Technical Appendix 6.4: Outline Biodiversity Enhancement Management Plan (OBEMP)

Dupplin Solar

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Basis of Report

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Table of Contents

Tables in Text

Figures in Text

Appendices

Acronyms and Abbreviations

AGL	Above Ground Level
EIA	Environmental Impact Assessment
EcIA	Ecological Impact Assessment
HV	High Voltage
INNS	Invasive Non-Native Species
LBAP	Local Biodiversity Action Plan
LDP2	Local Development Plan 2
MW	MegaWatts
MWp	MegaWatt peak
NPF4	National Planning Framework 4
OBEMP	Outline Biodiversity Enhancement and Management Plan
PKC	Perth and Kinross Council
PRFs	Potential Roost Features
SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
UKHab	UK Habitat Classification

1.0 Introduction

SLR Consulting Ltd. (SLR) was commissioned by TRIO Dupplin Solar LLP (the 'Applicant') to develop an Outline Biodiversity Enhancement and Management Plan (OBEMP) for the Proposed Development (Dupplin Solar) on land near Tibbermore in Perth and Kinross (hereafter referred to as the 'Site').

1.1 Site Description

The Site is located approximately 2.7 km west of Perth, north of the A9 at Dupplin Estate, Tibbermore at British Nation Grid NO 04810 21645, within the Perth and Kinross Council (PKC) administrative area (see **Annex A, Figure 6.1**).

The Site is approximately 175 ha in size and comprises of 13 distinct agricultural fields, with distinct field margins (hedge) enveloped by mature woodland to the west and east managed by the estate. There is one overhead electrical line running north west to south east through the eastern extent of the Site. Scottish Water maintain and operate a water tank immediately south of the Site on the Roman Road at NO 04480 20973.

There are no residential properties on the Site. The closest residences are within the working estate on the south eastern boundary of the Site (Windyedge Cottage), and on the eastern boundary near Tibbermore Road. A small cluster of dwellings, also associated with the estate, are located approximately 200 m north of the Site along Old Gallows Road. The small village of Tibbermore is located approximately 1.4 km north east of the Site.

1.2 Proposed Development

The Proposed Development will comprise a ground-mounted solar photovoltaic PV array and associated infrastructure, with a maximum generating capacity of up to 97.5-MegaWatt peak (MWp) and an export capacity of 75 MW. The array will comprise PV modules arranged in rows, facing south at an angle of approximately 20º, with a maximum height of 2.678 m above ground level (AGL). Area within red line boundary is approximately 175 ha and the solar array area is approximately 170 ha. A layout of the Proposed Development is shown in **Drawing 065787-SLR-XX-XX-D-EA-000001**.

The infrastructure for the Proposed Development will include:

- PV module mounting frames;
- string inverters;
- field transformers;
- high voltage (HV) switchgear and control equipment;
- cabling and interconnectors;
- onsite substations and a control building;
- communications container;
- spares containers;
- access tracks;
- security fencing and CCTV;
- temporary construction compound;
- Site drainage; and

- Biodiversity and landscaping enhancements.

Construction of the Proposed Development is expected to be completed within approximately eight to twelve months. Normal construction hours are likely to be between 07:00 and 18:00 Monday to Friday and 08:00 and 13:00 on Saturdays.

At the end of the Proposed Development's operational lifetime of 40 years, it will be decommissioned (unless an extension is consented).

1.3 Purpose and Scope of this Document

The OBEMP fulfils two main objectives:

I. Firstly, it outlines the habitat restoration, management and monitoring measures proposed to compensate for the direct and indirect loss of sensitive natural/semi-natural habitats, and to mitigate for potential impacts to protected and notable species as a result of construction and operation of the proposed development.

II. Secondly, it functions as a plan for the delivery of biodiversity enhancement as required by national planning policy, the National Planning Framework 4 (NPF4).

This OBEMP is intended as a precursor to a more detailed Biodiversity Enhancement and Management Plan, which would be produced and agreed with the Local Planning Authority (i.e. Perth and Kinross Council) and other key stakeholders including the landowners, prior to commencement of construction.

The detailed BEMP will be a live document in place throughout the lifetime of the Proposed Development (anticipated to be 40 years), with monitoring results and unexpected developments adapting the plan to ensure the enhancement of habitats and species on the Site.

1.4 Evidence of Technical Competence

This document has been compiled by Beth Hanlon MSc BSc (Hons) ACIEEM; Molly Turner MSc BSc (Hons) MCIEEM; and Amy Thomson PhD MRes BSc (Hons) ACIEEM.

Beth is a Senior Ecologist with over eight years' experience in ecology, and specialises in habitat survey and management, biodiversity assessments, and bat ecology and survey. Beth has previously produced outline and detailed biodiversity enhancement and management plans, as well as Biodiversity Net Gain assessments, for a range of projects including solar and wind farms.

Molly is a Senior Ecologist with over 5 years' professional experience in the environmental sector specialising in terrestrial ecology and impact assessment. Molly has a proven track record of project managing ecological and ornithological elements of large-scale energy infrastructure projects, including wind farms and solar farms across Scotland, where she complied a range of assessments including Environmental Impact Assessment (EIA), Ecological Impacts Assessments (EcIA), Habitat Regulations Appraisals and OBEMPs.

Amy is a Senior Ecologist with over 6 years professional experience in the environmental sector specialising in riparian and terrestrial ecology. Amy has a proven track record of project managing ecological elements of large scale (2000 MW) energy infrastructure projects, including wind farms and solar farms across Scotland where she compiled a range of assessments including input to EIA and EcIA's, as well as production of OBEMPS/ BEMPS.

This document has been technically reviewed by Alison Hood MSc BSc (Hons) MCIEEM. Alison is a Technical Director of ecology with over 12 years' experience working in

consultancy. Alison has led and overseen multiple energy sector projects in Scotland and across the UK.

1.5 Planning Policy

1.5.1 National Planning Framework 4

The NPF4, Policy 3, sets out requirements for developments to deliver positive effects for biodiversity. Major *applications "will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention". Policy 3b sets out five criteria that should be met to achieve the above "demonstrably better state":*

i. the proposal is based on an understanding of the existing characteristics of the Site and its local, regional and national ecological context prior to development, including the presence of any irreplaceable habitats;

ii. wherever feasible, nature-based solutions have been integrated and made best use of;

iii. an assessment of potential negative effects which should be fully mitigated in line with the mitigation hierarchy prior to identifying enhancements;

iv. significant biodiversity enhancements are provided, in addition to any proposed mitigation. This should include nature networks, linking to and strengthening habitat connectivity within and beyond the development, secured within a reasonable timescale and with reasonable certainty. Management arrangements for their long-term retention and monitoring should be included, wherever appropriate; and

v. local community benefits of the biodiversity and/or nature networks have been considered.

Planning policy of relevant to this OBEMP are listed below. Details can be found in **Annex B**.

- NPF4[1];
- Scotland's Environment Strategy[2];
- Scottish Biodiversity Strategy[3];
- Perth and Kinross Council Local Development Plan 2 (LDP2)[4]; and
- Tayside Local Biodiversity Action Plan (LBAP) 2016-2026[5].

[1] Scottish Government (2023). National Planning Framework 4. Available at: https://www.gov.scot/publications/national-planning-framework-4/

[2] Scottish Government (2020). The Environment Strategy for Scotland. Available at: https://www.gov.scot/publications/environment-strategy-scotland-vision-outcomes/

[3] Scottish Government (2020). Scottish Biodiversity Strategy to 2045. Available at: https://www.gov.scot/publications/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/documents/

[4] Perth & Kinross Council. (2019) Perth & Kinross Local Development Plan 2 (LDP2). Perth & Kinross Council. Available at: https://www.pkc.gov.uk/article/15042/Adopted-Local-Development-Plan-LDP2 [Accessed: 11 November 2025].

[5] Tayside Biodiversity Partnership. (2016) Tayside Local Biodiversity Action Plan 2016-2026. Tayside Biodiversity Partnership. Available at: https://www.angus.gov.uk/sites/default/files/Tayside%20Local%20Biodiversity%20Action%20Plan%202016_2026.pdf [Accessed: 11 November 2025].

2.0 Methodology

This OBEMP is to be implemented to compliment an EIA (**Chapter 6** of the **EIA Report** [6]) that together will serve to address the predicted impacts of the Proposed Development. The aim of the OBEMP is to set out measures that will not only compensate for the loss of biodiversity resulting from the Proposed Development, but will also enhance existing biodiversity. The enhancement measures will aid the recovery of natural habitats and populations in a wider biodiversity and nature networks context - to achieve significant biodiversity gains such that they are in a demonstrably better state than without intervention.

The aim of the OBEMP is to establish the key objectives and principles by which parts of the Site would be restored and managed to the benefit of biodiversity, which would then form the basis for the detailed Biodiversity Enhancement and Management Plan (BEMP), post-consent. It is not the intention for this document to provide full details of proposed management, much of which cannot be determined fully at this stage.

2.1 Terminology

The following definitions are taken from the International Standards for Habitat Restoration[7]:

- The **Scope** is the broad geographic or thematic focus of a project, or for the purposes of this project, the Site.
- The **Vision** is a general summary of the desired condition one is trying to achieve through the work of the project.
- The **Targets** identify the native ecosystems to be restored or species to be conserved at a site as informed by a reference model, along with any social outcomes or constraints expected of the project.
- **Goals** are formal statements of the medium to long-term desired ecological or social condition, including the level of recovery sought. Goals must be clearly linked to targets, measurable, time-limited, and specific.
- **Objectives** are formal statements of the interim outcomes along the trajectory of recovery. Objectives must be clearly linked to targets and goals, and be measurable, time-limited, and specific.
- **Indicators** are specific, quantifiable measures of attributes that directly connect longer-term goals and shorter-term objectives. Ecological indicators are variables that are measured to assess changes in the physical (e.g., turbidity units), chemical (e.g., nutrient concentration), or biotic (e.g., species abundance) ecosystem attributes as guided by the reference model. Social-ecological or cultural indicators measure changes in human wellbeing such as participation in traditional practices, governance, language and education.

NatureScot[8] defines ecosystem services as *'the direct and indirect contributions ecosystems (known as natural capital) provide for human wellbeing and quality of life. This can be in a*

[6] SLR Consulting Ltd. (2025). Dupplin Solar. Environmental Impact Assessment. Technical Report for Trio Power Limited

[7] McDonald, T., Gann, G., Jonson, J. and Dixon, K. (2016). International standards for the practice of ecological restoration–including principles and key concepts. (Society for Ecological Restoration: Washington, DC, USA.). *Soil-Tec, Inc. Marcel Huijser, Bethanie Walder*.

[8] NatureScot. (2025). What are Ecosystem Services. [Online] Available at: https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop15/ecosystem-approach/ecosystem-services-natures-benefits#:~:text=Ecosystem%20Services%20are%20the%20direct,as%20reducing%20stress%20and%20anxiety

practical sense, providing food and water and regulating the climate, as well as cultural aspects such as reducing stress and anxiety.' There are four broad categories of ecosystem services: provisioning, regulating, supporting, and cultural. Biodiversity underpins many of these services.

2.2 Baseline Data Collection

The OBEMP has been informed by baseline data collected to inform the EIA carried out by SLR for the Site. Tasks included:

- Preliminary Ecological Appraisal (PEA) survey[9];
  - Ecological desk study.
  - UKHab habitat survey.
  - Protected species habitat suitability assessment.
- Protected species survey (detailed within the PEA report[9]);
- Breeding bird survey[10];
- Winter bird survey (detailed within the EIA[6]); and
- EIA Ecology Chapter 6[6].

3.0 Baseline Data Summary

This section summarises baseline conditions relevant to the OBEMP design, based on field surveys and detailed in the relevant reports.

This OBEMP is based on habitat suitability, protected/notable species and professional judgement to guide the broad principles for biodiversity enhancement and restoration.

3.1 Designated Sites

3.1.1 Statutory Sites

There are no sites of international importance within the Site boundary, however, a total of seven sites of international importance were identified within 10 km of the Site, and up to 20 km for sites with avian features. Sites identified are summarised in **Table 3-1** and **Figure 6.1** of the PEA report.

Table 3-1: Statutory Designated Sites

Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Approximate Distance and Direction[11]
Dupplin Lakes	SSSI	• Breeding bird assemblage; and • Pink-footed goose *Anser brachyrhynchus*, non-breeding	0 km, bordering the Site at south west corner, on opposite side of Roman Road

[9] SLR Consulting Ltd. (2025). Dupplin Solar. Preliminary Ecological Assessment. Technical Report for Trio Power Limited

[10] SLR Consulting Ltd. (2025). Dupplin Solar. Breeding Bird Survey Report. Technical Report for Trio Power Limited

[11] Measured from the nearest point "as the crow flies".

Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Approximate Distance and Direction[11]
South Tayside Goose Roosts	Ramsar SPA	• Greylag goose *Anser anser*, non-breeding; • Pink-footed goose, non-breeding; • Waterfowl assemblage, non-breeding; and • Wigeon *Anas penelope*, breeding	0.8 km, south west
River Tay	SAC	• Atlantic salmon *Salmo salar*; • Brook lamprey *Lampetra planeri*; • Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels; • Otter *Lutra lutra*; • River lamprey *Lampetra fluviatilis*; and • Sea lamprey *Petromyzon marinus*	1.9 km, north
Methven Moss	SSSI SAC	• Raised bog • Active raised bog; and • Degraded raised bog	2.4 km, north west
Methven Woods	SSSI	• Invertebrate assemblage; and • Lowland mixed broadleaved woodland	3.5 km, north
Kinnoull Hill	SSSI	• Upland oak woodland	6.3 km, east
Pitkeathly Mires	SSSI SAC	• Basin fen • Slender green feather-moss *Hamatocaulis vernicosus*; and • Very wet mires often identified by an unstable 'quaking' surface	8.0 km, south east
Thistle Brig	SSSI	• Lowland neutral grassland	9.7 km, north east
Firth of Tay and Eden Sanctuary	Ramsar SPA	• Greylag goose, non-breeding; • Pink-footed goose, non-breeding	13.7 km, east

3.1.2 Non-Statutory Sites

There are no non-statutory designated sites of ecological interest within 2 km of the Site. In addition, there are 11 stands of ancient woodland within 2 km of the Site, ten were long-established of plantation origin, and one is shown on the 1750 Roy map[12].

3.2 Habitats

The results of the UKHab survey (refer to **Figure 6.4** of the EIA Ecology Chapter 6[6]) indicates that the Site is primarily composed of farmland associated habitats including crop

[12] National Library of Scotland. Roy Military Survey of Scotland, 1747-1755. [digital map]. https://maps.nls.uk/roy/https://maps.nls.uk/roy/ (Accessed: Jan 16, 2026).

fields (c1) and modified grassland (g4). The Site is situated on 13 distinct agricultural fields, which some had been recently ploughed, and in the summer 2025 the main crop was barley.

Modified grassland was present throughout the field margins, mostly comprised of thin strips of meadow grasses *Poa sp.* and cock's foot *Dactylis glomerata* with occasional dock *Rumex sp.*, thistles *Cirsium sp.*, nettles *Urtica dioica* and white clover *Trifolium repens*. The species diversity was poor at the time of survey with fewer than 5 species regularly occurring per m^2. Drystone walls boundary some of the fields.

Mixed, semi mature woodland (w1h5) was observed to the southeast corner of the Site with a species mix including birch *Betula*, cherry *Prunus* and, to a lesser extent, the coniferous species sitka spruce *Picea sitchensis*.

Thin strips of other neutral grassland (g3c) occurred along both the western edge of the Site, between an arable field and plantation woodland.

Two ditches (r2b) were present along both the eastern edge and western side of the Site. The eastern edge ditch was wet during the survey, <0.1m deep, with a slow flow and a substrate largely consisting of high organic matter with gravel and pebbles. The banks were steep with hawthorn *Crataegus monogyna* providing occasional shading. The second ditch was partially wet where it emerged from the Cultmalandie Woods but was dry within the Site, dominated with rush species. The ditch had steep grassy banks with the same species mix present as the other modified grassland strips occurring across the Site.

No Annex I habitats, or those present on the Scottish Biodiversity List (SBL) were present within the Site or buffer.

3.2.1 Notable Plants

No records of Invasive Non-Native Species (INNS) were returned in the desk study from within 2 km of the Site. Japanese knotweed *Fallopia japonica* was observed in an area of scrub in an arable field in the west of the Site.

3.3 Protected and Notable Species

The Site was considered to have low suitability for foraging and commuting bats, due to the low quality and diversity of habitats present (arable fields), non-continuous hedgerows, unvegetated streams and drystone walls. The woodland boundaries were however, considered to provide more suitability for commuting and foraging. The woodland may also provide roosting habitat. Two trees within the Site were identified as containing Potential Roost Features (PRFs); one was classified as PRF-M (suitable for multiple bats), and one could not be fully inspected.

No evidence of otter or water vole *Arvicola amphibius* was recorded during the field surveys. The two watercourses within the Site comprised dry or partially dry ditches with bare or sparsely vegetated banks.

Badger *Meles meles* prints were recorded in the centre of the Site and mammal paths leading to/from a coniferous woodland to the west of the Site could be used by badger, however no setts were identified.

Two pine marten *Martes martes* scats, one old and one fresh, were recorded within coniferous woodland west of the Site. A third potential scat was also recorded within the entrance of an underground mammal burrow. The Site itself has low suitability for pine marten with no suitable habitat present.

Eastern grey squirrel (*Sciurus carolinensis*) feeding signs, including stripped cones and piles of pinecone scales, were recorded frequently throughout the coniferous woodland west of

the Site. Potential dreys were also recorded atop Scots pine trees within this coniferous woodland. The Site itself has negligible suitability for red squirrel.

The wet ditches within the Site provide some low-quality habitat for amphibians. Rock piles and the dry-stone walls provide suitable habitat for amphibians and reptiles.

3.4 Protected and Notable Bird Species

A total of 38 bird species were recorded over six breeding bird survey visits. Of these, 21 were target species and the remaining 17 species considered as non-target species. No species were listed on Annex I of the Birds Directive or Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Six of the species were on the SBL. Of the species recorded, six were Birds of Conservation Concern (BoCC) red listed and two were amber listed, all others were green listed.

A total of 34 breeding territories were identified for nine primary target species. The most prominent species on site was skylark *Alauda arvensis* with nine breeding territories identified throughout the Site's fields. Willow warbler *Phylloscopus trochilus* had eight territories along the southern and western forestry edges.

Key habitats for birds within the Site are:

- Forestry and woodland edges on the southern and western boundaries of the Site; and
- Open fields, particularly for skylark.

4.0 Habitat Loss

4.1 Direct Habitat Loss

Where existing habitat would be replaced by civil infrastructure associated with the Proposed Development, it would be lost from the Site at least for the duration of the operation of the Proposed Development. This includes habitats present under the footprint of the Proposed Development and areas that would be subject to cut and fill, grading and excavation for cables.

4.2 Summary of Predicted Habitat Loss

Habitat losses for each habitat type are detailed in **Table 4-1**. Habitat loss calculations are inclusive of the area under the solar PV units.

Table 4-1: Summary of Habitat Loss

Habitat type	Total Direct Habitat Loss (ha)
c1 – Arable and horticulture	1.73
g4 – Modified grassland	0.61
c1c – Cereal crop	1.19
Total	**3.55**

5.0 Outline Biodiversity Enhancement Management Plan

5.1 Vision and Scope

The vision of this plan is to ***improve the biodiversity value of the Site for wildlife, whilst facilitating the use of the Site for renewable energy production***.

Grassland creation and enhancement, enhancement of wet ditches, woodland and hedgerow creation, and provision of nest boxes/refuges for wildlife will improve the foraging and sheltering resources for protected species and improve the quality of the habitats on Site. The combined habitat creation and enhancement proposed in this OBEMP will improve habitat for flora and a range of fauna, including bats, bird assemblage, reptiles and amphibians, otter and badger.

The scope of the habitat restoration and enhancement works proposed in this OBEMP are illustrated in **Annex A, The Landscape Mitigation Plan Drawing 2260 L01**.

5.2 NPF4 Adherence

The NPF4, Policy 3, sets out requirements for developments to deliver positive effects for biodiversity. Major applications "*will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention"*.

The mitigation proposed in this OBEMP aims to meet NPF4 criteria (refer to **Section 1.5.1**) by replacing the loss of approximately 0.61 ha of species poor grassland (g4) and 1.73 ha of arable land (c1) with enhancement of existing grassland, planting of more species diverse grassland on existing arable land, hedgerow planting and mixed woodland/scrub planting.

The proposed tree and hedgerow planting will all take place on Site, retaining and extending the existing areas on Site. These will also serve to link existing blocks of woodland present within the wider landscape and to areas of grassland/woodland creation.

The plan for mixed woodland, individual trees and hedgerow planting has been integrated with the landscape plan to provide natural screening that fits with the character of the local area and provides benefits for biodiversity. This will require a mix of native broadleaved tree and scrub species to enhance the woodland/hedgerow biodiversity.

The proposed native mixed woodland planting will be carried out on areas of the Site boundary and around areas of existing woodland. The woodland would be underseeded with a woodland meadow mix (SCM3). Habitats within the Site are typically of low biodiversity value, e.g. species poor modified grassland and arable cereal fields, as such planting will improve Site value. The planting will comprise of native species and will provide increased habitat and foraging resources for species already present within the Site.

Areas of proposed grassland management would provide benefits for biodiversity through increased sward height and species diversity when coupled with a suitable management regime. With correct management, the area will improve foraging and commuting resources available for fauna present on Site including reptiles, birds, badger, bats and brown hare. Negative effects of tree and scrub planting are not considered to be high, considering the improvement to species poor grassland and arable crops currently present within the Site.

Methods, management and monitoring are outlined below to ensure the long-term retention and retained biodiversity value of the native woodland, native species rich hedgerows, species rich grasslands, shrubs and wildflower meadows.

5.3 BEMP Working Group and Review

As part of the preparation of the detailed BEMP post-consent, a group of key stakeholders would be invited to form a BEMP working group. Their role would be to provide input to and comment on the detailed BEMP and subsequent revisions to the BEMP during the lifetime of the Proposed Development.

It is envisaged that the following stakeholders would be invited to join the BEMP working group:

- TRIO Dupplin Solar LLP, as the applicant, and their ecological advisor(s);
- The landowner;
- Perth and Kinross Council (PKC) Biodiversity Officer;
- NatureScot; and
- SEPA.

Further details, including terms of reference for the BEMP working group, would be provided in the detailed BEMP, post-consent.

The detailed BEMP would be reviewed and updated on a regular basis, based on monitoring of progress toward achieving its goals and objectives and to inform active management. Proposed review timescales are set out in **Annex C**, **Table C-1**.

The Applicant is ultimately responsible for meeting the commitments made in the detailed BEMP. The implementation of the detailed BEMP would be undertaken by suitably experienced contractors and all monitoring would be undertaken by suitably qualified and experienced environmental professionals.

5.4 Targets

This section details the habitat features that will be the targets of the OBEMP. The features which form the targets of this OBEMP have been determined through consideration of the relative importance of ecological features present at the Site, the extent to which they may be impacted by the Proposed Development (as set out in the EIA report[6]), their potential to benefit from restoration/enhancement or management and national or local biodiversity priorities. Enhancement measures are primarily targeted at those measures that will support a diverse faunal community from invertebrates through to the higher trophic species groups. **Table 5-1** includes all the targets of habitat management with **Table 5-2** describing the associated objectives.

Table 5-1: OBEMP Targets

Target	Rationale	Associated Objectives
Grassland	The Proposed Development will result in the loss of 0.61 ha of grassland habitat. The enhancement of grassland will compensate for the loss of modified grassland (g4) with additional benefits to breeding birds, reptiles and amphibians, breeding birds, small mammals, bats and invertebrates.	1.1, 1.2, 1.3
Riparian habitat	To increase the quality of wetland habitat within the wider landholding and increase provision of ecosystem services. To provide floristic diversity for pollinator species and provide water resource for terrestrial and aquatic invertebrates, and wet mud for nest building of solitary bee species.	2.1

Target	Rationale	Associated Objectives
Native Woodland	Woodland is present within the habitats adjacent to Site as thin strips and blocks bordering field margins,. There is a single individual tree within the south east corner of Site, no trees are predicted to be lost as a result of the Proposed Development. Enhancement of woodland on field margins (refer to **Landscape Mitigation Plan (LMP)**), in combination with hedgerow and scrub planting, will provide increased connectivity of woodland blocks within the wider landscape for birds and bats.	3.1
Hedgerows	Hedgerows are an important habitat for commuting, foraging and breeding fauna. While construction activities will not result in any loss of hedgerow, this has been identified as an opportunity for habitat enhancement and also to improve screening of the Proposed Development. The provision of native hedgerow planting and gap-filling will benefit breeding birds, reptiles and amphibians, brown hare, invertebrates and in turn bats.	3.2
Scrub	Scrub is an important habitat for commuting, foraging and breeding fauna. Construction activities will not result in the permanent and temporary loss of scrub habitat. Creation and enhancement of scrub will provide additional Site enhancement through habitat creation and enhancement benefiting breeding birds, reptiles and amphibians, brown hare, badgers, invertebrates and in turn bats.	3.3
Bat assemblage	Habitats dominating the Site, modified grassland and arable crops, are considered to be a poor foraging resource for bats with linear features (woodland edges, hedgerows and ditches) of greatest value. Potential roosting opportunities are present on boundary features of the Site, however, overall connectivity within the Site is poor. All bats are European protected species under The Conservation (Natural Habitats, &c.) Regulations 1994 and are additionally protected in the UK under Schedules 5 and 6 of the WCA[13]. The works will result in loss of 0.61 ha of potential foraging and commuting habitat for bats (arable land not included). The provision tree/scrub/hedgerow planting and grassland management will improve invertebrate diversity and thereby improve foraging for bats. The provision of bat boxes will provide additional roosting opportunities currently absent on Site and scarce in the wider area.	1.1, 1.2, 1.3, 2.1, 3.1, 3.2, 3.3 4.3
Reptiles and amphibians	The habitats on Site, particularly grassland with areas of scrub, offered suitable habitat for reptiles and amphibians. Potential	1.1, 1.2, 1.3, 2.1,

[13] Wildlife and Countryside Act (1981 as amended)

Target	Rationale	Associated Objectives
	refugia in the form of dry-stone wall were present across the Site. The works will not result in habitat losses to areas of potential habitat for reptiles and amphibians; this is concentrated in field margins and areas of scrub, however, there are opportunities to provide enhancements on Site. Reptile species and some species of amphibians are protected under Schedule 5 of the WCA[13]. Provision of artificial reptile refugia will provide enhancements to existing habitat in improving shelter, and potential breeding opportunities. Grassland planting and management will additionally improve diversity of habitat available for these species providing increased foraging opportunities.	3.1, 3.2, 3.3 4.4
Bird assemblage	Grassland and scrub habitats on Site were suitable for nesting birds. All nesting birds are protected under the WCA. The works will result in the loss of 0.61 ha of foraging and nesting habitat for birds within grassland and scrub habitats and additional loss of the arable land for ground nesting species. The tree/scrub planting and grassland management will improve habitat for birds currently using the Site and provide habitat for additional amber and red listed birds that are likely to be attracted to the habitat. Provision of nest boxes for small birds in areas of tree planting will provide additional breeding locations for small woodland, woodland edge and farmland birds.	1.1, 1.2, 1.3, 2.1, 3.1, 3.2, 3.3 4.1, 4.2
Small mammals	Existing habitat within the Site is limited for small mammals to field margins and watercourses, however, there are opportunities to provide enhancements on Site. Grassland management, meadow grassland, hedgerow, scrubs and tree planting will improve habitat for small mammals currently using the Site, in turn, providing an increased food resource for predators within the Site such as raptors.	1.1, 1.2, 1.3, 2.1, 3.1, 3.2, 3.3
Brown hare	Grassland and scrub habitats on Site were suitable for brown hare which was also observed on Site. The works will result in the loss of 0.61 ha of habitat for brown hare. The tree/scrub planting and grassland management will improve diversity of habitat available for these species providing foraging and shelter opportunities.	1.1, 1.2, 1.3, 2.1, 3.1, 3.2, 3.3
Invertebrates	While no significant effects are expected on invertebrates, the provision tree/scrub planting and grassland enhancement will improve habitat for invertebrates currently using the Site and provide additional niches for a variety of invertebrate species. Increases in invertebrate numbers and species richness will in turn provide foraging enhancements for a number of species groups, including bats and birds.	1.1, 1.2, 1.3, 2.1, 3.1, 3.2, 3.3

5.5 Goals and Objectives

Goals and objectives, and associated targets are outlined in **Table 5-2**. This section details how objectives meet the goals, to restore the natural spaces onsite while providing resources

for wildlife and facilitating the Proposed Development. A summary table of actions can be found in **Annex C**, **Table C-1**.

Generally, planting of native species of local provenance will be prioritised onsite and no INNS will be planted or allowed to spread on the Site. This applies to all the below objectives.

Consultation will be required with local and national stakeholders including NatureScot and landowners on the proposed biodiversity restoration and enhancement objectives.

Table 5-2: OBEMP Goals, Objectives and Indicators

Goal	Objective	Area	Associated Targets	Indicators
1. Enhancement of grassland	1.1 Grassland creation	Grassland Management Area	Bat assemblage Reptiles and amphibians Brown hare Invertebrates Bird assemblage	Species diversity Foraging resource
	1.2 Grassland enhancement	Grassland Management Area	Bat assemblage Reptiles and amphibians Brown hare Invertebrates Bird assemblage	Species diversity Structural diversity Foraging resource
	1.3 Grassland management	Grassland Management Area	Bat assemblage Reptiles and amphibians Brown hare Invertebrates Bird assemblage	Species diversity Structural diversity
2. Enhancement of aquatic habitats	2.1 Biodiversity enhancement of riparian/aquatic habitats (SuDS Pond and ditches)	SuDS Management Area	Invertebrates Bat assemblage Reptiles and amphibians Bird assemblage	Species diversity Structural diversity
	3.1 Mixed native tree planting	Tree/scrub Planting Areas	Mixed woodland Bat assemblage	Tree health and survival

Goal	Objective	Area	Associated Targets	Indicators
3. Creation and enhancement of mixed woodland, scrub and hedgerows.			Reptiles and amphibians Brown hare Invertebrates Bird assemblage	
	3.2 Native species-rich hedgerow planting	Hedgerow Planting Area	Scrub Bat assemblage Reptiles and amphibians Brown hare Invertebrates Bird assemblage	Hedgerow plant health and survival
	3.3 Scrub planting/enhancement	Tree/scrub Planting Areas	Hedgerow Bat assemblage Reptiles and amphibians Invertebrates Brown hare Bird assemblage	Scrub health and survival
4. Provision and maintenance of wildlife boxes/refugia	4.1 Provision and maintenance of small bird boxes	Existing/ retained trees	Bird assemblage	Use of wildlife box Wildlife box condition
	4.2 Provision and maintenance of Raptor Boxes	Existing/ retained trees	Bird assemblage	Use of wildlife box Wildlife box condition
	4.3 Provision and maintenance of bat boxes	Existing/ retained trees	Bat assemblage	Use of wildlife box Wildlife box condition
	4.4 Provision and maintenance of reptile/amphibian refugia	Tree/scrub Planting Areas	Reptiles and amphibians	Refugia condition

5.5.1 Goal 1: Enhancement of Grassland

The proposed infrastructure will result in the loss of 0.61 ha of grassland, 1.73 ha of arable land and 1.19 ha of cereal crops. To compensate for this loss, and to provide gains in biodiversity, the enhancement, creation, and management of good condition grassland is proposed. This is based on the assumption that it takes 15 years to reach target condition.

This will include areas with the main fields under the solar arrays which will be subject to conservation grazing, and wildflower fields which will be fenced off and not subject to grazing.

Areas underneath solar PV modules are likely to experience benefits to biodiversity, however, due to significant shading from the modules, grasslands immediately underneath are not predicted to contribute as significant biodiversity increases. As such these have been excluded from enhancement figures.

5.5.1.1 Objective 1.1: Grassland Creation

Grassland Creation

Managed grassland for sward height and species diversity is proposed within retained areas of the Site surrounding the PV modules. Most of the Site is currently being utilised for crop production, in these areas, grassland will require seeding and creation. Grassland creation will involve the following steps:

- Topsoil preparation or removal, as considered appropriate for the substrate and soil condition: to reduce soil depth to 20cm, which is preferred for wildflowers
- Seeding:
    - the stripped areas will be sown with local provenance wildflower seed which will contain at least 10 species per m^2 (the minimum number required to be classified as lowland meadow in the UK Habitat Classification (UKHab).
    - A general guide for grass-wildflower seed mixes is to sow at a rate of 3 - 5g per m^2.
    - A grassland mix that is suited to well-drained, loamy soils in open areas, is recommended, such as Scotia Seeds Mavisbank Mix (SCM1) (**Annex D**).
    - Yellow rattle *Rhinanthus minor* (a semi-parasitic species which feeds off the nutrients in the roosts of nearby grasses) will be included in the seed mix, in order to reduce the vigour of dominant grasses and encourage desirable species.
    - Seeding can be conducted in either spring (March to May) or autumn (Mid-August to late September).
- Seed rolling: after seeding the soil should be rolled or trampled to increase contact between the seeds and the soil.

Any scrub present in the grassland should be removed, unless in an area designed for scrub presence. Removal should allow for environmental variables, including weather and breeding birds.

Indicators

Species and structural diversity

Habitat species diversity should be surveyed during flowering seasons as an indicator of habitat management success. The aim to is achieve a diversity of 10 species per m^2. It is anticipated species diversity will increase and eventually plateau. If declines in species diversity are seen, habitat management should be reviewed. A varied sward height should be aimed for during the growing season, with at least 20% of the sward less than 7 cm and at least 20 % more than 7 cm in height.

Foraging resource

Increases in number of invertebrates should be evident by increased bird and bat foraging activity in the areas of grassland management. It is anticipated that dependence on grassland as a foraging resource will vary seasonally depending on the availability of other food sources in the area.

5.5.1.2 Objective 1.2: Grassland Enhancement

Grassland Enhancement

It is proposed to enhance the areas of existing grassland within the Site, primarily modified grasslands (g4) through seeding and habitat management:

- Land preparation: the turf will either be stripped or rotovated to break up the turf and allow access for seeding.
- Seeding: as per above in Objective 1.1.

Any scrub present in the grassland management should be removed, unless in an area designed for scrub presence. Removal should allow for environmental variables, including weather and breeding birds.

Indicators

Species and structural diversity

Habitat species diversity should be surveyed during flowering seasons as an indicator of habitat management success. The aim to is achieve a diversity of 10 species per m^2. It is anticipated species diversity will increase and eventually plateau. If declines in species diversity are seen, habitat management should be reviewed. A varied sward height should be aimed for during the growing season, with at least 20% of the sward less than 7 cm and at least 20% more than 7 cm in height.

Foraging resource

Increases in number of invertebrates should be evident by increased bird and bat foraging activity in the areas of grassland management. It is anticipated that dependence on grassland as a foraging resource will vary seasonally depending on the availability of other food sources in the area.

5.5.1.3 Objective 1.3: Grassland Management

Conservation Grazing

It is proposed to graze the grassland beneath the solar arrays to manage the wildflower meadows. For optimal results (to maintain species diversity), the grazing will be low density and at a level to benefit biodiversity.

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These areas should be grazed by sheep between mid-September and mid-March, leaving the meadow ungrazed during the middle of the season (late March to August) to allow plants to flower. Heavier grazing over a very short period of time is preferable to light grazing over a long period as there will be less selection of particular plants by the animals.

Manual/ Mechanical Management

Mowing

Fields in the north, east and south of the Site will be set aside as wildflower meadows and may not be subject to conservation grazing. If required, the meadows will be cut once a year at the end of the growing season (late August). Arisings would be removed in order to prevent short-term nutrient enrichment, which in turn promotes higher diversity as highly competitive species (e.g. grasses) are less able to outcompete less competitive species (e.g. wildflowers). Removing the arisings also exposes the soil surface, thus providing light for seeds to germinate and grow. The arisings will be left in situ for a few days to dry out and facilitate seeds being shed from capsules.

It is beneficial to leave ungrazed strips along the edges of the meadows, as a foraging resource for insects, enabling late flowering species to set seed and provide shelter for other wildlife.

The aim in all situations is to provide a level of grazing that allows plants to grow from early spring, flower in May and June and then set seed, but which keeps highly competitive vegetation under control through grazing.

Overseeding / plug-planting

If monitoring results indicate initial establishment attempts were not as successful as desired, over-seeding or plug planting to supplement established plants will be undertaken.

Weed Control

Control of weed species such as ragwort *Senecio jacobaea*, creeping thistle *Crisium arvense*, and spear thistle *C. vulgare* may be undertaken if they occur at high abundance, but only hand pulling or cutting of weed species will be used.

It should be noted that common nettle *Urtica dioica* has high value for some invertebrate species, such as the caterpillar stage of the peacock *Aglais io* and small tortoiseshell *A. urticae* butterflies. While it may be removed where it risks outcompeting other species and reducing species diversity, consideration will be given to retaining areas of nettle to promote invertebrate populations.

Fertilisers and Pesticides

The management of the habitat areas is intended to promote biodiversity and therefore use of fertilisers and pesticides is contrary to the aims of the OBEMP. No fertilisers or pesticides will be used within the grasslands or within close proximity, to avoid creating nutrient-rich conditions that would result in a loss of less competitive plant species, and to ensure protection of the invertebrate diversity.

Indicators

Species and structural diversity

Habitat species diversity should be surveyed during flowering seasons as an indicator of habitat management success. Botanical monitoring will record floristic diversity within the grassland, with an aim of annual incremental increases up to an average of 10 species per 1 m x 1 m sample by year 10. A varied sward height should be aimed for during the growing

season, with at least 20% of the sward less than 7cm and at least 20% more than 7 cm in height.

If the species diversity does not increase as per the targets, habitat management will be reviewed.

5.5.1 Goal 2: Enhancement of Aquatic Habitat

5.5.1.1 Objective 2.1: Biodiversity enhancement of riparian/aquatic habitats (SuDS Pond and ditches)

As shown on the Landscape Enhancement and Mitigation Plan (**Annex A, The Landscape Mitigation Plan Drawing 2260 L01**), the plan is inclusive of approximately a 0.06 ha Sustainable Drainage Systems (SuDS) pond within the south of the Site and 1.81 ha ditches located north west and north east of the Site. The SuDS Pond and ditches will be fed by surface water runoff.

It is proposed riparian scrub is to be planted surrounding the SuDS feature and existing ditches. The following species are proposed:

- Bog myrtle *Myrica gale;*
- Grey willow *Salix cinerea;* and
- Eared willow *Salix aurita.*

Within and surrounding the SuDS pond and existing ditches, planting of native species within the basin and along the ditch corridors will be incorporated into the planting scheme to maximise species diversity around the wetland area and promote use by pond dwelling species such as amphibians, aquatic/terrestrial invertebrates and dragonflies/damselflies. This will provide increased foraging resource for higher trophic level species within the Site such as bats, birds and amphibians.

It is recommended that the riparian scrub is under seeded with a mix that is tolerant to being occasionally flooded or waterlogged. A suitable mix for this location would be a Wet Meadow Mix (SCM2) (www.scotiaseeds.co.uk, see **Annex D** for full details).

Seeding would be conducted as follows:

- To reduce potential risk of erosion if soil is left bare it is recommended that soil is prepared and sown in the spring (March to June);
- Ensure ground is free of vegetation, then firm and rake to create a seedbed;
- Aim to let the area settle for four to six weeks to allow any weed seeds to germinate then remove before sowing seeds;
- Seed is to be sown in the spring or autumn at a rate of 3g per square metre using wet meadow mix (SCM2). Bulk up the seed with an inert carrier such as sand to make distribution easier. The seed must be surface sown by machine or broadcast by hand; and
- Tread or roll in seed lightly to produce a firm surface.

Should herbicides be deemed necessary, only those cleared for aquatic use may be used in or beside water. These must be used under strict control and in accordance with the instructions printed on the product label.

The design will include features within the margins such as log piles, rock stacks or varied substrate to provide diversity to topography and provide increased habitat opportunities for invertebrates.

Indicators

Species and structural diversity

Habitat species diversity should be surveyed during flowering seasons as an indicator of habitat management success. It is anticipated species diversity will increase and eventually plateau. If declines in species diversity are seen, habitat management should be reviewed.

5.5.2 Goal 3: Creation and Enhancement of Mixed Woodland, Scrub and Hedgerows

5.5.2.1 Objective 3.1: Mixed Native Tree Planting

Mixed native tree planting (comparative to UKHab 'other woodland, mixed' (w1h)) is proposed in the north of the Site, along the southern Site boundary (**Annex A, The Landscape Mitigation Plan Drawing 2260 L01**). The total area of mixed native woodland planting is 0.41ha. Blocks of woodland are located on the Site boundary to enhance connectivity between existing blocks of woodland in the wider landscape and to have maximum screening benefit.

Species should include primarily broadleaved species, with the addition of Scot's pine to provide both screening and biodiversity enhancement value, priority should be given to the use of native species appropriate to the ground conditions. Stock of local provenance should be used where practicable.

Species proposed include:

- Scots pine *Pinus sylvestris;*
- Silver birch *Betula pendula;*
- Oak *Quercus robur;*
- Field maple *Acer campestre;*
- Hawthorn *Crataegus monogyna;*
- Wild cherry *Prunus avium;* and
- Rowan *Sorbus aucuparia*.

Tree tubes and stakes should be used to protect trees from deer herbivory; sustainable or non-plastic tree tubes should be used to reduce plastic waste/pollution and removal at the right time is important to permit healthy tree growth, ensure protection if measures fail, and avoid waste.

A suitable woodland meadow mix would be of local provenance and used within the understory of all proposed woodland planting areas. It is recommended that the meadow is seeded with a mix that is tolerant to dappled or limited light and sown at a rate of 3.0g / m^2. A suitable mix for this location would be a Woodland Meadow Mix (SCM3) (www.scotiaseeds.co.uk, see **Annex D** for full details).

Areas determined for planting shall include a moderate (1,600 stems per ha[14]) density following appropriate guidance[15,16] and will include seeding of the understory with a woodland meadow mix.

Indicators

Tree health and survival

Planted trees should be appropriate to ground conditions to ensure good health and plant survival. It is likely that there will be some mortality of those planted, but this should remain below 10% mortality to ensure connected habitat areas.

5.5.2.2 Objective 3.2: Native Scrub Planting/Enhancement

Scrub creation is proposed throughout the Site (see **Annex A, The Landscape Mitigation Plan Drawing 2260 L01**) within areas bordering existing woodland and proposed for woodland planting. These will cover a total area with native hedgerow of 3.40 ha. Scrub planting should prioritise native species and use plants appropriate to the ground conditions.

Proposed species include:

- Blackthorn *Prunus spinosa;*
- Guelder rose *Viburnum opulus;*
- Grey willow *Salix cinerea;*
- Spindle *Euonymus europaeus;* and
- Common dogwood *Cornus sanguinea*.

Hawthorn is also present within the native tree planting. There will be at least three native species, and no single species shall account for >75% of the cover.

The scrub will be planted in a way aimed to create glades/sheltered edges within the scrub, to provide sheltered areas for invertebrates and other wildlife.

Management of scrub patches will retain grassy ecotones between the scrub and surrounding habitats, by avoiding mowing directly up against scrub patches.

The aim is for the scrub to achieve good condition after 10 years by passing 5 out of 5 criteria in the Statutory Metric Condition Sheet: Scrub.

Indicators

Scrub health and survival

Planted scrub should be appropriate to ground conditions to ensure good health and plant survival. It is likely that there will be some mortality of those planted, but if this increases above 10% mortality, plants should be replaced to ensure scrub is dense enough to provide sufficient habitat/cover for species.

[14] Woodland Trust (2022). Woodland Creation Guide.

[15] Scottish Forestry. Farm Woodlands. Available online at https://www.forestry.gov.scot/support-regulations/farm-woodlands [Accessed January 2026]

[16] Woodland Trust. Tree Planting Advice. Available online at https://www.woodlandtrust.org.uk/plant-trees/advice/ [Accessed January 2026]

5.5.2.3 Objective 3.3 Native Species-rich Hedgerow Planting

Native hedgerow planting is proposed along the western, eastern and southern Site boundary as linear features (included with good condition scrub) across an approximate area of 3.40 ha. The hedgerow should be planted in a double staggered row configuration to provide an increased shelter area for fauna.

Hedgerow planting should prioritise native species and use plants appropriate to the ground conditions. Single-species hedgerows will be avoided, with a mix of species using stock of local provenance where practicable, which includes:

- Hawthorn;
- Guelder rose;
- Hazel *Corylus avellana;*
- Holly *Ilex aquifolium;*
- Elder *Sambucus nigra;* and
- Blackthorn.

In areas where defunct hedgerow and individual trees exist along proposed hedgerow planting areas (see **Annex A, The Landscape Mitigation Plan Drawing 2260 L01**), current trees would be retained, and infill planting will be conducted where necessary, this will help maintain established trees in the landscape. This will provide increased sheltering areas for fauna and enhance connectivity within the landscape between existing blocks of woodland and scrub in the wider landscape. Infill planting should be conducted outside the breeding bird season where possible, taken to be mid-March to late July in central Scotland.

Following the completion of planting, a 75mm layer of bark mulch will be placed around each base. Hedgerows will be maintained at a height of 3.5m.

Indicators

Hedgerow health and survival

Planted hedgerow plants should be appropriate to ground conditions to ensure good health and plant survival. It is likely that there will be some mortality of those planted, and any dead plants should be replaced to ensure habitat connectivity is maintained.

Management of Woodland, Scrub and Hedgerows

Where mortality of planting is over 10%, beating up may be required, where dead plants are replaced. Should any particular species show low survival rates, it is recommended that the replacement species is reviewed and a species with high survival likelihood planted.

Tree tubes should be replaced if they are damaged and removed once the plants are mature enough. Weeding of tree tubes may be required.

Detailed management for planting shall be included within a detailed BEMP prior to the construction phase of the Proposed Development. This should specify planting densities, protection measures and short and long-term management. In addition to this, the following management measures shall also be considered:

- Where possible, planting will be undertaken between November and March when plants are dormant and avoiding heavy frost;
- If planting across the summer period, plants must be watered during the establishment period;

- Unless watering/care is possible, no planting works will be undertaken during the summer;
- Trees should also be planted in blocks, instead of rows to create a more natural arrangement;
- The tree edges adjacent to areas of grassland should be scalloped to create microclimates within the edge habitat;
- Planting will be undertaken during the construction phase and new plants will be protected during works through the installation of barriers as required; and

5.5.3 Goal 4: Provision and Maintenance of Wildlife Boxes/Refugia

The number of boxes/refugia should be detailed in the detailed BEMP, but this outline plan indicates that the following will be suitable for this Site as a minimum:

- 6 small bird boxes;
- 2 raptor boxes;
- 6 bat roost boxes; and
- 4 reptile refugia.

5.5.3.1 Objective 4.1 Provision and Maintenance of Small Bird Boxes

Bird boxes should be placed on existing and retained trees within the Proposed Development.

Hole nesting woodland and forest edge birds are likely to benefit from the installation of nest boxes. This will allow them to breed in or near new woodland areas before the woodland matures to an age where natural tree holes are likely to develop and provide safe rest areas for birds utilising the nearby habitats.

Final decisions on placement should be assessed in the detailed BEMP, following a Site visit by a qualified ecologist and with reference to recommended guidance [17].

5.5.3.2 Objective 4.2 Provision and Maintenance of Raptor Boxes

Raptor boxes should be placed on existing and retained trees within the Proposed Development or nearest appropriate habitat.

Within this part of Scotland, three target species of raptor and/or owl are likely to benefit from the installation of larger “raptor” nest boxes including barn owl *Tyto alba*, kestrel *Falco Tinnunculus* and tawny owl *Strix aluco*. Kestrel will be targeted given their existing presence within the Site. This will allow them to breed in or near areas of new woodland before it matures to an age where cavities, such as tree hollows, have formed. Raptor boxes would be placed at sufficient distances from small bird boxes to prevent a deterrent effect of these structures and near areas of proposed grassland and scrub enhancement/creation. Boxes should be installed at a height of 6-8m with a minimum of 400m between boxes. Final decisions on placement should be assessed in the detailed BEMP, following a Site visit by a qualified ecologist and with reference to recommended guidance [18]. Where trees of

[17] Cromack, D. and Baker, N. (2018). Nestboxes. Your Complete Guide. British Trust for Ornithology

[18] Cromack, D. and Baker, N. (2018). Nestboxes. Your Complete Guide. British Trust for Ornithology

appropriate height are not present on Site, trees adjacent to the Site identified would proposed to be used.

5.5.3.3 Objective 4.3 Provision and Maintenance of Bat Boxes

The installation of bat boxes within existing woodland and/or on retained trees. Boxes should be positioned at a variety of aspects, with clear flight lines to the boxes. Final decisions on placement should be assessed in the detailed BEMP, following a Site visit by a qualified ecologist and with reference to recommended guidance[19].

5.5.3.4 Objective 4.4 Provision and Maintenance of Reptile/Amphibian Refugia

With enhancements proposed to grassland (Goal 1), aquatic habitats (Goal 2) and woodland/scrub/hedgerows (Goal 3) it is likely that the reptile population will increase, as such an increased availability of refugia will help support the population. The artificial refugia must be in place before reptiles enter hibernation (October). The following recommendation is based on guidance[20]. Where possible, sections of drystone wall or rocks that require dismantling/removing will be reused when creating artificial refugia to maintain the character of current features.

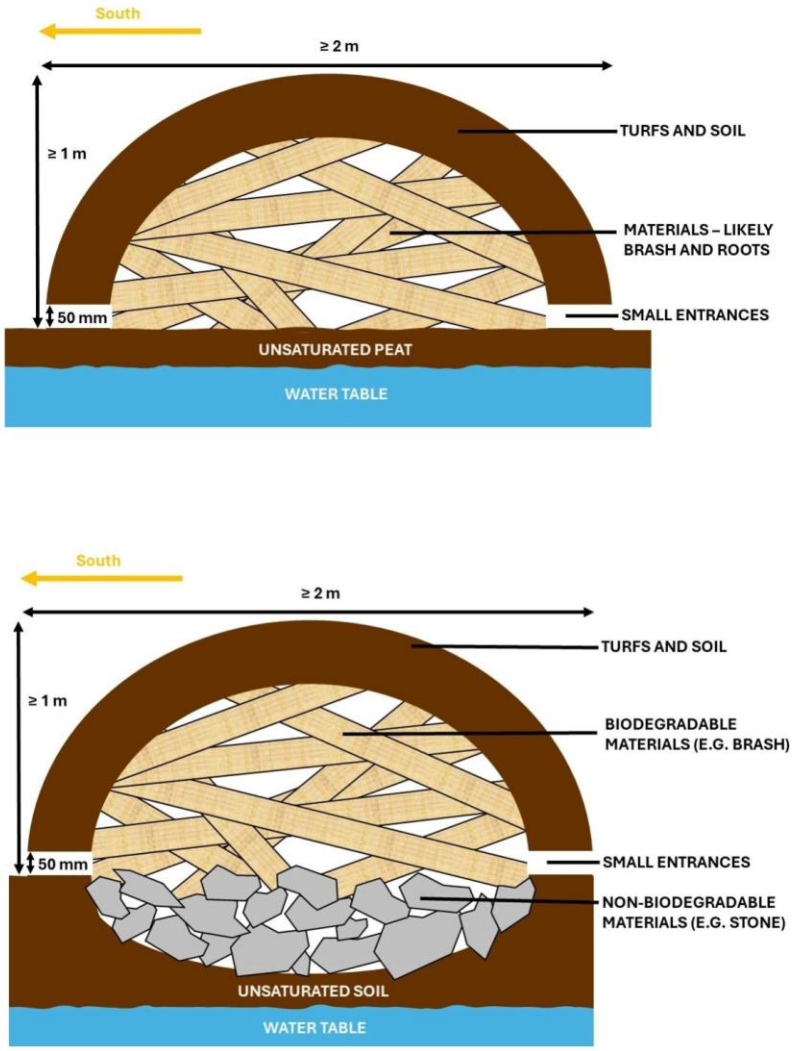
Generally, artificial hibernacula should be at least 4m long, 2m wide and 1m high, but ideally larger. In general, they should be located in a sunny position, have a long southern aspect, have access points allowing reptiles to enter the structure, be located in suitable foraging habitat and not be prone to flooding. It is often recommended that a pit is dug, and materials partially buried when creating a hibernaculum. The bulk of the hibernaculum can be created using a variety of materials, including timber, brash, tree roots, inert hardcore, bricks, rocks etc. However, materials which will decompose (e.g. plant matter) should not be placed under more enduring matter, such as rocks, to avoid risk of collapse.

Turfs should be removed from the footprint of the hibernaculum before construction. These should be retained and replaced over the completed hibernaculum. Loose topsoil could be compacted into any remaining larger cavities, as reptiles will use quite small holes and this may provide some protection against predators (e.g. mustelids) while they are vulnerable during hibernation.

Graphic 5-1 below provides simplified hibernaculum design where the water table is high (A) and for other habitats where the water table is lower (B)N.B peat is noted in the diagram as an example habitat only and is not specific to the Site.

[19] Bat Conservation Trust. Bat Box Information Pack. Available at: https://www.bats.org.uk/our-work/buildings-planning-and-development/bat-boxes/putting-up-your-box

[20] ARG UK (2024). Advice Note 10: Reptile Survey and Mitigation Guidance for Peatland Sites. Available at: https://www.froglife.org/wp-content/uploads/2018/04/Compressed-Advice-note-10-Reptile-Survey-and-Mitigation-Guidance-for-Peatland-Habitats.pdf



Graphic 5-1: Hibernaculum designs[20]: Top down [A] habitats where water table is high . Excavation must be avoided. [B] Other habitats where water table is lower and excavation can be undertaken. *Note that in both cases hibernaculum should be 4 m in length, and non-biodegradable materials must be placed under biodegradable materials. However, that it is preferable to incorporate entrances using natural materials, and not to use pipes as in some of these examples, as reptiles seem to prefer to use more 'natural' holes.*

Indicators

Use of wildlife box/refugia

Nest and bat boxes should be checked for efficacy by assessing use. If birds or bats are not using certain boxes for multiple years, it is likely that they are inappropriately placed and should be moved to a better location, as advised by an experienced ecologist.

Box/refugia use should be monitored (**Section 6.1.4**) to assess the need to move boxes/refugia to more appropriate locations.

Wildlife box/refugia condition

Boxes/refugia should be kept in appropriate condition for use. This means boxes/refugia should be clean and in good repair. Box/refugia condition should be monitored (**Section 6.1.4**) to assess the need to clean, repair or replace the items.

6.0 Monitoring Methods

Detailed monitoring and management prescriptions will be included in the detailed BEMP. Outline of monitoring methods are described in **Section 6.1** below. An outline of the required monitoring is included in the following sections. All monitoring would be undertaken by suitably qualified and experienced ecologists.

6.1 Monitoring Methods

6.1.1 Native Tree, Scrub and Hedgerow Monitoring

All tree, scrub and hedgerow planting areas should be checked for tree health and survival, at years 1, 3, 5, 7 and 10 and every 5 years thereafter following planting. Surveyors should assess all tree areas for mortality and indicate areas of poor growth and disease so that these areas can be beaten up. Weeding of tree tubes should be advised where necessary. Tree tubes and stakes should also be checked within this timescale, broken stakes or tubes should be replaced as appropriate, and stakes and tubes should be removed once the trees are established and maturing beyond the requirement for protective tubes.

Remedial Action

Beating up of dead plants and weeding of tree tubes should be carried out where advised by monitoring. Tree tubes and stakes should be repaired where necessary, and tubes and stakes should be removed and recycled when no longer required to avoid littering the woodland areas and to avoid damage to mature trees. This should be carried out within one year of survey results with the aim to keep young trees healthy.

6.1.2 Grassland Monitoring

All grassland areas should be surveyed for habitat health and survival, particularly at years 1, 3, 5, 7 and 10 and every 5 years thereafter. Surveyors should assess all planted grassland areas for mortality and large patches of bare ground; where these exist, targeted re-seeding should take place and/or re-evaluation of the seed mix based on ground conditions at that stage.

Remedial Action

Should surveys indicate the presence of scrub, additional management may be required, such as removal or the grazing regime may require a review and amendment. Where significant areas of grassland have failed to establish, it may be recommended that the grass mix is re-assessed for suitability.

6.1.3 Aquatic and Riparian Habitat Monitoring

All aquatic and riparian areas should be surveyed for habitat health and survival, at years 1, 3, 5, 7 and 10 and every 5 years thereafter. Surveyors should assess all planted areas for mortality and large patches of bare ground; where these exist, targeted re-seeding should take place and/or re-evaluation of the seed mix based on ground conditions at that stage.

Remedial Action

Where significant areas of habitat have failed to establish, it may be recommended that the grass mix is re-assessed for suitability.

6.1.4 Wildlife Box/refugia Surveys

All wildlife box surveys will be conducted by suitably qualified and licenced (where necessary) ecologists.. The condition of the wildlife boxes will also be assessed, and faulty or missing boxes will be fixed/replaced before as soon as possible.

Remedial Action

Should boxes be reported faulty or missing, boxes will be fixed/replaced as soon as possible. Should occupancy be reported low for consecutive years at any box, it may be recommended that the box is moved to a more suitable location.

6.2 Report and Review

Monitoring results would be reported in years when monitoring takes place and recommendations made for changes to management prescriptions if objectives are not being met, as appropriate. As such, the detailed BEMP would be a live document, such that it can be altered following monitoring results, unexpected events or evolving guidance. Any amendments to the detailed BEMP because of the outcome of monitoring would be agreed with the BEMP working group in advance of any such revised prescriptions being implemented. The detailed BEMP would be reviewed every five years.

6.3 Timescales

A detailed BEMP will be completed post-consent with a detailed programme of creation, management and monitoring. All BEMP works, including tree and scrub planting and the installation of wildlife boxes/refugia should take place within one year of construction works.

7.0 Summary

The OBEMP for the Dupplin Solar is comprised of four primary goals:

I. **Goal 1:** To create and enhance grassland within the Site. Species rich grassland is proposed around the solar PV modules to enhance sward height and species diversity. In crop areas, new grassland will be created using species-rich seed mixes, while existing grasslands will be enhanced through overseeding, low-input grazing and mowing. Management will focus on increasing botanical diversity, improving foraging habitat. This habitat will provide increased opportunities for insects, which in turn will provide increased foraging habitat for birds and bats.

II. **Goal 2:** To provide enhancements to aquatic and riparian habitats within the Site. A SuDS pond will be seeded with a wet meadow mix. Native aquatic and marginal plant species will be introduced in and around the pond to enhance biodiversity and support amphibians, invertebrates, and species higher up the food chain such as birds and bats. Riparian scrub and grassland species will be created along ditches. Additional habitat features such as log piles and varied substrates will be added to increase ecological value.

III. **Goal 3:** To create and enhance areas of mixed native woodland, scrub and species rich hedgerows throughout the Site. Planting is proposed across the Site to enhance biodiversity, provide screening, and improve habitat connectivity. Native tree species such as Scots pine, silver birch, rowan and oak will be planted at moderate density,

with woodland meadow mixes sown beneath. Scrub and hedgerow planting will use native species suited to site conditions, with hedgerows planted in double staggered rows to maximise shelter for wildlife. Existing vegetation will be retained and enhanced where possible. Low-density livestock grazing is recommended to help maintain diverse ground vegetation without damaging young trees.

IV. **Goal 4:** To provide and maintain wildlife boxes/refugia for birds, bats and reptiles/amphibians. This will provide nesting/roosting opportunities for bats and birds and shelter and hibernacula for herptiles to help increase species assemblages within the Site while young, planted trees mature.

Annex A Figures

Figure 6.1 Site Layout

Figure 6.2 Designated Sites

Figure 6.4 UK Habitat Classification Survey Results

Drawing 065787-SLR-XX-XX-D-EA-000001

Landscape Mitigation Plan Drawing 2260 L01

Technical Appendix 6.4: Outline Biodiversity Enhancement Management Plan (OBEMP)

Dupplin Solar

TRIO Dupplin Solar LLP

SLR Project No.: 405.065786.00001

03 February 2026

Annex B Planning Policy

Technical Appendix 6.4: Outline Biodiversity Enhancement Management Plan (OBEMP)

Dupplin Solar

TRIO Dupplin Solar LLP

SLR Project No.: 405.065786.00001

03 February 2026

B.1 National Planning Policy

B.1.1 National Planning Framework 4 (NPF4)

The National Planning Framework 4 (NPF4) was adopted by Scottish Ministers on 13 February 2023. In order to accord with the biodiversity provisions of NPF4, development proposals should demonstrate that they contribute to the enhancement of biodiversity. Of particular relevance to this project, Policy 3 of NPF4 states:

'3a) Development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them. Proposals should also integrate nature-based solutions, where possible.

…

c) Development proposals for national or major development, or for development that requires an EIA will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention. This will include future management. To inform this, best practice assessment methods should be used. Proposals within these categories will demonstrate how they have met all of the following criteria:

i. the proposal is based on an understanding of the existing characteristics of the site and its local, regional and national ecological context prior to development, including the presence of any irreplaceable habitats;

ii. wherever feasible, nature-based solutions have been integrated and made best use of;

iii. an assessment of potential negative effects which should be fully mitigated in line with the mitigation hierarchy prior to identifying enhancements;

iv. significant biodiversity enhancements are provided, in addition to any proposed mitigation. This should include nature networks, linking to and strengthening habitat connectivity within and beyond the development, secured within a reasonable timescale and with reasonable certainty. Management arrangements for their long-term retention and monitoring should be included, wherever appropriate; and

v. local community benefits of the biodiversity and/or nature networks have been considered.

d) Any potential adverse impacts, including cumulative impacts, of development proposals on biodiversity, nature networks and the natural environment will be minimised through careful planning and design. This will take into account the need to reverse biodiversity loss, safeguard the ecosystem services that the natural environment provides, and build resilience by enhancing nature networks and maximising the potential for restoration.'

B.1.2 Scotland's Environment Strategy

Scotland's Environment Strategy sets out the Scottish Government's vision for tackling the twin climate and nature crises and sits alongside high-level Scottish Government policy frameworks. The Strategy sets out six outcomes to achieve its vision of restoring nature and ending Scotland's contribution to climate change, transforming the country for the better.

B.1.3 Scottish Biodiversity Strategy

Targets for biodiversity are set out the Scottish Biodiversity Strategy to 2045 (draft). The Strategy sets targets for Scotland to be Nature Positive by 2030 and to have restored and regenerated biodiversity across the country by 2045. The following six objectives have

shaped the development of actions to deliver the high-level goals required to meet the above targets of halting biodiversity loss and being Nature Positive by 2030:

1 Accelerate restoration and regeneration;

2 Protect nature on land and at sea, across and beyond protected areas;

3 Embed nature-positive farming, fishing and forestry;

4 Protect and support the recovery of vulnerable and important species and habitats;

5 Invest in Nature; and

6 Take action on the indirect drivers of biodiversity loss.

B.2 Local Planning Policy

B.2.1 Tayside Local Biodiversity Action Plan (LBAP) (2nd Edition)

The Tayside Local Biodiversity Action Plan (LBAP) (2nd Edition) was published in 2016 and sets out a 10-year action plan to ensure Scottish, UK and European polices, plans and strategies are delivered at a local scale. The LBAP identifies priority habitats and priority species present across the county, recommending additional mitigation to help avoid negative impacts.

B.2.2 Local Development Plan (LDP)

The Local Development Plan (LDP) was adopted by the Perth and Kinross Council on 29 November 2019. In order to accord with the biodiversity provisions of LDP, new development should be sympathetic to the landscape in which it is set and will not place unnecessary burden on the environment. Of particular relevance to this project, policy 41 states:

The Council will seek to protect and enhance all wildlife and wildlife habitats, whether formally designated/protected or not, taking into account the ecosystems and natural processes in the area. Proposals that have a detrimental impact on the ability to achieve the guidelines and actions identified in these documents will not be supported unless clear evidence can be provided that the ecological impacts can be satisfactorily mitigated. Planning permission will not be granted for development that would be likely to have an adverse effect on protected species unless it can be justified in accordance with the relevant protected species legislation (Wildlife and Countryside Act 1981 (as amended) and the Protection of Badgers Act (1992)).

Annex C Outline Schedule of Works

Technical Appendix 6.4: Outline Biodiversity Enhancement Management Plan (OBEMP)

Dupplin Solar

TRIO Dupplin Solar LLP

SLR Project No.: 405.065786.00001

10 February 2026

C.1 Outline Schedule of Works

Table C-1: Outline Schedule of Works

Task	Pre-construction	Construction	Post Construction Year														
			1	2	3	4	5	6	7	8	9	10	11-14	15	16-19	20	After 20
Enabling Tasks																	
Form BEMP working group	x																
Detailed BEMP	x																
BEMP reviews and updates							x					x		x		x	
Ongoing adaptive management			x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Grassland Enhancement Area																	
Hay meadow cut		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Grazing management		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Habitat condition and botanical monitoring			x		x		x		x			x		x		x	
Scrub monitoring			x	x	x	x	x		x			x		x		x	
Scrub removal		As required															
Removal of undesirable species		As required															
Riparian Habitat																	
Riparian scrub planting		x	x		x		x		x			x		x		x	
Grazing management		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Woodland, scrub and hedgerows																	

Task	Pre-construction	Construction	Post Construction Year														
			1	2	3	4	5	6	7	8	9	10	11-14	15	16-19	20	After 20
Tree/scrub/hedgerow planting		x	x														
Grazing management		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Tree/scrub/hedgerow and survival monitoring			x		x		x		x			x		x		x	x
Beating up			As required														
Replacement/removal of tree tubes/stakes			As required														
Hedgerow cutting				x			x			x			x		x	x	x
Placement of wildlife boxes			x	x													
Wildlife box monitoring			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Wildlife box repair			As required														
Wildlife box cleaning			As required														
Moving wildlife boxes			As required														
Enabling Tasks		Management Tasks												Monitoring Tasks			

Annex D Seed Mixes

Technical Appendix 6.4: Outline Biodiversity Enhancement Management Plan (OBEMP)

Dupplin Solar

TRIO Dupplin Solar LLP

SLR Project No.: 405.065786.00001

10 February 2026

D.1 Mavisbank Meadow Mix (SCM1)

SCOTIA SEEDS wildflowers of scotland

MIX CONTENTS

Mavisbank Meadow Mix

Our most popular mixture, a general mix for well-drained, loamy soils in open sites, this provides a range of plants for a type of species-rich grassland widespread in Scotland. There are 17 wildflower & 6 grass species in this mix.

Species		Common name	Origin	%
	20	**% wildflowers**		
Achillea millefolium		Yarrow	Fife	2
Centaurea nigra		Common Knapweed	Fife	2
Conopodium majus		Pignut	Angus	0.2
Galium verum		Ladys Bedstraw	Fife	1.5
Hypochaeris radicata		Cat's Ear	Fife	0.5
Lathyrus pratensis		Meadow Vetchling	Fife	0.3
Leucanthemum vulgare		Ox-eye Daisy	Fife	2
Plantago lanceolata		Ribwort Plantain	Fife	2
Primula veris		Cowslip	Fife	0.5
Prunella vulgaris		Selfheal	Fife	1.5
Ranunculus acris		Meadow Buttercup	Fife	2.5
Rhinanthus minor		Yellow Rattle	Inverness-shire	1
Rumex acetosa		Common Sorrel	Fife	2.1
Scorzoneroides autumnalis		Autumn Hawkbit	Fife	0.5
Succisa pratensis		Devils-bit Scabious	Fife	0.4
Trifolium repens		White Clover	Angus	0.5
Vicia cracca		Tufted Vetch	Fife	0.5
	80	**% grasses**		
Agrostis capillaris		Common Bent	cultivated	10
Alopecurius pratensis		Meadow Foxtail	cultivated	4
Anthoxanthum odoratum		Sweet Vernal Grass	Fife	1
Cynosurus cristatus		Crested Dogs-tail	cultivated	11
Festuca rubra commutata		Chewings Fescue	cultivated	34
Poa pratensis		Smooth Stalked Meadow Grass	cultivated	20

Mix well before sowing and sow at a rate of 3g/m^2.
If you have any queries about the mix please call us on 01356 626425.

24

D.2 Wet Meadow Mix (SCM2)

SCOTIA SEEDS wildflowers of scotland

MIX CONTENTS

Wet Meadow Mix

This mix has a colourful range of species for wet soils, including sites which are occasionally flooded or waterlogged for short periods. There are 19 wildflower & 6 grass & sedge species in this mix.

Species	Common name	Origin	%
	20 % wildflowers		
Achillea ptarmica	Sneezewort	Inverness-shire	2
Centaurea nigra	Common Knapweed	Fife	2.25
Cirsium palustre	Marsh Thistle	Angus	0.1
Filipendula ulmaria	Meadowsweet	Fife	2.5
Geranium pratense	Meadow Cranesbill	Fife	0.5
Geum rivale	Water Avens	Fife	0.5
Hypericum tetrapterum	Square-stemmed St John's Wort	Argyll	0.5
Hypochaeris radicata	Cats Ear	Inverness-shire	0.5
Iris pseudacorus	Yellow Flag Iris	Fife	1
Leucanthemum vulgare	Ox-eye Daisy	Fife	1.5
Lotus uliginosus	Greater Trefoil	Angus	0.1
Plantago lanceolata	Ribwort Plantain	Fife	1.5
Prunella vulgaris	Selfheal	Fife	1
Ranunculus acris	Meadow Buttercup	Fife	1
Rhinanthus minor	Yellow Rattle	Inverness-shire	1
Rumex acetosa	Common Sorrel	Fife	1
Scorzoneroides autumnalis	Autumn Hawkbit	Fife	1
Silene flos-cuculi	Ragged Robin	Fife	1.5
Succisa pratensis	Devil's-bit Scabious	Fife	0.5
	80 % grasses & sedges		
Agrostis capillaris	Common Bent	cultivated	10
Alopecurus pratensis	Meadow Foxtail	cultivated	5
Carex ovalis	Oval Sedge	Berwickshire	0.05
Deschampsia caespitosa	Tufted Hair Grass	Inverness-shire	7.6
Festuca rubra commutata	Chewing's Fescue	cultivated	36.5
Poa pratensis	Smooth-stalked Meadow Grass	cultivated	20.9

Mix well and sow at a rate of 3g/m^2

If you have any queries about the mix please call us on 01356 626425.

D.3 Woodland Meadow Mix (SCM3)

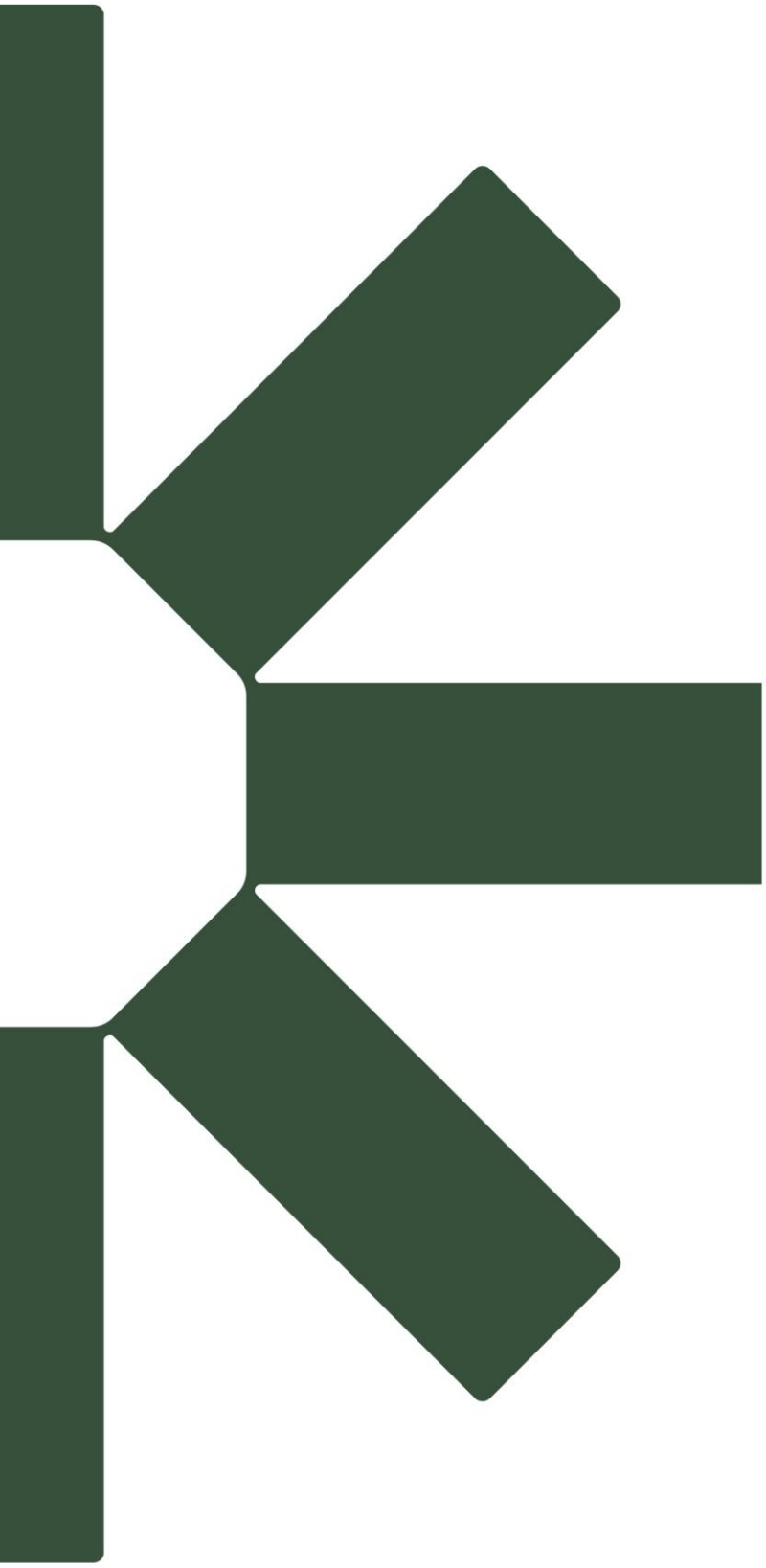
SCOTIA SEEDS
Wildflowers of Scotland
www.scotiaseeds.co.uk
01356 626425
Mavisbank, Farnell, Brechin, DD9 6TR

MIX CONTENTS

Woodland Meadow mix

For deep shade, this mix provides a colourful, tall mix of plants tolerant of lower light levels. There are 17 wildflower & 5 grass species in this mix.

Species	Common name	Origin	%
20	% wildflowers		
Allium ursinum	Wild Garlic	Perthshire	0.3
Campanula latifolia	Giant Bellflower	Fife	1.0
Circea lutetiana	Enchanters Nightshade	Fife	0.7
Digitalis purpurea	Foxglove	Fife	2
Fragaria vesca	Wild Strawberry	Angus	0.1
Geranium robertianum	Herb Robert	Fife	0.3
Geum urbanum	Herb Bennet	Fife	1.7
Hyacinthoides non-scripta	Bluebell	Perthshire	2
Hypericum pulchrum	Slender St Johns Wort	Inverness-shire	0.1
Primula vulgaris	Primrose	Fife	0.2
Silene dioica	Red Campion	Fife	3
Silene flos-cuculi	Ragged Robin	Fife	2
Stachys sylvatica	Hedge Woundwort	Inverness-shire	2
Teucrium scorodinia	Wood Sage	Angus	1
Torilis japonica	Upright Hedge Parsley	Inverness-shire	2.5
Vicia sepium	Bush vetch	Fife	1
Viola riviniana	Common Dog Violet	Angus	0.2
80	% grasses		
Agrostis capillaris	Common Bent	cultivated	10
Cynosurus cristatus	Crested Dog's Tail	cultivated	10
Festuca rubra	Red Fescue	Fife	25
Poa nemoralis	Wood Meadow Grass	cultivated	10
Poa pratensis	Smooth-stalked Meadow Grass	cultivated	25



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