttings are to be left to dry and shed seed for 5-7 days and then removed from site. Areas to be mown early winter to ~50mm (remove cuttings from site). 3 No. cuts total. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks).			✓ (1)					✓ (1)			✓ (1)	
Wetland Meadow - Meadow Mixture for Wetlands: EM8	Areas to be mown in spring after early annual weeds have flowered (remove cuttings from site). Areas to be cut late summer after annuals have flowered and set seed with a scythe or petrol strimmer to ~50mm. Cuttings are to be left to dry and shed seed for 5-7 days and then removed from site. Areas to be mown early winter to ~50mm (remove cuttings from site). 3 No. cuts total. Localised differences may require a targeted approach. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks).			✓ (1)					✓ (1)			✓ (1)	

APPENDIX F – MAINTENANCE SCHEDULE YEAR 4

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pond Edge Mixture: EP1F	In second and subsequent years create variety of vegetation structures by cutting back and removing short sections of vegetation every 2-3 years in rotation. Remove wedges (like slices of cake) of vegetation and selectively thin Yellow Iris and any dense stands of single species. Machines and heavy equipment may only be used with care to avoid damage to soil and vegetation.										✓		
Wild bird Seed Crop - Enhanced Autumn Sown Wild Bird Seed Mix: KEAUT1	See Section 9.4 Winter Cover Crop for information												
Bulbs + Corms	Maintain area in a weed free condition. Cease mowing and weed control prior to emergence of leaves. Do not cut grass until foliage die back has begun. No chemical weed control until foliage dies back completely.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bulbs + Corms	Lift and divide as appropriate just after mowing.			✓	✓	✓							

APPENDIX F – MAINTENANCE SCHEDULE YEAR 4

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Attenuation Basins / Ponds (Year 4+)	Checks for presence of non-native invasive plant species to be conducted at least once annually. Other native aquatic or marginal species may colonise naturally and will be allowed to establish or be managed as appropriate to enhance floral diversity and maintain suitability for a range of wildlife. Aquatic and marginal vegetation will be managed by cutting or hand pulling on an 'as needed' basis to ensure a third of the pond surface remains free from vegetation from September to November within semi-permanent ponds and a variety of edge habitats. Marginal and emergent vegetation to be maintained at a maximum extent of 20%. Any removed aquatic or marginal vegetation will be left at the pond edge for up to 3 days (minimum 1 day) to allow any pond life to re-enter the pond. Some piles may be left to provide refuge opportunities for amphibians, invertebrates and reptiles, but generally all arisings will be removed from the management area. Removal of sediment from the ponds will be as required. No more than 25% of marginal vegetation or silt will be removed from the pond during management in any one year. This work would be conducted during the winter. Management of planted and self-seeded scrub will be conducted during winter months to prevent excessive shading and encroachment into wetland areas. This will be conducted by hand pulling and cutting. No fish will be introduced to the ponds in order to maintain optimal conditions for other native wildlife including invertebrates and amphibians. If non-native invasive plant species are recorded during survey, they will be subject to control using a methodology appropriate to the species present (and the presence of a waterbody).			✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)			✓ (2)
Hard Surfacing	Clear soil, mulch, litter or other debris from hard surfaced areas and remove from site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hard Surfacing	Hard surfaces in communal areas to be treated with glyphosate-based non-residual herbicide (Roundup or equal approved), in full accordance with manufacturer's recommendations & COSHH regulations.			✓				✓					
Fencing	Report any damage (including rabbit fencing); provide temporary barriers to secure fence line where damage poses a risk to public safety.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Interpretation Boards	Visually inspect all areas and play equipment for vandalism / damage, make safe and report any damage to the relevant party.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
General	Collect fallen leaf litter and remove from site (do not blow away). Allow for 2 weekly visits.	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)

APPENDIX F – MAINTENANCE SCHEDULE YEAR 4

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
General	Report any remaining element that through failure, fatigue or vandalism poses a risk to public safety.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Appendix G Maintenance Schedule Year 5

APPENDIX G – MAINTENANCE SCHEDULE YEAR 5+

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting: General	Remove litter, leaf litter, rubbish and debris from all planted areas (including grassed areas). Dispose of arisings from all specified operations off site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Planting: General	Watering of all planted areas sufficient to maintain healthy growth, irrespective of season or weather conditions*, until restrained from doing so by statutory legislation. Specimen trees be irrigated by means of dedicated irrigation tubes where provided. (*Do not water when ground is frozen / likely to freeze).				✓	✓	✓	✓	✓	✓			
Planting: General	Treat diseased plants with an appropriate insecticide / fungicide as necessary to maintain healthy growth.			✓	✓	✓	✓	✓	✓	✓	✓		
Planting: General	Maintain a weed free environment. Remove unwanted weed growth within planted areas manually or by treatment with glyphosate-based herbicide to maintain weed free environment as required. Remove all weed growth from site. 4 Visits total. Fork over beds as necessary to keep soil loose, taking care not to reduce depth or effect of mulch. Herbicide to be of a type approved by the Environment Agency where impact is likely upon any nearby watercourse and in any case in accordance with current legislation. Spray out grass / weeds in a 300mm diameter area around any tree set into grassed areas. Adjacent paths and surfaces to be swept clean as the work proceeds, and the site left tidy.			✓		✓		✓		✓			
Planting: General	Check all existing trees and hedging with regard to public safety. Report any trees that appear to pose a risk to public safety and conduct remedial work as necessary in accordance with good arboricultural practice.			✓							✓		
Planting: General	Prune trees / shrubs only to remove vandalised, dead / dangerous branches or to promote healthy growth / natural shape. Remove all cuttings from site. Except where specified otherwise, prune trees and shrubs as recommended by BS:7370 Part 4 clause 3.6.3 to 3.6.5. Confirm which trees are covered by Tree Preservation Orders, and seek appropriate permission, prior to conducting any arboricultural work. All trees to be checked for safety by a suitably trained arboricultural specialist. Pruning shall be conducted by skilled labour only. Do not apply growth retardants, fungicide or sealant unless instructed otherwise. Herbaceous plants to be trimmed according to their growth habit.			✓						✓			

APPENDIX G – MAINTENANCE SCHEDULE YEAR 5+

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting: General	Check / replace / adjust tree stakes, ties and rabbit / strimmer guards as required. Remove redundant tapes, tags, ties, labels and other encumbrances. Where trees have successfully established, untie and remove stakes / ties from site. (Acceptable tree establishment to be ascertained by the presence of a full, balanced canopy of healthy foliage and evidence of strong, annual growth. This should be supported by a healthy trunk and root plate, firmly anchored into the ground).	✓		✓		✓		✓		✓		✓	
Planting: General	Replace any diseased, damaged or dead plants with plant stock of the same size / species (unless otherwise directed by the Landscape Architect or LPA). A schedule of all dead plant material removed is to be kept by the Maintenance Operator.										✓		
Planting: General	Treat pernicious weeds (e.g. Japanese Knotweed), with an appropriate herbicide immediately after identification on site, and continue treating as necessary to achieve complete eradication.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Planting: General	Carefully, (with a clean cut), crown-lift standard specimen trees to one-quarter of their overall height, up to a maximum of 2.5m height for small trees and 4.0m height for larger forest scale / avenue trees. The leader shoot(s) must not be cut. Feathered trees and multi-stems should not be crown lifted.												✓
Existing Wildlife Corridors	Where possible and where it is safe to do so, standing dead wood to be retained to provide opportunities for wildlife. Where dead wood must be thinned, this should be retained within habitat areas and stacked into piles to provide wildlife habitats. Additional wood resulting from pruning or other tree works to be similarly retained within discrete piles where possible. Surplus / additional pruning's / clippings to be removed. Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Where gaps are present, supplementary planting of native species to match those already present should be undertaken and managed accordingly. Use of herbicides, pesticides and fertilisers to be avoided.										✓		

APPENDIX G – MAINTENANCE SCHEDULE YEAR 5+

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Native Hedgerows	Native hedgerows to be cut on a biennial basis, such that no more than 50% of the hedgerows to be cut during any one year to allow continuity of habitats for wildlife. Vegetation should be maintained to a height of *at least* 3m above ground level, or to match pre-existing established hedgerow. Trimming should take place ideally during late winter to maximise food and cover availability for wildlife and also avoid detrimental effects on breeding birds. Use of herbicides or pesticides to be avoided. Check that there are no nesting birds present prior to any hedgerow works. It is an offence under the Wildlife & Countryside Act 1981 to damage or destroy the nest of any wild bird while it is in use or being built.	✓											
Structural Woodland and Shrub Mix	Where possible and where it is safe to do so, standing dead wood to be retained to provide opportunities for wildlife. Where dead wood must be thinned, this should be retained within habitat areas and stacked into piles to provide wildlife habitats. Additional wood resulting from pruning or other tree works to be similarly retained within discrete piles where possible. Surplus / additional pruning's / clippings to be removed. Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Use of herbicides and fertilisers to be avoided.										✓		
Woodland Edge Mix	Selective thinning of trees and shrubs to be undertaken as required (outside of spring / summer to avoid detrimental effects on nesting birds), to ensure successful development of an open canopy and understorey vegetation. Use of herbicides and fertilisers to be avoided.										✓		
Grassland: General	Mowing: Remove litter, rubbish and debris from grassed areas before mowing. Do not allow mowing machinery closer than 500mm to any plant stems. Avoid damage to stems by nylon filament rotary cutters or other mechanical tools. Complete operations close to stems, corners and edges using handheld strimmer with special care taken not to cause whipping / damage to the base of tree trunks.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	All grassed areas to be watered so as to maintain healthy growth / establishment.			✓	✓	✓	✓	✓	✓	✓	✓		
Grassland: General	Re-seed any gaps / hollows in lawns with a seed mix selected to match existing grass in quality and appearance. Top dress where necessary with fine topsoil to BS 3882.			✓	✓	✓	✓	✓	✓	✓	✓		

APPENDIX G – MAINTENANCE SCHEDULE YEAR 5+

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Grassland: General	Weed material within sward to be eradicated manually or spot treated with suitable herbicide.				✓					✓			
Amenity Grass and mown Paths: A22	Areas to be cut to 25mm height on 2 weekly basis during growing season and cuttings removed from site. Use edging equipment to maintain neat / tidy edge, as necessary. 16 No. cuts total.			✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)		
Amenity Grass and mown Paths: A22	Apply ICI Summer & Spring Feed (14:4:4) or equal approved at 30g / sqm to all lawn areas.			✓									
Field Margin Meadow - Hedgerow Mixture: EH1	Keep semi-shade weeds such as nettles and brambles in check. Grass swards to be selectively sprayed to control docks and thistles every 2-3 years on a rotational basis so that no more than half of the area is cut in any one year. Less intensive management over time will develop an open tussocky nature as a refuge for wildlife.											✓	
Tussock Grassland Tussock mix: EM10	Low intensity cutting regime (as required – review annually)									✓			
Woodland Meadow - Grass Mixture for Hedgerows and Woodland: EG9	Annual mid-summer mid cut (no shorter than 30mm) and avoid cutting if prolonged dry spell. Keep weeds of semi-shade such as nettles and brambles in check. Grass swards that do not contain wildflowers can be selectively sprayed to controls docks and thistles. Less intensive management over time will develop an open tussocky nature as a refuge for wildlife.								✓				
Wildflower Meadow - Standard General Purpose Meadow Mixture: EM2	Areas to be mown in spring after early annual weeds have flowered (remove cuttings from site). Areas to be cut late summer after annuals have flowered and set seed with a scythe or petrol strimmer to ~50mm. Cuttings are to be left to dry and shed seed for 5-7 days and then removed from site. Areas to be mown early winter to ~50mm (remove cuttings from site). 3 No. cuts total. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks).			✓ (1)					✓ (1)			✓ (1)	

APPENDIX G – MAINTENANCE SCHEDULE YEAR 5+

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wetland Meadow - Meadow Mixture for Wetlands: EM8	Areas to be mown in spring after early annual weeds have flowered (remove cuttings from site). Areas to be cut late summer after annuals have flowered and set seed with a scythe or petrol strimmer to ~50mm. Cuttings are to be left to dry and shed seed for 5-7 days and then removed from site. Areas to be mown early winter to ~50mm (remove cuttings from site). 3 No. cuts total. Localised differences may require a targeted approach. Use of herbicides or other pesticides to be avoided where possible except for spot treatment of any colonising ruderal species (e.g. nettles, thistles and docks).			✓ (1)					✓ (1)			✓ (1)	
Pond Edge Mixture: EP1F	In second and subsequent years create variety of vegetation structures by cutting back and removing short sections of vegetation every 2-3 years in rotation. Remove wedges (like slices of cake) of vegetation and selectively thin Yellow Iris and any dense stands of single species. Machines and heavy equipment may only be used with care to avoid damage to soil and vegetation.										✓		
Wild bird Seed Crop - Enhanced Autumn Sown Wild Bird Seed Mix: KEAUT1	See Section 9.4 Winter Cover Crop for information												
Bulbs + Corms	Maintain area in a weed free condition. Cease mowing and weed control prior to emergence of leaves. Do not cut grass until foliage die back has begun. No chemical weed control until foliage dies back completely.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bulbs + Corms	Lift and divide as appropriate just after mowing.			✓	✓	✓							

APPENDIX G – MAINTENANCE SCHEDULE YEAR 5+

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Attenuation Basins / Ponds (Year 5+)	Checks for presence of non-native invasive plant species to be conducted at least once annually. Other native aquatic or marginal species may colonise naturally and will be allowed to establish or be managed as appropriate to enhance floral diversity and maintain suitability for a range of wildlife. Aquatic and marginal vegetation will be managed by cutting or hand pulling on an 'as needed' basis to ensure a third of the pond surface remains free from vegetation from September to November within semi-permanent ponds and a variety of edge habitats. Marginal and emergent vegetation to be maintained at a maximum extent of 20%. Any removed aquatic or marginal vegetation will be left at the pond edge for up to 3 days (minimum 1 day) to allow any pond life to re-enter the pond. Some piles may be left to provide refuge opportunities for amphibians, invertebrates and reptiles, but generally all arisings will be removed from the management area. Removal of sediment from the ponds will be as required. No more than 25% of marginal vegetation or silt will be removed from the pond during management in any one year. This work would be conducted during the winter. Management of planted and self-seeded scrub will be conducted during winter months to prevent excessive shading and encroachment into wetland areas. This will be conducted by hand pulling and cutting. No fish will be introduced to the ponds in order to maintain optimal conditions for other native wildlife including invertebrates and amphibians. If non-native invasive plant species are recorded during survey, they will be subject to control using a methodology appropriate to the species present (and the presence of a waterbody).			✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)	✓ (1)			✓ (2)
Hard Surfacing	Clear soil, mulch, litter or other debris from hard surfaced areas and remove from site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hard Surfacing	Hard surfaces in communal areas to be treated with glyphosate-based non-residual herbicide (Roundup or equal approved), in full accordance with manufacturer's recommendations & COSHH regulations.			✓				✓					
Fencing	Report any damage (including rabbit fencing); provide temporary barriers to secure fence line where damage poses a risk to public safety.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Interpretation Boards	Visually inspect all areas and play equipment for vandalism / damage, make safe and report any damage to the relevant party.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
General	Collect fallen leaf litter and remove from site (do not blow away). Allow for 2 weekly visits.	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)

APPENDIX G – MAINTENANCE SCHEDULE YEAR 5+

MAINTENANCE ITEM		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
General	Report any remaining element that through failure, fatigue or vandalism poses a risk to public safety.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Appendix H General Management Standards and Considerations

GENERAL MANAGEMENT STANDARDS AND CONSIDERATIONS

A. Standards of Workmanship

All maintenance and management works shall only be carried out by competent and suitably qualified individuals on behalf of Lightsource bp with experience of managing a site such as the Plas Power Solar and Energy Storage Project.

Where materials and workmanship are not clearly specified, work is to be carried out in accordance with:

a. Suitability for the purpose of the stated objectives;

b. In accordance with good horticultural practice and current British Standards with particular reference to:

- BS 3998: Recommendations for Tree Works;
- BS 4428: Code of Practice for General Landscape Operations;
- BS 8545: Trees: from nursery to independence in the landscape – Recommendations
- BS 7370: Grounds Maintenance;
  - Part 1: Recommendations for establishing and managing grounds maintenance organisations and for design considerations related to maintenance;
  - Part 2: Maintenance of Hard Areas;
  - Part 3: Maintenance of amenity and functional turf (other than sports turf);
  - Part 4: Maintenance of soft landscape (other than amenity turf);
- Control of Substances Hazardous to Health (COSHH) Regulations; and,
- Control of Pesticide (COPR) Regulations.

c. Recognised woodland and arboricultural management practices, including:

- Forestry and arboricultural training and safety council safety guidelines (AFAG);
- Ancient and other Veteran Trees: Further Guidance on Management (Woodland Trust / David Lonsdale);
- BS 3998:2010 Tree Works Recommendation. Note: all tree works carried out by an Arboricultural Association (AA) approved qualified tree surgeon in accordance with the AA Standard Conditions of Contract and Specification for Tree Works and Arboricultural Association Guidance Note 8.

d. 'Wildlife and Countryside Act 1981 (as amended)' and 'Conservation of Habitats and Species Regulations 2010 (as amended)'.

B. Examination of the Site

The landscape management contractor and his operatives should be satisfied as to the nature of the planting, including all new tree, shrub, hedge, grassland and meadow planting, and any other matters that could affect the execution of the landscape maintenance.

C. Climatic Conditions

Work shall be conducted during the appropriate season. Ground and weather conditions should be suitable for the relevant operations.

D. Machines and Tools

Use only machinery and tools suitable for the site conditions and the work to be carried out. Use hand tools around trees and shrubs or where use if machinery is essential, use with appropriate precautions in place to protect trees and shrubs.

E. Services

The landscape management contractor and his operatives shall locate, identify and familiarise themselves with all existing services on site which may affect the works and shall satisfy themselves of the extent and nature of the services.

The landscape management contractor and his operatives shall raise notification when it is considered that the works may affect existing services. In such cases the managing authority (Lightsource bp) may instruct, or amend the setting out of the works as necessary.

F. Dust and Mud Nuisance

The landscape management contractor and their operatives shall take all necessary steps to eliminate dust and mud nuisance (including woody waste, grass and herbage clippings) during the carrying out of the works. The existing public highways used by vehicles of the landscape management contractor and their operatives or any of his sub-contractors or suppliers of materials or plant, shall be kept clean and clear of dust, grass debris and mud dropped by the said vehicles or their tyres. The landscape management contractor shall immediately clear all dust and mud from the work spreading onto these highways or any public right of way.

G. Waste and Control of Pollution

The landscape management contractor and their operatives must be conversant with the requirements of the Environmental Protection Act 1990, Pollution, Prevention and Control Regulations 2000, Hazardous Waste Regulations 2005 and the Control of Pollution (Amendment) Act 1989 for the Carriage of Controlled or Special Wastes, and must be registered with a relevant Regulation Authority (Environment Agency) and be in possession of a valid Certificate of Registration or Certificate of Registration as a Broker of Controlled Waste under the Act.

H. Removal of Rubbish and Fires

The landscape management contractor and their operatives shall remove all rubbish and shall make his own arrangements for the collection and tipping of rubbish and pruning arisings arising from the contract. All rubbish is to be carted to an approved tip; any expenses incurred will be the responsibility of the landscape management contractor.

Where possible, on site recycling and/or composting shall be considered. If well composted mulch were produced on site, this could provide a value resource for mulching beds and woodland copse areas within the estate during the maintenance operations.

The landscape management contractor and their operatives shall take all reasonable precautions to minimise fire risks. The burning of arisings, litter and pruning arisings is prohibited within the site. Naked lights necessarily in use for the execution of the Works shall be carefully controlled.

No naked light appliance shall be left on the site unattended.

I. Use of Chemicals

The landscape management contractor and their operatives must comply with 'The Control of Pesticides Regulations 1986', 'The Control of Substances Hazardous to Health Regulations 1988' and any other current legislation and subsequent revisions.

All chemicals must be products on the current list of Agricultural Chemicals Approval Scheme and used strictly in accordance with the conditions of approval. The landscape management contractor and their operatives must comply with all relevant Codes of Practice issued by MAFF. In particular where working near water, drainage ditches or land drains, comply with the 'Code of Practice for Use of Herbicides on Weeds in Water Courses and Lakes'. Obtain written approval from the Environment Agency if working within these areas.

All pesticides/herbicides transported or stored in the landscape contractor's vehicles or on site (regardless of quantity) shall be locked in a separate storage compartment or within lockable containers which is secured to the floor of the vehicle. All storage lockers must be sealed and clearly marked as containing pesticides and bear a standard black and yellow hazard sign.

Apply pesticides/herbicides strictly in accordance with the manufacturer's instructions in calm, dry weather conditions. Do not apply in wet, frosty or windy conditions.

The landscape management contractor and their operatives must hold a PA1 and PA6, or work DIRECTLY under the supervision of a certified holder.

Notify the managing authority (Lightsource bp) at least 24 hours in advance of the location, type of pesticide/herbicide, active ingredient and timing of application prior to commencing work. The landscape management contractor and their operatives shall erect warning signs at all entrances to the areas to be treated. When restricted to planting beds, warning signs shall be placed within close proximity in clearly visible locations. Details of application and contact person to be shown.

In accordance with COSHH Regulations the landscape management contractor and their operatives shall protect employees and other persons, including the general public and adjacent land owners who may be exposed to substances hazardous to health.

Dispose of waste chemicals and containers in accordance with the 'Control of Pesticides Regulations 1986', 'Control of Pollution Act 1974' and the 'Water Act 2014' and any subsequent revisions.

The landscape management contractor and their operatives shall be responsible for making good and or compensation for any damage how so ever caused resulting from negligence in application, handling and/or storage of pesticides and herbicides. He shall also be responsible for keeping up to date with all legislation and regulations governing there use and inform the managing authority of any changes that may affect the contract in any way.

The landscape management contractor and their operatives shall ensure that all property and utilities are protected against accidental or negligent damage that may occur. Any damage incurred by the contractor in carrying out their duties is to be made safe immediately and repaired to the satisfaction of the client or Utilities Company at the earliest convenient time, or as agreed, at the cost of the landscape management contractor.

It shall be the landscape management contractor and their operative’s responsibility and liability for any damage to person or property, however caused. All operatives shall be trained according to the task to be undertaken.

J. Timing of Works and Ecological Considerations

It is an offence to disturb nesting wild birds under the Wildlife and Countryside Act 1981. In all cases check in advance with an ecologist that there are no birds nesting in the area of operation, and that no European protected species would be disturbed by the works.

Prior to works to trees, hedges and shrubs taking place consideration will be given to the potential for nesting birds with advice being sought from a suitably qualified ecologist and/or works will take place outside the bird nesting season to avoid any destruction or damage to birds' nests.

Routine monitoring shall be carried out to ensure that operations are undertaken as programmed and to take appropriate action to deal with damage and debris arising from periods of heavy rainfall, high winds and heavy snowfall.

Vegetation clearance, pruning and trimming operations shall generally take place outside the bird nesting season (generally March to August inclusive). Any works which could affect bat roosts, or dormouse resting places will be subject to prior approval by an ecologist.

K. Management of Works

The landscape management contractor and their operatives shall ensure that instructions for works are received and acted upon and that inspections of the works are carried out by the client (Lightsource bp) at regular intervals.

The client (Lightsource bp) shall satisfy himself that the Health and Safety requirements of the site operations are maintained at all times.

Works shall be carried out at regular intervals during the growing season and as necessary to fulfil the requirements of this oLEMP as well as the operational requirements of the site The landscape management contractor is responsible for the acts of its employees and ensure that smoke, dust, chippings, un-reasonable noise, vehicular movements and any other nuisances are minimised at all times.

L. Equipment and Machinery

All equipment shall be used for its designated purpose and all operatives fully trained, qualified and authorised to use the equipment.

No equipment shall be left unattended in publicly accessible locations. If fuel is to be stored on site, this is required to be located on an area of hardstanding, in a double skinned tank.

M. General Litter

Any areas where general debris collects shall be removed as required and disposed of to a licensed tip. Where viable compostable material will be managed on site, as a sustainable, reusable resource material.

Litter picking, including any blown litter, shall be carried out as detailed in the schedule in Appendices C to G, and disposed of to a licensed tip.

N. Disposal

All debris, litter and rubbish from the works shall be cleared and disposed of from site to a licensed compound where required, as the works proceeds.

Composting on site maybe viable subject to confirmation and agreement with the client (Lightsource bp). Chipped arisings could be reused as informal mulch within wooded areas, spread to a depth no greater than 100mm in any given area.

All areas are to be clear of machinery and arisings when the management practice leaves the site and at the completion of each working day.

O. Damages

Do not damage grass / plants and trees during the maintenance operations. All damaged plants should be replaced by the landscape management contractor and their operatives at their own expense. In particular the landscape management contractor and their operatives shall ensure that trees are not subjected to damage by strimming / mowing operations and shall implement all necessary protective measures. Protect existing grass by laying boards or tarpaulins. Do not place excavated material directly onto grass.

During the execution of the works, the landscape management contractor and their operatives will be held responsible for any damage to highways, roads, kerbs, footpaths and services caused by their employees, and they shall make good any damage at their own expense.

Reinstate to original condition and within a reasonable period of time (according to season), any damage or disturbance occurring during the work to soil structure, planting, grass, fencing, hard landscaping structures or buildings.

P. Damage to Existing Trees / Shrubs

Any damage incurred to existing trees / shrubs by the landscape management contractor or their operatives during the works will be the liability of the landscape management contractor and they shall replace such trees / shrubs at their own expense with material of a size and species to be agreed with the Local Authority.

Q. Thinning by Removal of Surplus Plants

It should be noted that the objective of thinning is to aid the establishment and overall development of plant material. The main aim of thinning is to provide adequate space for improved growth. Overcrowded trees will become tall and thin with relatively limited root systems. It is important that thinning is conducted before trees become spindly, as some varieties are not able to respond well if they are given additional space in later years.

Selectively thin shrubs using the methods in BS 7370: Part 4, Clause 3.5.17.1. At the discretion of the landscape management contractor and where necessary following the advice of a suitably qualified and experienced person during the first 5 years of this oLEMP , begin to thin soon after the foliage of adjacent plants has begun to touch.

R. Health and Safety

The landscape management contractor and his operatives is to take all safety precautions to prevent injury to any persons by effectively covering excavations, and removing topsoil and rubbish from footpaths / roads etc. Pavements are to be swept and washed down before nightfall and the landscape management contractor and their operatives is to comply with the requirements of the Health and Safety at Work Act 1974 and current Construction, Design and Management Regulations.

The landscape management contractor and their operatives will ensure that all equipment or apparatus brought onto or used on site is safe and without risk to health and has been maintained

at a standard that will not constitute an offence under the Health and Safety at Work Act 1974, or any other relevant statutory provision relating to Health and Safety.

The landscape management contractor and their operatives should be adequately informed, trained and supervised and be sufficiently competent to perform their work without risk to the Health and Safety of themselves, or any other person. All work will be done in accordance with all relevant codes of safety practice currently in force.

All of the landscape management contractor's operatives on site shall use PPE (Personal Protective Equipment), or anything else necessary in the interest of the Health and Safety or welfare of themselves or any other persons who may be affected by their work.

S. General Watering

Water as necessary to ensure the continued thriving of all planting until restrained from doing so by statutory legislation.

Obtain approval before using a water supply other than portable mains water. Use a fine hose or low-pressure hose where appropriate to avoid damage or loosening plants.

Ensure the full depth of topsoil is thoroughly wetted. Where necessary loosen soil or form depressions around the stem base of plants to ensure that water reaches the root zone instead of dispersing on the surface.

T. Notice

Provide 2 days' notice of the following operations:

- Use of any equipment during maintenance that may pose a risk to public health and safety;
- Application of herbicide;
- Application of fertiliser;
- Watering;
- Each site maintenance visit.

U. Periodic Tree Inspections

Trees are living, dynamic organisms whose health and condition can change rapidly. It is therefore recommended that tree inspections be undertaken periodically by a suitably qualified and experienced person in order to assess the full health and safety of the trees. The inspections shall prioritize areas based on levels of access and presence of target (i.e. exposure of people to hazard) and accord with arboricultural advice, taking account of relevant factors (where known) that affect safety such as extreme weather events, the age class, condition, size and species of the trees. Where exposure increases the inspection regime shall respond to the changed demands. The project's formal arboricultural documents will provide the baseline information to inform the inspections.

The results of the inspection may trigger a more detailed assessment and the requirement for arboricultural works as necessary.

V. Monitoring

The 'Landscape Management and Maintenance Schedule' (Appendix C – G) will be reviewed every 10 years and the Local Planning Authority (LPA) consulted as necessary as part of the review. **This document will not be changed without the written prior approval of the LPA.**

During the first 2 years of the period of this oLEMP, the works will be inspected 3 times per annum by a suitably qualified person. Thereafter, there will be an annual review of the site looking at the following:

- Tree, hedgerow, scrub and meadow establishment;
- Publicly accessible routes and desire lines (as required);
- Litter;
- Establishment of biodiversity areas and informal recreation areas; and
- Success of the surface water attenuation basins.

It is anticipated that following the review, any problems or changes that are impacting on the landscape will be accommodated within reason by the landscape management contractor on behalf of Lightsource bp.

Appendix 6.8: PLAS POWER SOLAR FARM

Biodiversity Net Gain Report

BNG Report
1
May 2024

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
1	Issue	Georgia Kelly	Tim Oliver	Tim Oliver	09/02/24
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Tim Oliver	24 May 2024

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1 INTRODUCTION

1.1 Purpose and Scope of This Report

1.1.1 RPS Planning and Development were commissioned by Lightsource BP to undertake a Biodiversity Net Gain (BNG) Assessment of the Proposed Development at the Plas Power Estate at Wrexham, North Wales. Lightsource BP proposes the installation of a solar farm and BESS at the site. The site is located to the West of Wrexham, centred at grid reference SJ 301 501.

1.1.2 While a Biodiversity Net Gain Assessment is not required for developments in Wales, the assessment has been undertaken on behalf of Lightsource BP to provide additional information on the biodiversity status of the baseline site and the Proposed Development.

1.1.3 The Biodiversity Net Gain Assessment provides a comparison of the values (as defined by the BNG habitat scores) of the site prior to development and following development, habitat creation and enhancement. The assessment was carried out using the Biodiversity Metric V4.0 published on the Natural England website which takes into consideration where habitat will be gained, lost or enhanced as a result of the development. The BNG baseline assessment was completed in 2023 prior to the publishment of the Statutory Metric to provide information on the baseline habitat value and inform the design and landscape strategy of the site.

1.1.4 The Biodiversity Metric provides Biodiversity Units calculated based on the habitat type, area or length, distinctiveness, condition, ecological connectivity and strategic significance. For enhanced or created habitats the time required and difficulty of establishing the habitat are also taken into consideration.

1.1.5 Each of the existing habitat areas and their condition are defined in the BNG metric with reference to the rationale for the selected condition in the assessor notes. The BNG metric should be viewed with reference to the Habitat Plan (Figure 1) which shows the baseline habitats, the Landscape Strategy (Figure 2) and the BNG Metric calculations (RPS, 2024).

2 BASELINE HABITATS

2.1.1 The baseline site comprises sheep grazed improved grassland and arable fields bounded by hedgerows. A field drain adjoins part of the site boundary and field ditches are present within a few fields. The extent of the habitats are shown on the Habitat Plan (Figure 1) and further information on habitats is provided in the Preliminary Ecological Appraisal (RPS, 2023).

2.2 Habitat Descriptions

Modified Grassland

2.2.1 The eastern and southern areas of the site comprise 11 improved grassland pasture fields. The fields are dominated by perennial rye-grass *Lolium perenne*. Rarely present within the grassland were other grass species such as creeping bent *Agrostis stolonifera*, annual meadow-grass *Poa annua*, and Yorkshire fog *Holcus lanatus* and forbs such as spear thistle *Cirsium vulgare*, white clover *Trifolium repens* and creeping buttercup *Ranunculus repens*.

2.2.2 The grassland is grazed by sheep. It lacks tussocks or variation in the sward height. The majority under 10 cm in height. The grassland is free of scrub, invasive species and extensive areas of damage or bare ground.

2.2.3 The pasture fields classify as in Moderate condition under the BNG condition criteria.

2.2.4 Two small areas of semi-improved grassland are present at the north of the site. Both fields have a low species diversity, characterised by Yorkshire fog, creeping bent, cock's-foot *Dactylis glomerata* and hogweed *Heracleum sphondylium*. Species present which are indicative of sub-optimal condition include nettle *Urtica dioica*, spear thistle and creeping buttercup.

2.2.5 The grassland has a tussocky structure and scrub, bracken and invasive species are absent, but there are some areas of bare ground and damage from vehicle movements.

2.2.6 The semi-improved grassland classifies as in Poor condition under the BNG condition criteria.

Arable

2.2.7 The northern and western areas of the site consist of nine arable fields used as grass ley and crop production. The field margins are less than 1m in width on average.

2.2.8 The habitat is classified as 'Non cereal crops' and 'Temporary grass and clover ley'. Habitat conditions are not applied to arable habitats under the BNG condition criteria.

Unsealed Tracks

2.2.9 Bare ground farm tracks are present throughout the site. The tracks are categorised as 'Artificial unvegetated, unsealed surface'. Habitat conditions are not applied to this habitat under the BNG condition criteria.

Hedgerows

Native Hedgerows

2.2.10 There are 27 hedgerows within the site which fall into the following categories in the BNG Assessment according to the level of species richness, association with ditches and the presence and density of larger trees:

- species-rich native hedgerow;

- species-rich native hedgerow with trees;
- species-rich native hedgerow with trees - associated with bank or ditch;
- native hedgerow;
- native hedgerow - associated with bank or ditch;
- native hedgerow with trees - associated with bank or ditch;
- native hedgerow with trees.

2.2.11 The majority hedgerows classify as one of the categories of native hedgerows with less than 5 woody species, 22 hedgerows in total.

2.2.12 Most are classified as Moderate condition under the BNG condition criteria but the five hedgerows with wider field margins classify as Good condition.

2.2.13 The majority of the native hedgerows adjoining the section of the site south of the A525 are typically dominated by hawthorn *Crateagus monogyna*. Other hedgerow species include holly *Ilex aquifolium*, hazel *Corylus avellana*, damson *Prunus domestica*, bramble *Rubus fruticosus* and gorse *Ulex* sp. Several of the hedgerows have gaps along their length.

2.2.14 Seven hedgerows within the survey area are species-rich with 5 or more woody plant species represented in the hedgerow. The majority of these are located within the northern section.

2.2.15 Species frequently present within the species-rich hedgerows include: hazel, sycamore *Acer pseudoplatanus*, ash *Fraxinus excelsior*, holly, English oak *Quercus robur*, blackthorn *Prunus spinosa*, field rose *Rosa campestre* and elder *Sambucus nigra*. Less frequent species include: willow *Salix* species., bramble, cherry *Prunus* sp., alder *Alnus glutinosa*, plum *Prunus* sp., field maple *Acer campestre*, apple, beech *Fagus sylvatica* and elm *Ulmus* sp.

2.2.16 The majority of hedgerows within the northern section include mature and semi-mature trees, typically sycamore, oak and ash. Fewer large trees were present in the central area.

2.2.17 The majority of the hedgerows adjoin short-grazed pasture or arable and the hedge-base flora is typically species-poor characterised by common nettle, broadleaved dock and cleavers *Galium aparine*.

2.2.18 Two hedgerows adjoin a small stream and several adjoin field ditches.

Mixed Scrub

2.2.19 A small linear section of dense scrub is present between two arable fields within the site. The scrub is up to 15m in width and comprises hawthorn, blackthorn and bramble. The areas of scrub have a dense structure, but lack structural diversity and have a limited ground flora.

2.2.20 The mixed scrub habitat classifies as being in Poor condition.

Individual Trees

2.2.21 Several scattered broadleaved trees are present within the site. This includes five oak and willow classified as being Medium sized and Good condition.

2.2.22 Six young silver birch *Betula pendula*, alder and fruit trees are also present at the south of the site and are classified as being Small sized and Moderate condition.

2.2.23 The trees are all in good health and the medium sized trees have features such as deadwood, loose bark and ivy with value for invertebrates.

Field Drain

2.2.24 A field drain runs between the southern boundary of an arable field within the site and the A525. To the west the drain is unshaded with shallow banks supporting tall ruderal vegetation. The eastern section is shaded by an overhanging hedgerow and has steep grassy banks. The drain had a water depth of 5cm during the survey walkover and the water quality appeared good.

2.2.25 The drain lacks signs of physical damage. Algae is absent though the emergent and marginal plants are limited. A stand of Japanese knotweed *Reynoutria japonica* is present on the bankside.

2.2.26 The drain is classified as Poor condition under the BNG condition criteria.

2.3 Baseline Biodiversity Unit Scores

2.3.1 The baseline site achieves the following scores:

- Score of **273.59** Habitat Units.
- Score of **49.02** Hedgerow Units.
- Score of **2.25** River Units.

3 HABITATS WITHIN SOLAR FARM DEVELOPMENT

3.1.1 The solar farm will largely comprise grazed improved grassland bounded by perimeter fencing. There will be a mown grassland buffer between the perimeter fencing and field boundaries.

3.1.2 Biodiversity Areas will also be created where a range of habitats will be created with the aim of providing resources with value for wildlife. The extent of the habitats are shown on the Landscape Strategy Plan (Figure 2).

3.2 Habitat Descriptions

Modified Grassland

3.2.1 The solar farm development will largely comprise grazed grassland.

3.2.2 The retained grassland should at least maintain its Poor condition.

3.2.3 Where solar panels are installed in existing arable fields, these will be sown with a grazing mixture which will include a range of grasses and forbs. The grassland will be sheep grazed or mown and is expected to achieve at least Moderate condition.

3.2.4 The two small areas of semi-improved grassland at the north of the site will be retained. Both areas will be subject to sheep grazing, with several solar panel arrays installed in the smaller of the two areas. Areas of bare ground would be left to be naturally recolonised by grasses and herbs. The condition of the areas is expected to increase to Moderate.

3.2.5 The above conditions have been assessed based on a precautionary approach and it is possible that the grasslands will achieve a higher condition. For example where there is low intensity grazing there may be an increase in the species diversity or structural variation which could result in Moderate or higher condition being achieved. Given the large extent of the grassland, there would be potential for a significant increase in Habitat Units across the site where a higher condition is achieved.

Other Neutral Grassland

3.2.6 Two fields within the solar farm will be subject to enhancement to achieve Fairly Good condition Other Neutral Grassland classification. These are identified as fields ‘I’ and ‘N’ on Figure 2 (Landscape Strategy Plan).

3.2.7 Measures will be undertaken to reduce the nutrient status of the soil and it will be harrowed and reseeded with a suitable grassland mixture containing a range of grasses and forbs. The fields will be sensitively managed through low intensity sheep grazing or a sensitive cutting regime (such as an early spring and late summer / early autumn cut). The management will aim to create a tussocky structure with greater species diversity compared to the existing short, grazed pasture.

3.2.8 Grassland between the perimeter fence of the solar farm and site boundary will be cut on an infrequent basis to encourage a tussocky structure and greater species diversity to develop. The condition of the grassland is anticipated to increase to achieve at least Fairly Good condition.

3.2.9 The margins of the arable fields and several larger sections within the existing grazed fields will be sown with a meadow mixture. These will be subject to low intensity management to encourage the development of a taller and more varied sward with greater species diversity and are expected to achieve Fairly Good condition.

3.2.10 Sections of woodland wildflower mixture will be sown between the perimeter fencing and woodland edges to increase the species diversity of the grassland within the site. The grassland will be sensitively managed and is expected to achieve Fairly Good condition.

3.2.11 Areas of wildflower rich grassland and tussocky grassland will be sown in the Biodiversity Areas. These will be subject to low intensity grazing or a sensitive cutting regime with the aim of creating higher value grassland with a good species diversity and varied structure. These areas are expected to achieve at least Fairly Good condition.

Winter Cover Crop

3.2.12 Several areas of former grassland and arable will be sown with a winter cover crop to provide foraging resources for birds over winter. Habitat conditions are not applied to this habitat.

Hedgerows

3.2.13 Hedgerows will be retained and protected within the development.

3.2.14 New native species hedgerows will be planted within the operational solar farm including in the Biodiversity Areas. A mixture of native woody species will be planted.

3.2.15 Retained hedgerows at the north of the site include mature and semi-mature trees which will be retained. The sensitive management of mature trees will minimise tree surgery operations.

3.2.16 All hedgerows will be sensitively managed to promote the development of dense structure with fruiting and flowering shrubs which would achieve at least Moderate condition.

3.2.17 Hedgerows which currently achieve Good condition will be maintained at this condition.

3.2.18 The management of grassland adjoining many of the hedgerows to create a tussocky structure is expected to result in an increase in their condition to at least Fairly Good.

Individual Trees

3.2.19 Existing scattered broadleaved trees will be retained and sensitively managed to maintain their existing condition.

3.2.20 Approximately 50 new native trees will be planted throughout the site. These will be maintained at Moderate condition.

Mixed Scrub

3.2.21 Native shrubs will be planted within the Biodiversity Areas and at the edges of fields with solar arrays. These will be managed to promote the development of sections of dense scrub. The scrub is expected to achieve Moderate condition.

Ponds

3.2.22 Three new ponds will be created with Biodiversity Area 1, creating a new habitat type within the site. The pond margins will be planted with a range of marginal native species. The ponds will be managed to achieve at least Moderate condition.

Field Drain

3.2.23 The field drain will be retained and unaffected by the development, with its existing condition retained.

Unsealed tracks

3.2.24 There will be a small increase in the extent of unsealed tracks within the solar farm. Tracks will be created through the fields to provide vehicle access to the solar arrays and infrastructure during the operational phase. Habitat conditions are not applied to this habitat.

Hardstanding and Buildings

3.2.25 Areas of hardstanding and buildings will be created to facilitate the solar farm infrastructure. Habitat conditions are not applied to this habitat.

3.3 Post-development Biodiversity Unit Scores

3.3.1 The solar farm development will achieve the following scores:

- Score of **449.62** Habitat Units.
- Score of **85.61** Hedgerow Units.
- Score of **2.25** River Units.

3.4 Potential for Further Biodiversity Net Gain

3.4.1 The retention and creation of grassland across the site provides opportunity for a significant further increase in biodiversity value.

3.4.2 There is potential for areas of grassland beneath solar panels to achieve a greater condition than has been predicted under a precautionary basis in this assessment.

3.4.3 Should all areas of grassland across the site achieve Moderate condition or higher, there would be potential for a total of up to **827.33** Habitat Units to be achieved.

3.5 Management and Monitoring Plan

3.5.1 The biodiversity objectives and management prescriptions for habitats within the solar farm are detailed within the Landscape and Ecology Management Plan along with a programme of monitoring.

3.5.2 Monitoring targets will be aligned to BNG target condition and will relate to measurable attributes which will be reported to the LPA.

3.5.3 The biodiversity monitoring and reviews of management outcomes will document the status of the habitats, inform modifications to specific management plan actions, where appropriate, and identify the need for remedial measures. This objective and target led approach with periodic checks on the management approaches will be integral to initially achieving and then maintaining the target conditions over the long term.

4 CONCLUSIONS

4.1.1 The baseline site largely comprises sheep grazed improved grassland, categorised as Modified Grassland in Poor condition along with arable (grass leys and crop fields). Small sections of semi-improved grassland in Poor condition are also present.

4.1.2 The fields are bounded by hedgerows, most of which are in Moderate condition with some classified as Good condition.

4.1.3 Solar arrays and associated infrastructure will be installed within the fields. The grass leys and crop fields will be sown with a grazing mixture. Grassland beneath the solar panels will be sheep grazed or mown and is expected to achieve Moderate condition.

4.1.4 Two of the existing improved fields will be enhanced through reseeding and sensitive management to increase their biodiversity value. The fields will be enhanced to Moderate condition Other Neutral Grassland.

4.1.5 The semi-improved grassland will be sensitively managed and its condition is expected to increase to Moderate.

4.1.6 A small amount of arable and improved grassland will be converted to tracks and built infrastructure.

4.1.7 Biodiversity Areas will be created, which will include sections sown with a mixture of wildflower grassland and a tussocky grassland mixture. These will be managed to achieve Fairly Good condition.

4.1.8 Additional areas of higher value grassland will be created throughout the wider site, including areas sown with tussocky grassland, woodland edge grassland and meadow grassland seed mixtures. These will be managed to achieve Fairly Good condition.

4.1.9 Three new ponds will be created within Biodiversity Area 1 and managed to achieve Moderate condition.

4.1.10 The field ditches and drain will be retained and protected.

4.1.11 Existing hedgerows will be retained and protected. Where the adjoining grassland will be managed to develop a higher species diversity the hedgerow condition is expected to increase to Good.

4.1.12 New native species hedgerows will be created throughout the site and managed to achieve Moderate condition. New tree and shrub planting will be undertaken throughout the site.

4.1.13 The solar farm development will result in the following Biodiversity Net Gain:

- The habitat unit score will increase from **273.59** to **449.62** Habitat Units, providing an overall total on site net change of **64.34%**.
- The hedgerow unit score will increase from **49.02** to **85.61** Hedgerow Units, providing an overall total on site net change of **74.63%**.
- The river unit score will remain unchanged at **2.25** River Units.

4.1.14 Where grassland within the site achieves a higher condition than predicted under a precautionary approach in this assessment, there is potential for a gain of up to **827.33** Habitat Units. This would provide an overall net change of **202.40%.**

4.1.15 A Landscape and Ecology Management Plan has been prepared for the development which includes a programme of monitoring to the LPA.

4.1.16 The habitat monitoring will follow an objective and target led approach integral to initially achieving and then maintaining the target conditions over the long term.

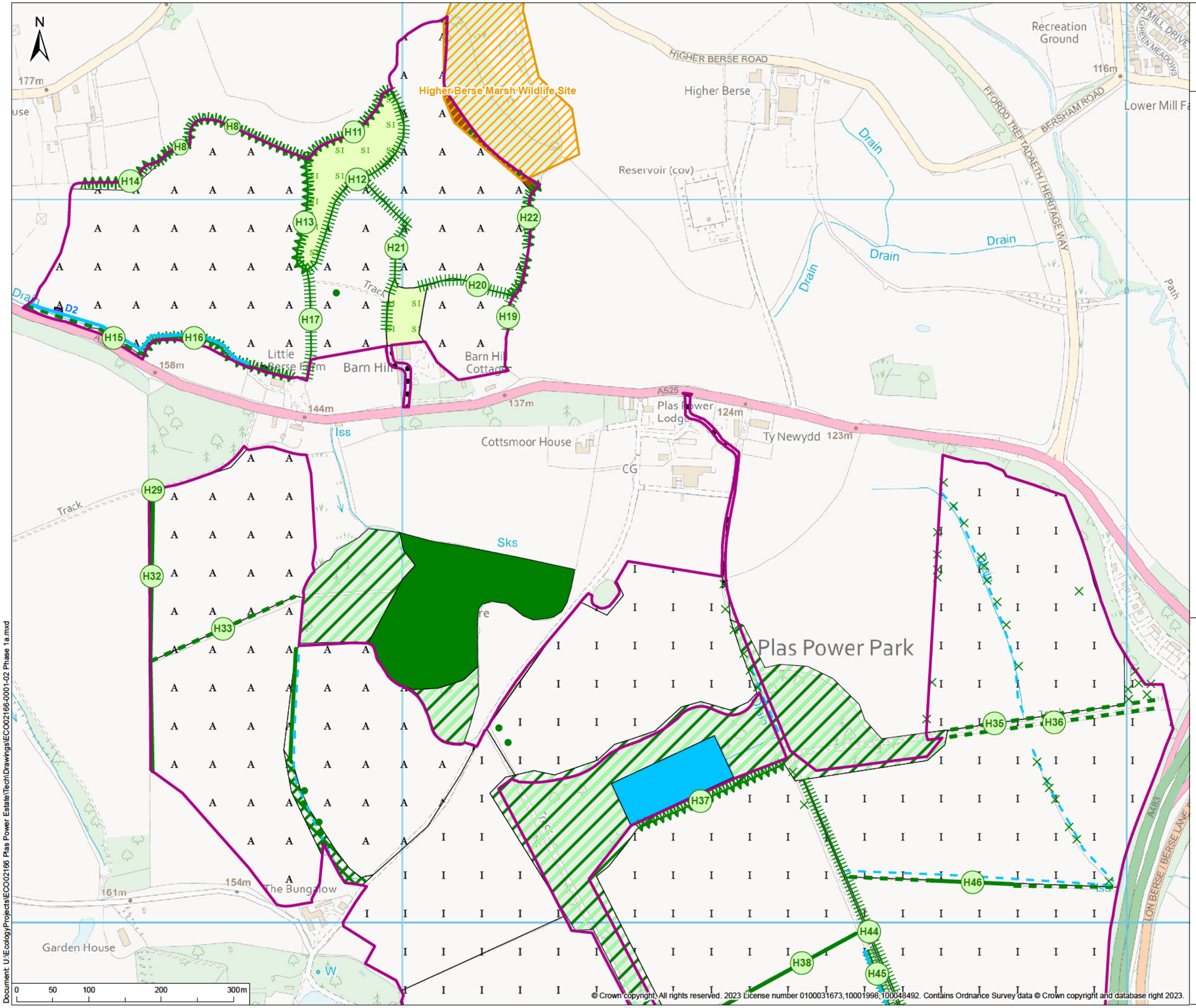
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RPS (2024). Plas Power BNG Metric.

FIGURES

Figure 1 Habitat Plan
Figure 2 Landscape Strategy Plan



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- Survey Boundary
- Wildlife sites
- A — Arable
- Bare ground
- Bracken - continuous
- Broadleaved woodland - semi-natural
- I — Improved grassland
- Mixed woodland - plantation
- Japanese Knotweed
- SI — Poor semi-improved grassland
- Scrub - dense/continuous
- Standing water
- Defunct hedge - species-poor
- Dry ditch
- Hedge with trees - native species-rich
- Hedge with trees - species-poor
- Intact hedge - species-poor
- Standng water
- Scattered scrub
- Scattered tree - broadleaved
- H1 — Hedgerow number
- F1 — Field number
- W1 — Watercourse number
- D1 — Ditch number

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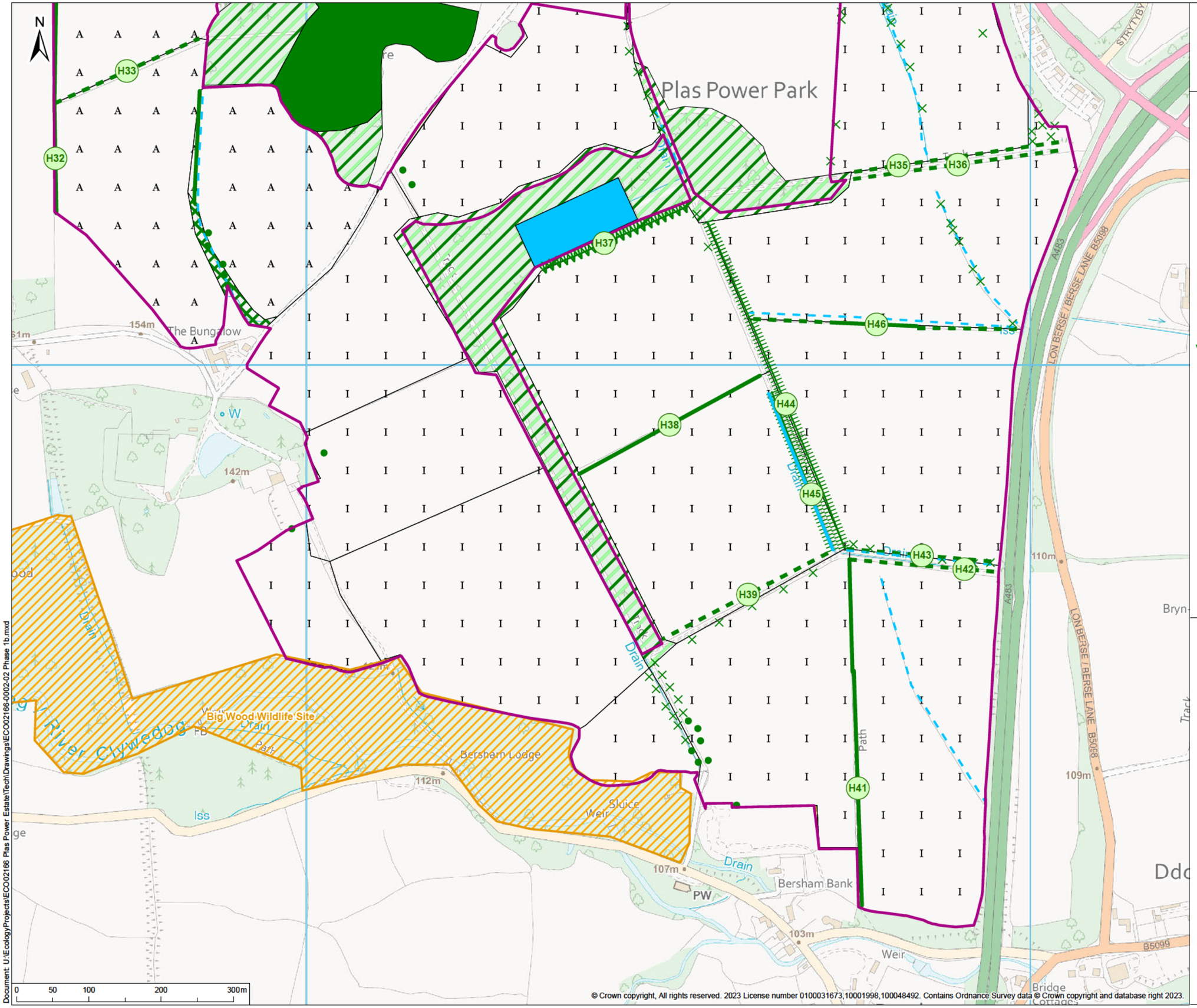
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Status	Drawn By	PM/Checked By
Draft	MP	GK
Project Number	**Scale @ A3**	**Date Created**
ECO02166	1:5,000	21/06/23
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1a		04

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- Survey Boundary
- Wildlife sites
- A — Amentiy grassland
- A — Arable
- Bare ground
- Broadleaved woodland - semi-natural
- I — Improved grassland
- Mixed woodland - plantation
- SI — Poor semi-improved grassland
- Scrub - dense/continuous
- Standing water
- Defunct hedge - species-poor
- Dry ditch
- Hedge with trees - native species-rich
- Hedge with trees - species-poor
- Intact hedge - species-poor
- Standng water
- Scattered scrub
- Scattered tree - broadleaved

- H1 — Hedgerow number
- F1 — Field number
- W1 — Watercourse number
- D1 — Ditch number

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1b		04

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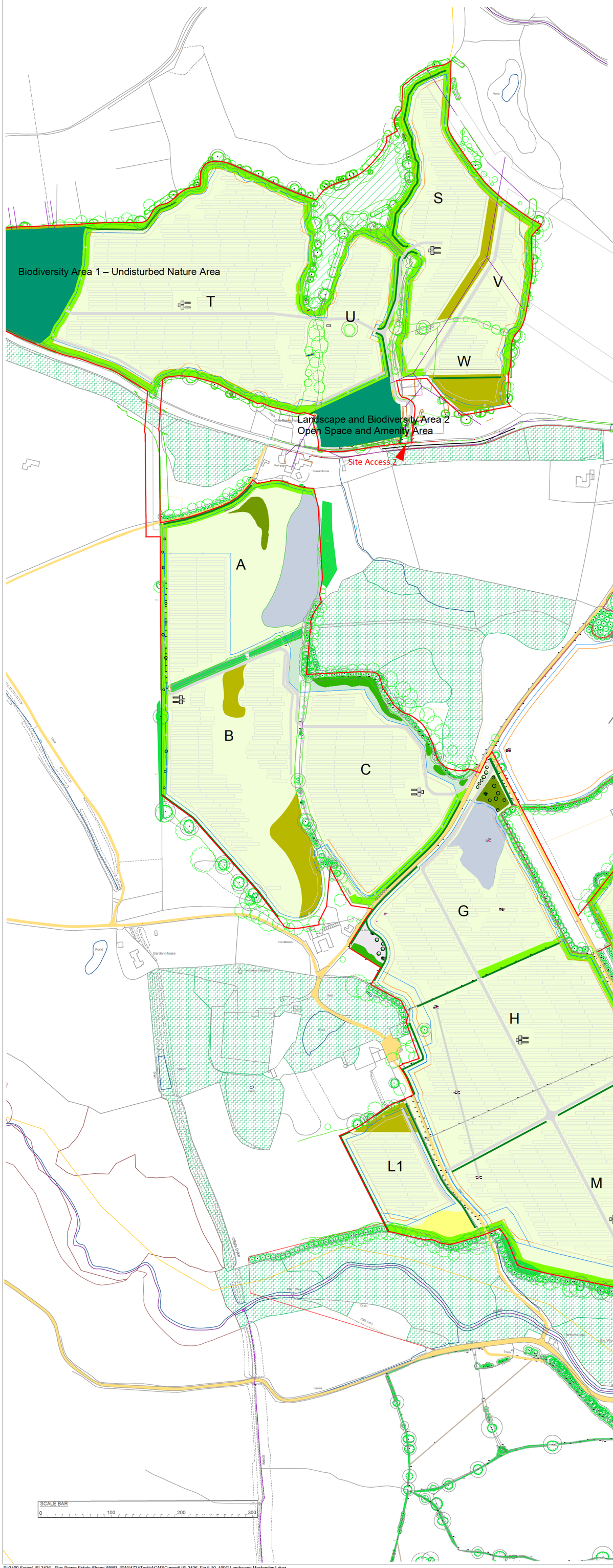
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Biodiversity Area 1 – Undisturbed Nature Area - Scale 1:1000



Landscape and Biodiversity Area 2 – Open Space and Amenity Area - Scale 1:1000



Key

Proposed elements

- APPLICATION SITE BOUNDARY
- SITE ACCESS
- MODULE PANELS (See Layout for further details)
- SECURITY FENCE TBC
- PROPOSED ACCESS TRACK
- STRUCTURES (See Layout for further details)
- FIELD REFERENCE For LVIA and G&G

SOFT LANDSCAPE

Proposed elements

- DEC DUOUS TREE Varied native species and stock sizes
- CONIFEROUS TREE Varied native species
- SPEC MEN SHRUB In shrub border or gravel area
- NATIVE HEDGEROW (WITH SPACED STANDARD TREES) Complementing existing hedge lines and providing new field boundaries
- NATIVE CL PPED HEDGEROW Complementing existing hedge lines and providing new field boundaries
- STRUCTURAL WOODLAND AND SHRUB Varied structure native woodland planting
- WOODLAND EDGE SHRUB Varied structure native shrub planting
- GRAZING GRASSLAND
- FIELD MARG N MEADOW
- TUSSOCKY GRASSLAND
- WOODLAND MEADOW
- W LDFLOWER MEADOW
- WETLAND MEADOW
- MOWN AMENITY GRASS
- SPRING FLOWERING BULB PLANTING

HARD LANDSCAPE

Proposed elements

- INTERPRETATION BOARD Varied information, refer to notes for details
- FOOTPATH Compacted gravel

BIODIVERSITY ENHANCEMENTS

- W LD BIRD SEED CROP 6m wide on southern side of hedgerows
- ECOLOGICAL ENHANCEMENTS As per ecological reports
- ECOLOGICAL ENHANCEMENT AREA See inserts for details

Existing features

- TREES To be retained and protected. New tree planting would complement existing species and provide ongoing variation and structure.
- WOODLAND To be retained, protected and managed appropriately for longevity
- HEDGEROW / SCRUB To be retained, protected and gapped up where appropriate and managed on rotational basis to a height of 2.5-3m
- PUBLIC RIGHTS OF WAY Maintained and opportunities to further connect (As traced from OS Explorer 1:25,000)
- ANCIENT WOODLAND CLASSIFICATION Ref to Arb reports for further detail
- WATERBODY To be retained, protected and enhanced as possible and recommended within ecological reports
- GRAVEL TRACK Existing gravel track to be retained

Note

The illustrated landscape treatment would not alter if the proposed development included PVs instead of the BESS

Field D has been removed from the development

N

Rev	Description	By	CB	Date
G	REVISED LAYOUT	JN	CL	05.24
F	REVISED LAYOUT	JN	CL	05.24
E	Additional screening to Biodiversity Area 1 and Field T	PL	CL	05.24
D	REVISED LAYOUT	PL	GL	01.24
C	REVISED LAYOUT	CL	KH	11.23
B	OPEN SPACE AMENITY AREA	CL	KH	10.23
A	REVISED LAYOUT 2023	CL	KH	09.23

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Title: Illustrative Landscape and Ecology Masterplan

Status	Drawn By	PM/Checked by
Final	KH	GL

Job Ref	Scale @ A0	Date Created
JSL3436	See Scale Bar	Feb 2024

RPS Drawing / Figure Number: Figure 5.10

Rev: G

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Appendix 6.10: GREAT CRESTED NEWT MITIGATION STRATEGY

Plas Power Solar and Energy Storage Project

ECO02166
1
May 2024

rpsgroup.com

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
1	Issue	Georgia Kelly	Paul Turner	Tim Oliver	27/10/23

Approval for issue

Tim Oliver 31 October 2023

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Prepared for:

Lightsource bp

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Drawings

Drawing 1 Great Crested Newt Results Plan
Drawing 2 Illustrative Site Layout Plan
Drawing 3 Illustrative Landscape and Ecology Masterplan

Appendices

Appendix A Newt Identification Sheet
Appendix B Record of Toolbox Talk Attendance

1 INTRODUCTION

1.1.1 RPS was commissioned by Lightsource bp to prepare a great crested newt (GCN) Mitigation Strategy for the installation of a solar farm and battery energy storage system (BESS) at the Plas Power site. The site lies within the Plas Power Estate at Wrexham, North Wales.

1.1.2 This document provides details on the following:

- protection measures that will be implemented in advance of and during construction;
- habitat enhancement and creation; and
- management and monitoring measures.

1.1.3 The Mitigation Strategy has been prepared alongside the development proposal and landscape scheme which has informed the extent of the areas of disturbance and loss, and the requirement for ecological mitigation.

1.2 Great Crested Newt Populations at the Site

1.2.1 GCN surveys were undertaken of ponds within 600m of the Proposed Development (RPS,2021 and 2023). The locations of the ponds are shown on Drawing 1.

1.2.2 The surveys concluded the following:

- Pond P3 located 60m west of the Proposed Development supports a small GCN population.
- Ponds P8 and P9 located 710m west of the Proposed Development support a medium-sized population of GCN.
- Pond 5 located 100m north of the site and which was dry during both 2021 and 2023 has the potential to periodically support a small population of GCN when water levels are higher.
- Ponds P6 and P7 located 430m and 550m east of the site which were not accessed may have potential to support GCN populations.
- GCN are likely absent from ponds P1, P2, P4, P10 and WB1.

1.2.3 Johnstown Newt Sites Specially Area of Conservation (SAC) is designated for its population of GCN, which is one of the largest known in Great Britain and has been the focus of much conservation management. The SAC covers multiple sites in the wider area with the closest being 1.69km south of the site.

1.3 Site Description

1.3.1 The Proposed Development is approximately 136 ha in size and is located to the west of Wrexham, North Wales, centred at grid reference SJ 301 501.

1.3.2 The site comprises two sections of land located to the north and south of the A525. The majority of the survey area lies to the south of the A525 and covers an area of farmland, most of which is pasture. A further section of the survey area lies to the north of the A525 and largely comprises arable farmland (grass ley fields). Small sections of amenity grassland and tall ruderal are present.

1.3.3 The fields are bounded by hedgerows, mature and semi-mature trees and woodland.

1.3.4 Big Wood Wildlife Site (WS) adjoins the survey area to the south with the River Clywedog flowing through this block of woodland. Higher Berse Marsh WS adjoins the survey area at the north, and Afon Gwenfro WS lies beyond the B5430 (Higher Berse Road) to the north of the survey area.

1.3.5 The A483 dual carriageway is located to the east of the survey area, adjoining the site boundary to the east.

1.3.6 The wider landscape comprises farmland. The city of Wrexham to the east and smaller villages to the north and east.

1.4 Legislation and policy

1.4.1 Great created newts *Triturus cristatus* are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (and as amended), which affords the species protection under Section 9. The species is also listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). In combination, this makes it an offence to:

- intentionally kill, injure or take (capture etc.) a great crested newt;
- possess a great crested newt; or,
- intentionally or recklessly damage, destroy, obstruct access to any structure or place used by Great Crested Newt for shelter or protection, or disturb any animal occupying such a structure or place; and sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative) or advertise for buying or selling such things.

1.4.2 Great crested newts are also listed as Species of Principal Importance under Section 7 of the Environment (Wales) Act 2016. This legislation requires the conservation of great crested newt and their habitats to be given consideration in planning decisions. The Section 7 Species list is based on the UK Biodiversity Action Plan (UKBAP) priority species list which it replaces.

2 SITE DESIGN

2.1 Proposals

2.1.1 The Proposed Development will comprise:

- solar panels and frames;
- inverters;
- transformers;
- cabling;
- substations;
- perimeter fencing;
- Battery Energy Storage System (BESS);
- access roads and tracks.

2.1.2 During construction and decommissioning temporary site compounds will be required to host staff facilities, take deliveries of components and store plant and equipment securely while not in use.

2.1.3 The Illustrative Site Layout Plan (Drawing 2) details the extent of solar arrays and locations of the infrastructure. The Illustrative Landscape and Ecology Masterplan (Drawing 3) illustrates the proposed habitats in the site following installation.

2.1.4 The static solar panels are arranged in series of rows up to a height of 3m at the highest point and tilted broadly southwards at an angle of 10-25 degrees. The support frame uprights will be pile driven into the ground, with 'string' inverters mounted onto the support frames. Localised excavation will be required for the foundations of transformers.

2.1.5 Most of the cabling associated with the development will be laid underground via surface dug trenches approximately 1m deep and 50cm wide and backfilled. These will utilise existing access tracks and road options wherever possible.

2.1.6 Existing access points will be used for access for the construction, maintenance and decommissioning of the Proposed Development. If necessary, some minor modifications to enable access to the site by all vehicles anticipated to visit it will be undertaken. Existing farm tracks will be used for internal access within the site with all sections of new access track to be formed using a layer permeable crushed stone.

2.1.7 Construction and installation of the Proposed Development is anticipated to take approximately 12 to 18 months. Construction of the BESS will take approximately 6-9 months (independent of the overall construction programme). The BESS element of the Proposed Development will be constructed at a later date and is currently expected to be constructed during 2032 and will be completed by 2033 at the latest. Decommissioning will take up to 12 months. The development will be minimally intrusive with the majority of the site remaining as or being converted to grassland. Areas of hardstanding will be small in size.

2.1.8 For decommissioning the remediation works following the removal of the solar panels and associated infrastructure will be relatively minor returning the site to its previous greenfield character. All the internal tracks will be constructed from crushed stone with a geotextile between the road surface and underlying soil. The roads will be built up above the existing ground level in the root protection areas of trees and hedgerows.

2.1.9 The Proposed Development will be designed to accommodate sheep grazing beneath and between the rows of panels.

2.1.10 The Proposed Development will be enclosed by 2m tall post and wire 'deer-proof' fencing with security cameras on 3m tall steel posts in selected locations.

2.2 Habitat Protection

2.2.1 The development footprint is largely within the existing arable and pasture fields.

2.2.2 Direct loss of habitat will be largely limited to arable land (which will be converted to sheep grazed pasture) beneath the panels, with small areas of arable and short-grazed pasture lost to create unsealed access tracks and other infrastructure.

2.2.3 Across the site, the existing hedgerows, ditches and off-site woodland provide wildlife corridors, foraging habitat, refuges and hibernacula for GCN. These habitats will be retained and protected within the development, maintaining the existing higher value habitat for GCN. Some short portions of hedgerow be required to be removed to facilitate access between fields, however this will be limited.

2.2.4 A 25m buffer will be implemented around Big Wood Ancient Woodland. There will be a minimum 10m buffer around other woodland areas, field boundaries and ponds. The closest pond supporting GCN is located over 60m from the development (pond P3).

2.2.5 Most of the new and existing pasture fields will be continue to be accessible for sheep grazing throughout the operation of the Proposed Development.

2.3 Habitat Creation/Enhancement

2.3.1 The existing short-grazed grassland is suboptimal habitat for GCN while the grass leys and crop fields have very low/negligible value. The arable land will be converted to grazed pasture.

2.3.2 The solar development layout restricts options for habitat creation within the majority of the site with solar arrays or associated infrastructure covering the majority of the area.

2.3.3 A Biodiversity Area is proposed to the north-west of the site and has been designed to provide new habitats with value for wildlife including GCN.

2.3.4 Three ponds will be created within the Biodiversity Area surrounded by grassland subject to low intensity sheep grazing. Groups of native trees and shrubs will also be planted in this area but set back from the new ponds to avoid shading in the future.

2.3.5 The location of the Biodiversity Area is shown on the Landscape Masterplan (Drawing 3) illustrates the proposed habitats in this location. The Biodiversity Area will create new areas of habitat suitable for GCN at the north of the site where habitat there is currently limited, increasing connectivity across the site.

2.3.6 The new ponds will be a minimum 150m2 in extent with a minimum open water depth of 1m with shallow sloping edges on at least 25% of the margin.

2.3.7 Pond management will be implemented during the operational life to maintain their potential to support a breeding population of GCN. Management actions will target maintaining deeper open water and mixed species marginal vegetation on the perimeter. Remedial actions include the removal of invasive plant species (should any colonise) and that ensuring fish populations do not become established in the small ponds.

2.3.8 The intensity of sheep grazing in the Biodiversity Area will be controlled to promote the development of a taller and more diverse sward which would be expected to support a range of invertebrate prey species.

2.3.9 Although there may be very localised loss of field boundary habitat (including hedgerows and scrub) from the construction of access routes the retention and enhancements of habitats provide an overall gain in the extent of suitable habitat for GCN.

3 IMPACT ASSESSMENT

3.1 Construction Phase

3.1.1 Each of the ponds supporting GCN populations are surrounded by broadleaved woodland. While GCN are capable of travelling over 1km between ponds, they typically remain much closer to breeding ponds (Haubrock and Altrichter, 2016). The closest breeding pond to the site is pond P3, located over 60m from the working area. The offsite woodland habitat surrounding P3 will have higher value for GCN than the short-grazed pasture, and they would be expected to remain largely within the pond and woodland habitat.

3.1.2 Arable land will be sown with a pasture seed mix to establish grassland as part of the enabling works with the fields. The disturbance would be equivalent to, or less than, activities associated with arable landscape management.

3.1.3 There is a low likelihood of individual GCN being present in the arable. The majority of grassland within the site is short-grazed pasture which will have lower value for GCN than areas of woodland, scrub or taller grassland which are located outside of the Site boundary in closer proximity to ponds. Short-grazed pasture is the only habitat within the Site located within 250m of a pond where GCN have been recorded (pond P3). There are unlikely to be below ground hibernation features in the arable and short-grazed pasture so potential impacts would be limited to GCN moving through the working area being harmed or killed.

3.1.4 Between mid-November and the end of January GCN will be hibernating and there is negligible potential for impacts from work undertaken during these months. Outside of this period when the weather conditions are suitable there is potential for GCN to be active, moving above ground and foraging in terrestrial habitats and precautionary working measures would be implemented.

3.1.5 Wherever practical, existing established field margin grassland will be left undisturbed. The need for localised cutting back or removal of small sections of hedgerows, scrub or arable field margins is to be defined. Within the Site, these habitats are all located over 250m from ponds where GCN have been recorded.

3.1.6 Disturbance to the waterbodies during construction and operation will be avoided with a minimum stand-off of 10m between all ponds adjoining the site and the boundary fence.

3.1.7 The stand-off is larger (60m) from the closest pond supporting GCN (pond P3). All other ponds where the absence of GCN has not been confirmed or where GCN are known to be present (ponds P8 and P9) are a minimum of 100m from the Proposed Development.

3.1.8 Precautionary working methods will be followed as described in Section 4 to reduce the potential for harm to GCN during enabling works and construction / installation.

3.2 Operational Phase

3.2.1 The newly created Biodiversity Area within the north-west of the site will include areas of wildflower and tussocky grassland, new ponds and native tree and scrub planting. The area will be managed to provide biodiversity value including value as GCN habitat.

3.2.2 Within the site, wider field margins will be created with taller grassland increasing the extent of terrestrial habitat suitable for GCN and improving connectivity across the site.

3.2.3 Although the conversion of arable to short-grazed pasture would not be expected to significantly increase the value of these fields as terrestrial habitat for GCN, the widened field margins created alongside retained hedgerows will increase the value of the site for GCN compared to the existing arable farmland.

3.2.4 Over the lifetime of the Proposed Development the retained and created habitats should at least maintain the current status of the breeding population of GCN within the site. There should be no adverse impacts on offsite populations.

3.2.5 The enhancements and management will directly contribute to the favourable conservation status of this species in the operational Proposed Development over its 40-year lifetime.

Decommissioning

3.2.6 Prior to decommissioning, a site walkover should be undertaken by an ecologist to assess potential ecological constraints.

3.2.7 Precautionary working measures should be followed as described in Section 4 to reduce the potential for harm to GCN.

3.3 Johnstown Newt Sites SAC

3.3.1 Johnstown Newt Sites SAC is located at the extreme distance which GCN would be expected to disperse, with GCN typically staying within 50m of their breeding pond. There are no direct wildlife corridors along which GCN would be expected to travel between the site and the SAC. Three roads (B5605, B5097 and an unnamed road) are located between the site and the SAC and would also deter movement of GCN between the site and the SAC.

3.3.2 Given the above, movement of GCN between the site and SAC is likely to be minimal. The measures which will be undertaken to protect GCN within the site will prevent any significant adverse effects on the wider metapopulation of GCN including the population within Johnstown Newt Sites SAC.

4 SPECIES PROTECTION

4.1 NRW GCN Mitigation Licensing

4.1.1 Where there is potential for GCN to be impacted by the construction activities a GCN Mitigation Licence will be obtained from Natural Resources Wales (NRW) prior to any disturbance of habitats.

4.1.2 Installation of the Proposed Development and short grazed pasture are considered activities with a very low likelihood of encountering GCN. The localised areas of denser cover associated with hedgerows, scrub and longer grassland in field boundaries have a greater risk of encountering GCN where they are located within 250m of a breeding pond.

4.1.3 The licence method statement would define the specific protection measures that will be directly managed by the Ecological Clerk of Works (ECoW) the named ecologist on the NRW mitigation licence or accredited agent who holds a NRW GCN survey licence.

4.2 Tool Box Talk / Site Induction

4.2.1 An ECoW will be present for the commencement of works to provide a toolbox talk to site personnel. The toolbox talk will inform workers of the potential presence of GCN in the working area. The talk will include details of the differences between GCN and other newt species.

4.2.2 All site personnel not present for the initial toolbox talk must be given a toolbox talk by the site manager prior to starting work on the site. A copy of the toolbox talk provided by the ECoW and will be retained in the site office for future reference.

4.2.3 Activity specific working method statement would be prepared for tasks reflecting their location and the nature of the habitat. These documents would form part of the site induction for staff working on site.

4.2.4 All staff will be required to sign a record sheet (as provided in Appendix B) to state they have had a toolbox talk and they understand the implications of the Working Method Statement. If site workers have any questions, the ECoW should be consulted. The toolbox talk will include details on measures which should followed in relation to biosecurity.

4.2.5 The ECoW will mark out or inform the site staff of any sensitive areas which are to be avoided during the works without direct ecological supervision. These will include all:

- field margins where grassland is longer
- areas of grassland with a sward height higher than 2cm
- field ditches and banks
- ground within 2m of the base of a hedgerow
- piles of logs, rubble or cut vegetation
- Banks, buried man-made materials, mammal burrows

4.2.6 The toolbox will explicitly set out that if a newt of any species is encountered during the works, all works in that location must immediately stop and advice be sought from the project ecologist. Identification sheets for GCN and smooth newts are provided in Appendix A of this document to aid site workers.

4.3 Material Storage and Site Hygiene

4.3.1 Materials will be stored in such a way as to prevent the creation of GCN hibernacula. Storage of materials is suggested as follows:

- Gravels, sand and other aggregates will be stored in builder's bags to prevent animals crawling or burrowing into the material. Where possible these bags will be raised on pallets.
- Pipes / cables will be stacked on pallets or otherwise raised off the ground to prevent animals entering, and where possible they will be capped, or otherwise checked before use for the presence of animals.
- Upon completion of the works and during the clearance of remaining materials, the ECoW will check beneath these for the presence of GCN.
- Any chemicals or machinery are to be stored in a secure compound.

4.3.2 Any open piping, whether stored in the lay-down area or installed, will be capped overnight to prevent animals entering.

4.3.3 Any open excavations will have a means of escape for animals to prevent them from becoming trapped. The excavations will either be covered, or a ramp provided at a maximum angle of 45º overnight. Excavations will be checked for any trapped animals at the start of each working day by site workers. In the event that an animal is found, the ECoW should be contacted immediately.

4.3.4 Root protection areas of retained trees which will be marked out must be observed at all times.

4.4 Biosecurity

4.4.1 There will no access for contractors or construction staff to ponds within or adjoining the site. Heras fencing will be used to create access barriers for the duration of the construction to maintain this separation and prevent the possibility of accidentally spreading amphibian disease.

4.4.2 Biosecurity Risk Assessments should be prepared in advance of works by contractors / subcontractors and by the Project Ecologist. A Biosecurity Method Statement should be prepared for the Site.

4.4.3 In the event that amphibians need to be handled under the NRW mitigation licence the licensed ecologist or accredited agent will wear powder-free disposable vinyl glove. Any containers used to hold amphibians after the site visit using approved disinfection procedures (ARG UK,2017).

4.5 Habitat Clearance Works

Pasture

4.5.1 While the short-grazed pasture provides little cover for GCN, measures will be taken to protect the species where works are undertaken within 250m of ponds where the species has been recorded i.e. Pond P3.

4.5.2 Amphibian fencing will be installed around the perimeter of the Site within 250m of the pond, and around the area of grassland within 250m of the pond which lies within the Site.

4.5.3 Carpet tiles will be placed on the ground to monitor the presence of GCN. Any GCN found beneath the tiles will be moved out of the working area.

4.5.4 Carpet tiles will be checked for a minimum of 30 days and until the likely absence of GCN from the area has been confirmed.

Hedgerows and Scrub

4.5.5 There is a possible requirement to remove short sections of hedgerow or scrub habitat. All hedgerow and scrub habitat is located over 250m from ponds where GCN have been recorded. Hedgerow or scrub habitat removal would be undertaken under the direct supervision of the ECoW.

4.5.6 Removal of features which have potential to be used as GCN hibernacula will be undertaken only between mid March and October and when daytime temperatures are above 12°C. This will include the removal of stumps, roots and logs.

4.5.7 Potential hibernacula features or refuges will be clearly marked by the ECoW using barrier tape or line marker paint prior to supervised excavation.

4.5.8 The ECoW will direct the careful excavation of potential hibernation features, undertaking fingertip searches where necessary to confirm the removal of any reptiles if present.

4.5.9 A small, toothed bucket should be used for any work undertaken with an excavator and any such work will be directly supervised by the ECoW.

4.5.10 The ECoW will confirm that all potential below ground refuges having been removed prior to bulk movements of soil/substrate.

4.5.11 Should the cutting of trees and scrub be undertaken within the nesting season for birds (generally considered to be between March and August inclusive) it will first be subject to a nesting bird check by an ECoW to confirm that no active nests are present. Following the nesting bird check, vegetation will be cut to ground level (avoiding any bird nest exclusion zones established by the ECoW). Scrub will be cut and removed using hand tools.

Arable and Arable Field Margins

4.5.12 There is a very low likelihood of encountering GCN in arable fields away from the margins. Prior to any works a GCN licence holder will confirm where works can proceed without risk to GCN and where supervision will be required.

4.5.13 Taller grassland and tall ruderal vegetation will require phased cutting to ground level before any further work or excavation in these habitats.

4.5.14 With the majority of the site comprising short-grazed grassland and arable, supervised habitat degradation would be limited to works in the field margins or the few smaller fields of semi-improved grassland.

4.5.15 The first cut will be to no less than 150mm height above ground under ECoW supervision.

4.5.16 Immediately after the first cut, the ECoW will search the cleared areas for below ground features (i.e. buried rubble, mammal burrows, complex tree / shrub root systems etc) that could be used by GCN for shelter. This may require raking off and removal of arisings to allow the good visibility of the area. If any potential shelter features are found, they will be carefully excavated using the same method described above for hedgerow and scrub vegetation removal.

4.5.17 If no potential shelter or hibernation features are found, clearance to ground level can proceed without further ecological supervision.

Species relocation

4.5.18 An NRW licence will be obtained prior to the movement of any GCN.

4.5.19 Any GCN found during the species protection procedures will be caught by hand by the ECoW following good practice biosecurity procedures (ARG, 2017) and relocated to dense vegetation cover. Where individuals are caught in the pasture fields, they will be relocated to a purpose-built refuge in the vicinity of pond P3 on the western side of the Site. where there is good landscape connectivity to areas of GCN habitat.

4.5.20 In the event that GCN are encountered in the northern section of the site, they will be relocated to suitable terrestrial habitat (tall grassland in close proximity to scrub and waterbodies) away from the working area.

4.5.21 All GCN or other amphibians will be moved in a suitable clean container and release them within 30 minutes of capture.

REFERENCES

Amphibian and Reptile Group (2017) *Amphibian and Reptile Conservation Advice Note 4: Amphibian Disease Precautions: A Guide for UK Fieldworkers Version 2* ARG UK / ZSL Institute of Zoology

Cresswell, W. & Whitworth, R.(2004). *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt Triturus cristatus.* English Nature Report no 576.

England Nature (2001) Great Crested Newt Mitigation Guidelines.

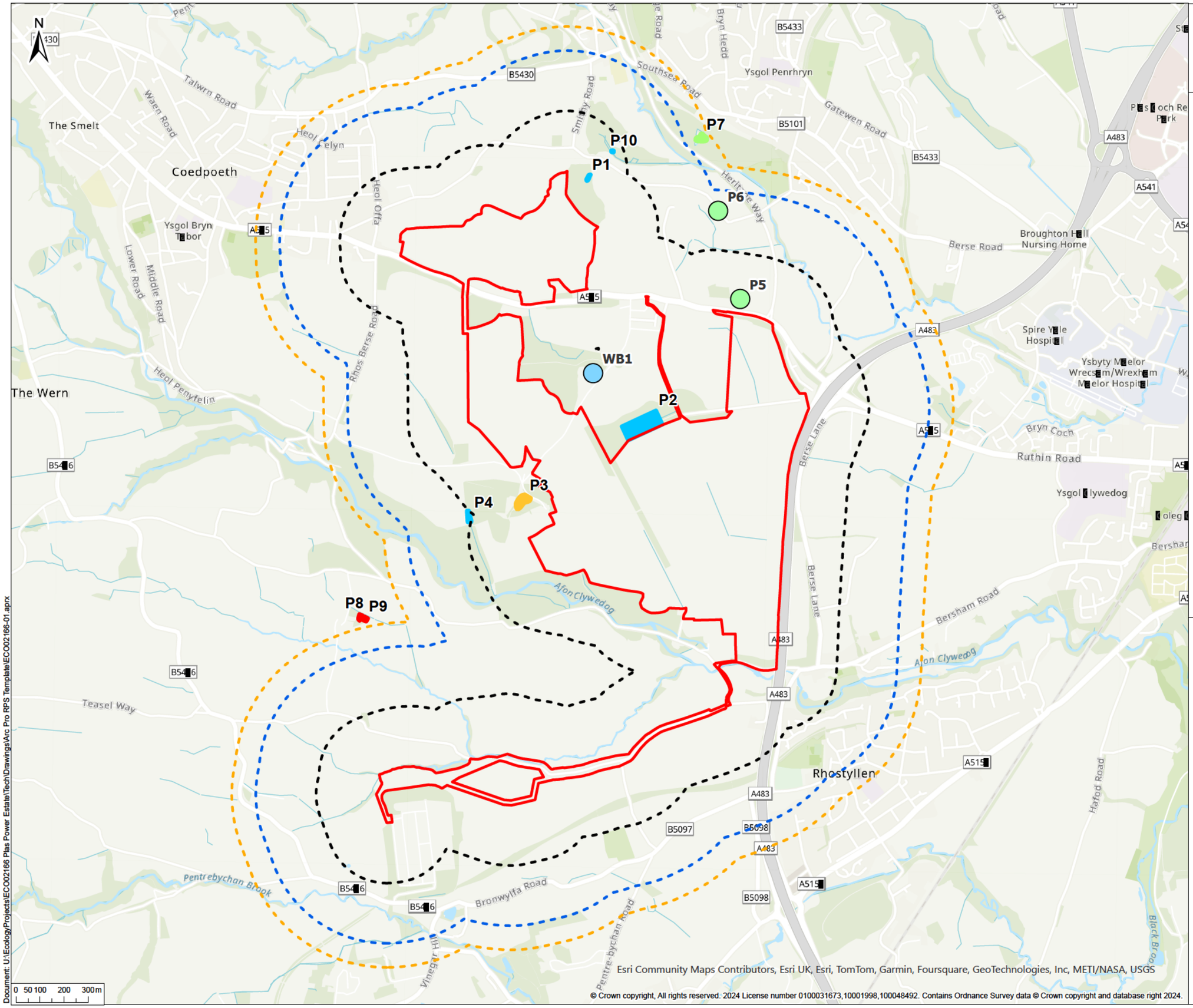
Haubrock, P. J and Altrichter J. (2016). *Northern crested newt (Triturus cristatus) migration in a nature reserve: multiple incidents of breeding season displacements exceeding 1km.* The Herpetological Bulletin 138, 2016: 31-33

RPS (2023). Great Crested Newt Report: Plas Power Estate.

RPS (2021). Great Crested Newt Survey: Plas Power Estate.

DRAWINGS

Drawing 1	**Great Crested Newt Results Plan**
Drawing 2	**Illustrative Site Layout Plan**
Drawing 3	**Illustrative Landscape and Ecology Masterplan**



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Notes
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Legend

- Site boundary
- 250 buffer
- 500m buffer
- 600m buffer

Waterbodies:

Great crested newt population

- Medium
- Small
- Assumed present
- Absent

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Client	RPS Cardiff
Project	Plas Power Solar Park
Title	Waterbodies: GCN population

Status	Drawn By	PM/Checked By
Draft	OW/MP/LP	GK
Project Number	**Scale @ A3**	**Date Created**
ECO02166	1:15,000	13/02/24
Figure Number		**Rev**
1		04

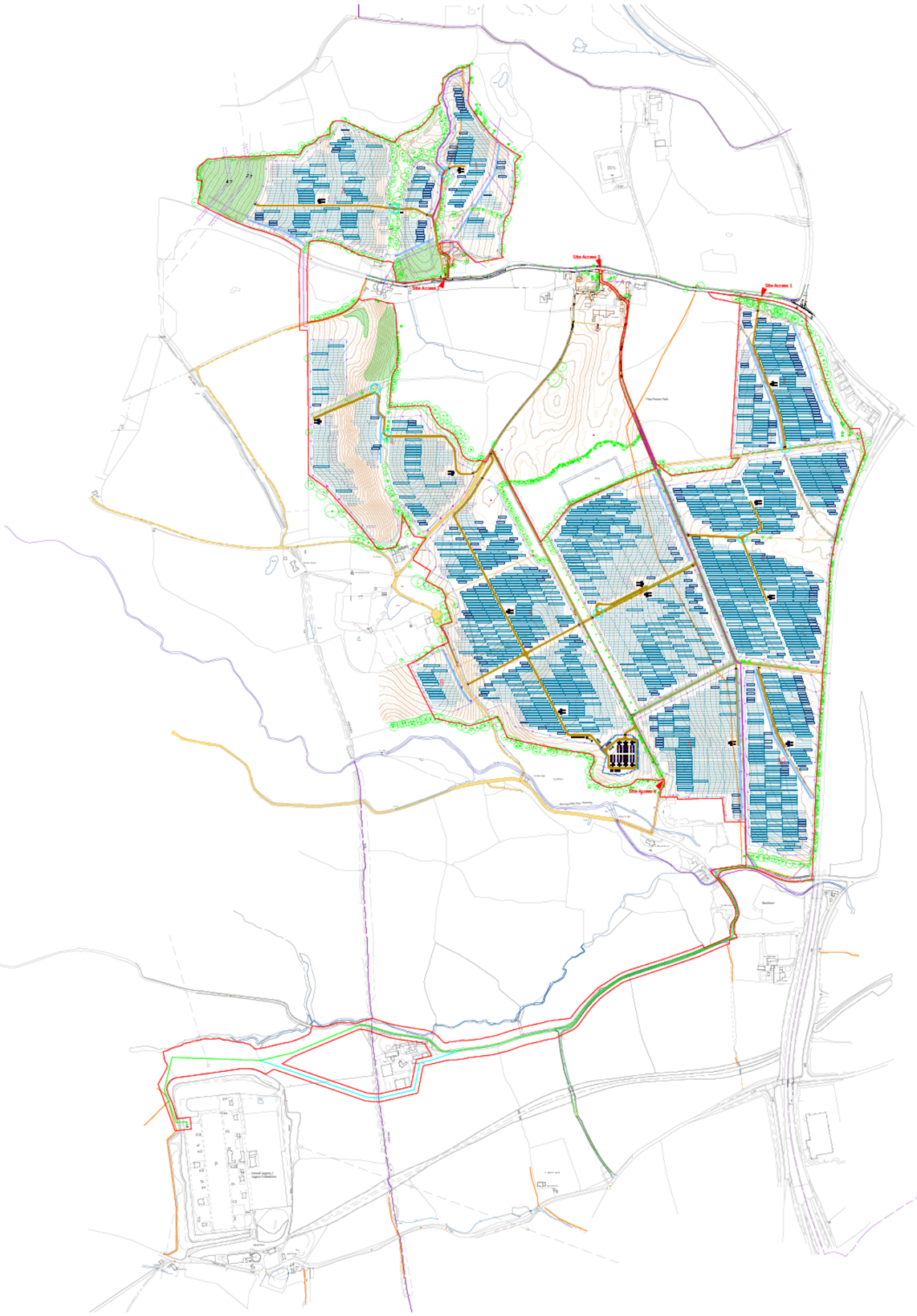
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GBR_Plas Power Solar & Battery Project_LP2 - Indicative Site layout_15

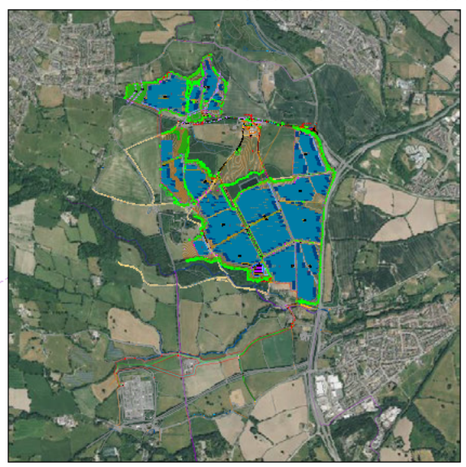
Area 1,355,959 m2 (335.06 acres)



- Site Boundary
- Site Access
- Security Fence
- Module Table 30 x 2
- Module Table 15 x 2
- Transformer
- Inverter
- Switchgear Substation
- PV Intake Substation
- GRP
- Customer Substation
- Monitoring House
- Auxiliary Transformer
- Spares Container
- Access Road
- Access Gates
- CCTV
- Toilet
- BESS Enclosure x 4
- BIC
- Twin MV Skid
- Backup Generator
- BESS Intake Substation
- Spares Container
- BESS Security Fence
- Landscape / Biodiversity
- Preferred Cable Route Option
- Cable Route Option 1
- Cable Route Option 2
- Cable Route Option 3
- Cable Route
- Existing PRoW
- Proposed PRoW diversion
- Possible hedge removal
- Indicative Swales
- Attenuation Pond
- Existing Access Road
- Existing Tree
- Existing Hedgerow/Vegetation
- Existing Ditch
- Cable Sealing End

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Scale 1:50000



DA			22.05.2024
DRAWN	CHECKED	APPROVED	DATE

PROJECT NAME & ADDRESS:
Location: Plas Power Estate, Rhosrobin
Postcode: Caego, Wrexham, Wales

NOTES:
-
-
-
-

Paper Size:	Scale:	Sheet:
A3	1:12500	1

CAPACITY:

DRAWING TITLE:
GBR_Plas Power Solar & Battery Project_LP2 - Indicative Site Layout_15

DRAWING NUMBER:	STATUS:
LP2-PDL	

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Notes

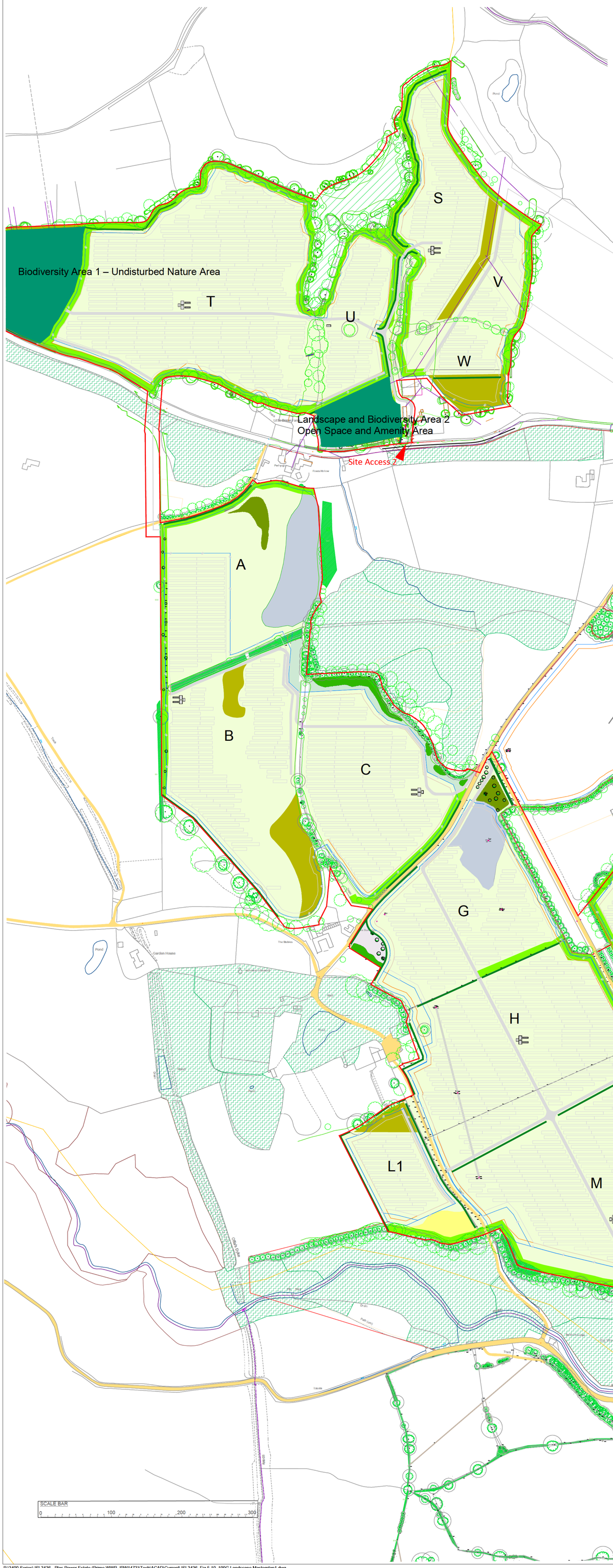
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Biodiversity Area 1 – Undisturbed Nature Area - Scale 1:1000



Landscape and Biodiversity Area 2 – Open Space and Amenity Area - Scale 1:1000



Key

Proposed elements

- APPLICATION SITE BOUNDARY
- SITE ACCESS
- MODULE PANELS (See Layout for further details)
- SECURITY FENCE TBC
- PROPOSED ACCESS TRACK
- STRUCTURES (See Layout for further details)
- FIELD REFERENCE For LVIA and G&G

SOFT LANDSCAPE

Proposed elements

- DEC DUOUS TREE Varied native species and stock sizes
- CONIFEROUS TREE Varied native species
- SPEC MEN SHRUB In shrub border or gravel area
- NATIVE HEDGEROW (WITH SPACED STANDARD TREES) Complementing existing hedge lines and providing new field boundaries
- NATIVE CL PPED HEDGEROW Complementing existing hedge lines and providing new field boundaries
- STRUCTURAL WOODLAND AND SHRUB Varied structure native woodland planting
- WOODLAND EDGE SHRUB Varied structure native shrub planting
- GRAZING GRASSLAND
- FIELD MARG N MEADOW
- TUSSOCKY GRASSLAND
- WOODLAND MEADOW
- W LDFLOWER MEADOW
- WETLAND MEADOW
- MOWN AMENITY GRASS
- SPRING FLOWERING BULB PLANTING

HARD LANDSCAPE

Proposed elements

- INTERPRETATION BOARD Varied information, refer to notes for details
- FOOTPATH Compacted gravel

BIODIVERSITY ENHANCEMENTS

- W LD BIRD SEED CROP 6m wide on southern side of hedgerows
- ECOLOGICAL ENHANCEMENTS As per ecological reports
- ECOLOGICAL ENHANCEMENT AREA See inserts for details

Existing features

- TREES To be retained and protected. New tree planting would complement existing species and provide ongoing variation and structure.
- WOODLAND To be retained, protected and managed appropriately for longevity
- HEDGEROW / SCRUB To be retained, protected and gapped up where appropriate and managed on rotational basis to a height of 2.5-3m
- PUBLIC RIGHTS OF WAY Maintained and opportunities to further connect (As traced from OS Explorer 1:25,000)
- ANCIENT WOODLAND CLASSIFICATION Ref to Arb reports for further detail
- WATERBODY To be retained, protected and enhanced as possible and recommended within ecological reports
- GRAVEL TRACK Existing gravel track to be retained

Note

The illustrated landscape treatment would not alter if the proposed development included PVs instead of the BESS

Field D has been removed from the development

N

Rev	Description	By	CB	Date
G	REVISED LAYOUT	JN	CL	05.24
F	REVISED LAYOUT	JN	CL	05.24
E	Additional screening to Biodiversity Area 1 and Field T	PL	CL	05.24
D	REVISED LAYOUT	PL	GL	01.24
C	REVISED LAYOUT	CL	KH	11.23
B	OPEN SPACE AMENITY AREA	CL	KH	10.23
A	REVISED LAYOUT 2023	CL	KH	09.23

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Client: Lightsource bp

Project: Plas Power Solar and Energy Storage Project

Title: Illustrative Landscape and Ecology Masterplan

Status	Drawn By	PM/Checked by
Final	KH	GL

Job Ref	Scale @ A0	Date Created
JSL3436	See Scale Bar	Feb 2024

RPS Drawing / Figure Number: Figure 5.10

Rev: G

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APPENDICES

Appendix A

Newt Identification Sheet

Great Crested Newt





- Much larger than smooth and palmate newts, up to 17 cm in length.
- Rough, black / dark brown colour skin with darker spots (warty looking), sometimes with finer white spots on the lower flanks.
- Bright orange / yellow and black blotchy belly.
- During the breeding season, males develop a jagged crest along the back and along top of tail, with gap between back and tail. This is often only visible when they are in water as the crest will flop over when on land.
- Males have a white / silver / grey strip down centre of tail. Females have an orange / yellow strip along bottom edge of tail.

Smooth and Palmate Newts





- Much smaller than GCN; up to 10 cm in length.
- Skin without rough texture, and lighter in colour.
- Males will have a wavy crest along back and top of tail during the breeding season, unlike GCN there is no gap in the crest between the body and tail.
- May have orange/yellow belly but with fewer black blotches than GCN.
- Male palmate newts will develop a filament at the tip of their tail and black webbing on their back feet during the breeding season.

Size Comparison of GCN and Smooth Newts



Appendix B

Record of Toolbox Talk Attendance

Name of Site Worker	Toolbox Talk Delivered	Site Worker Knows Where a Copy of the Working Method Statement is Stored on Site	Date	Signature