Landscape and Ecological Management Plan

Varley Solar Farm

On behalf of RES.

Date: DECEMBER 2022 | Pegasus Ref: P22-0915-EN-002A

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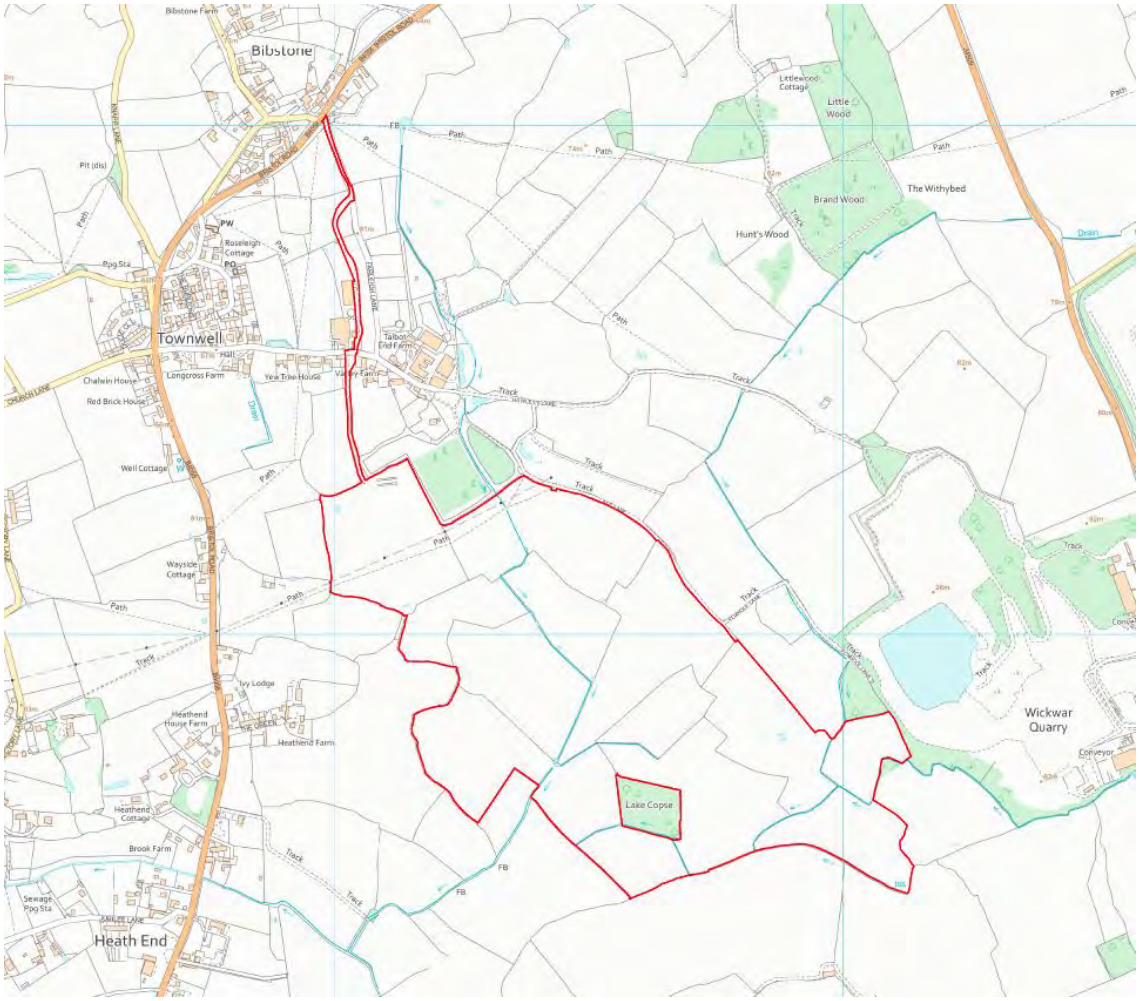
1. Introduction

1.1. This Landscape and Ecological Management Plan (LEMP) has been prepared by Pegasus Group and BSG Ecology in relation to the Varley Solar Farm and on behalf of RES. The proposed development comprises a series of solar modules arranged in strings, associated inverters and substation, access tracks, CCTV cameras, and fencing. The site comprises a number of small to medium scale field enclosures of agricultural land, combined in a single development parcel, accessed off Talbots End Road to the north, as shown on the plan below.



1.2. The LEMP has been prepared in order to ensure the delivery and ongoing management of the detailed landscape proposals for both ecological and landscape and visual benefits. Detailed landscape proposals have been produced, setting out the existing and proposed areas of planting within the site. The detailed landscape proposals plan is included in Appendix 1.

1.3. This LEMP draws on the findings and recommendations detailed in the following reports:

- Landscape and Visual Impact Assessment by Pegasus Group, November 2022; and
- Varley Farm Ecological Appraisal by BSG Ecology, November 2022.

1.4. The National Planning Policy Framework, July 2021 (NPPF) identifies ways in which the planning system should contribute to and enhance the natural and local environment (Paragraph 174), including minimising impacts upon biodiversity and promoting net gains where possible. Opportunities to enhance biodiversity in and around developments are to be encouraged which are resilient to current and future pressures and as such, local authorities have a responsibility to ensure that such opportunities are taken.

1.5. The Environment Bill received Royal Assent in November 2021, becoming the Environment Act. The Act includes the provision of biodiversity gain for developments in England, and will be mandated through an amendment to the Town and Country Planning Act 1990. The two-year transition period that follows Royal Assent means that biodiversity gain will become law in November 2023.

1.6. The South Gloucestershire Council has a local plan policy "Policies Sites and Places policy – PSP19 – wider biodiversity" which currently highlights the need for management of development proposals to restrict loss and deterioration of irreplaceable habitats. As of February 2022, South Gloucestershire Council is intending to update PSP19 to include mandatory Biodiversity Net Gain (BNG) for development projects. The amendment wording can be found on their website with a working policy title "Biodiversity Net Gain" which states that "Acceptable development proposal will be expected to: … Provide biodiversity net gain 10%, secured in perpetuity (at least 30 years)". The proposed solar farm presents considerable opportunity for biodiversity enhancement. This LEMP has been prepared to ensure that the opportunities for enhancement are realised.

2. Landscape Design and Ecological Aims

2.1. This LEMP sets out how the valuable ecological features of the site will be protected during the construction phase and how, during the operational phase of the site, ecological enhancements can be managed to increase the value of the site for wildlife.

2.2. The overall aim for the LEMP is to manage the site for the lifetime of the solar farm, to protect existing features in peripheral areas of the site during construction and manage existing landscape features along with new planting, for the benefit of local wildlife, as well as to ensure long term visual enclosure of the development. The aims will be achieved through a series of objectives and the identification of management operations to achieve these.

2.3. The purpose of the LEMP is:

- To set out the agreed objectives for landscape and ecological management of the site;
- To set clear standards for the performance of landscape and ecological maintenance work;
- To assist in the development of work programmes for landscape maintenance staff;
- To establish landscape and ecological maintenance responsibilities; and
- To help monitor success and progress against the aims and objectives.

2.4. The Plan sets out a strategy for the first 10 years of operation of the solar farm. It is recommended that after 10 years the objectives and prescriptions set out in the Plan are reviewed and updated if required to ensure the LEMP remains relevant and up to date for the lifetime of the solar farm.

2.5. Subsequent management and monitoring of the site will be put in place to ensure the benefits are long-lasting.

3. Landscape Design and Ecological Management and Maintenance Objectives and Prescriptions

Construction Phase

3.1. The following objectives through the construction phase of the proposed development are as follows:

- To adequately protect existing retained habitats and features from damage and disturbance;
- To ensure protected and notable species are adequately safeguarded during construction to ensure their continued favourable conservation status; and
- To provide habitat and landscape enhancements through new planting and ensure this is protected from damage and disturbance.

3.2. In order to achieve these objectives, the following construction prescriptions have been identified.

Removal of Existing Vegetation

3.3. Where vegetation is to be removed, it will be carried out outside the bird nesting season, i.e. not between mid-February and mid-September. Where works in the spring/summer are unavoidable, vegetation will be cleared the preceding winter or following a survey by an ecologist to confirm the absence of nesting birds. Indicative locations of vegetation removal are shown on the landscape strategy plan in Appendix 1.

Existing Retained Habitats and Features

3.4. Prior to any construction works associated with the panels and infrastructure being carried out, the security fencing would be constructed to act as a protective fence to boundary vegetation, acting as an exclusion zone. In addition, temporary protective fencing will be installed around areas of vegetation where recommended by the arboriculturalist. The purpose of both types of fencing will be to act as protection against construction activity for boundary trees and hedgerows throughout the implementation of the solar farm.

3.5. The supplementary temporary protective fencing will be in erected in accordance with the Arboricultural Impact Assessment (AIA) and guidance set out in BS5837:2012. The fencing should be located as set out in the AIA, allowing construction of the solar farm to be unhindered.

3.6. The temporary protective fencing shall remain in place until all construction activities have taken place. The fencing should not be moved at any point during construction, with stockpiling of materials prohibited and no vehicles allowed to enter the exclusion area at any point during construction.

3.7. There will be clear delineation of working areas and access routes for vehicles entering the site and instructions on these will be given to all site construction staff, delivery drivers and subcontractors.

Protection of Notable Species

Bats

3.8. Trees and hedgerows will be protected within a protective buffer as detailed in paragraph 3.5 and measuring 4 m from the base of the tree / hedgerow.

Birds

3.9. Where vegetation is to be removed, it will be carried out outside the bird nesting season Where works in the spring/summer are unavoidable, vegetation will be cleared following a survey by an ecologist to confirm the absence of nesting birds.

Great crested newts and reptiles

3.10. Existing ponds will be protected within a buffer to avoid accidental damage during the construction as per paragraph 3.5.

3.11. Where the grass margins are to be mown this should be carried out in phases to allow any individuals present to disperse.

Dormice

3.12. Trimming of hedgerows and trees should continue in line with their current management, maintaining a dense hedgerow structure that provides a linear habitat feature.

Grass Seeding

3.13. Following construction of the solar panels and all infrastructure, all areas of bare earth within the site, including those areas in between temporary protective fencing and existing landscape features, will be sown with grass seed. Within the site, either Emorsgate EM2F – Standard General Purpose Wildflowers or Emorsgate EM2 – Standard General Purpose Meadow Mixture, or similar approved by a suitably qualified ecologist, will be sown.

<u>Ground Preparation</u>

3.14. Following the installation of the array, reinstatement works should include the removal of all stones and other debris to ensure the ground is suitable for use with mowers.

3.15. Subsequent to the last crop being removed, no fertilizer will be added to the arable land on the site.

3.16. Construction activities requiring heavy machinery will only take place during periods of dry weather, in order to avoid churning and damaging the soil.

3.17. Prior to seeding, the ground will be harrowed and rolled, using a tine harrow in order to avoid damaging underground wiring. However, if there are any areas which have suffered high soil compaction, for instance due to heavy machinery being deployed, these will be harrowed using a disc harrow to ensure the soil structure is suitable for subsequent sowing. If such a requirement arises to harrow with discs, caution should be exercised to ensure newly installed underground services are not damaged during harrowing.

3.18. If there is an abundance of annual or perennial weeds, then small areas of the site may be treated with herbicide prior to seeding.

Seeding

3.19. All seeding will take place ideally in mid-Spring or Late Summer to Mid-Autumn. Seed will be sown in the first year following completion of underground wiring, and be broadcast by machine (fertiliser spreader, slug pellet applicator, grass seed box) and rolled where possible. The gaps between strings of panels are to be wide enough to accommodate a tractor travelling between them for harrowing, sowing and rolling purposes. In areas where a machine is unable to access, such as far underneath panels, seeding in these areas should be broadcast by hand. Seeds can be mixed with a substrate such as sand or sawdust for ease of broadcasting.

3.20. Sowing rate is recommended by the manufacturer as 1.5g per square metre or 15kg/hectare for EM2F and 4g per square metre or 40kg/hectare for EM2.

Hedgerow and Scrub Planting

3.21. New hedgerows are to be planted in numerous locations within the site, with some additional scrub planting in select areas. All planting will be in accordance with the density, species and spacings as set out on the landscape strategy in Appendix 1.

3.22. Areas of existing hedgerow within the site will be improved by select areas of infill planting where shown on the landscape strategy plan, or where there are gaps greater than 1m, to ensure the hedgerow acts as a visual screen. Where there are gaps in the existing hedgerow, new plants will be planted with the same density, species and spacings as for new hedgerows.

Ground Preparation

3.23. Hedge trenches shall be dug 450mm wide x 450mm depth and scrub planting pits shall be dug 450mm width x 300mm depth. The base of trenches and pits will be broken up before returning the approved topsoil backfill mixture to the trench at the rate of one part compost to two parts topsoil. All extraneous matter such as plastic, wood, metal and stones greater than 100mm diameter will be removed from the planting stations and disposed of offsite.

Planting

3.24. Bare-root plants will be planted in accordance with the density, species and spacings as set out on the landscape strategy plan in Appendix 1. Plants must be vertical and deep enough for the roots to hang freely, with the transplant being planted so that the root collar is exactly level with the ground surface.

3.25. All plants will conform to BS 3936 -1 (1992); and be in accordance with the National Plant Specification. Supplying nurseries will be registered under the HTA Nursery Certification Scheme. All parts will be packed and transported in accordance with the Code of Practice for Plant Handling as produced by CPSE.

3.26. Preparation of the planting environment (including de-compaction and drainage) should be at least to the standards set out in British Standard 4428 (1989) Code of Practice for General Landscape Operations (excluding hard surfaces).

3.27. All transplants/cuttings will be protected from rabbit damage using rabbit proof fencing or individual spirals/shrub guards, as advised by the manufacturer. Any spiral/shrub guards used that are not biodegradable, will be removed approximately three years after planting or once established.

3.28. All plants will be watered in at the end of each day of planting/or as required. After planting a 50mm layer of approved compost fine bark (nominal size 1-10mm) shall be spread along the hedge trench to 1m wide or spread around the pit of each scrub plant at 1m wide.

Surface Water Attenuation Feature

3.29. It is assumed that the surface water attenuation feature adjacent to the substation compound would be seeded in the same way as other grass seeding areas.

Pond

3.30. The new pond would be seeded up to their high water level, with marginal and aquatic planting allowed to naturally establish around the pond edges, therefore, no additional planting is proposed around the periphery.

Operation Phase

3.31. The following objectives through the operational phase of the proposed development are as follows:

- To maintain and manage existing field boundary hedgerows to a height of up to 3.5m, to safeguard visual enclosure and retain as wildlife corridors;
- To establish and maintain new areas of proposed hedgerow and scrub planting on the site;
- To manage the grassland and establish a diverse sward surrounding the solar panels and elsewhere on the site;
- To provide additional nesting and refuge/overwintering habitat for wildlife; and
- To monitor the site and assess the success of management.

3.32. In order to achieve the objectives outlined, the following management prescriptions have been identified.

Existing Hedgerows

3.33. Existing hedgerows shall be left to grow with minimal selective thinning and maintained to a height of up to 3.5m.

3.34. During establishment, dead, dying and diseased wood is to be removed annually or as required and replaced with stock of a similar size and species by the appointed contractor at their own cost. If the failure of the plant is due to disease and the disease is considered likely to re-occur, then an alternative native species of local provenance may be used as a replacement. Planting should ideally be undertaken between the months of December and February.

3.35. Hedgerows across the whole site to be cut on a rotational basis, i.e. not all hedgerows in the same year. This will maintain a resource of flowering and fruiting plants across the site, create nesting and foraging habitat for wildlife, and prevent hedgerows becoming leggy.

3.36. Established hedgerows will be cut between late September and February where possible and no cutting or trimming is to be undertaken during the breeding bird season (1st March to 31st August inclusive).

3.37. Ground flora will be cut at the base of hedges on a 3 year rotation to 200mm height, with arisings removed. This is to maximise the value of the habitat for overwintering and foraging insects, and prevent scrub establishment. Cutting is to take place in October/November.

Existing Trees

- Management operations will ensure health and safety inspections are carried out at 12-15 month intervals, particularly those in proximity to public rights of way, to note any:
- major deadwood that needs to be removed from crowns;
- split or damaged branches, storm damage, hung-up limbs, and jagged or open wounds that require tidying;
- forks, cavities and major defects that could result in structural failure, cavities, cracks or bark wounds at the base of trees, together with bracket fungus. An arboriculturalist will probe cavities as required to determine the course of action;
- basal suckers or epicormic growth that require removal from the main trunk;
- poor quality trees with structural defects, such as forked trunks that may require pruning or felling; and
- diseases.

3.38. Ivy on tree trunks will be retained, except where it needs to be removed to facilitate inspection of trees or where it has become extensive and could result in a tree falling in high winds.

New & Infill Hedgerows

3.39. All canes, spirals or guards shall be regularly checked and adjusted or replaced as required. Base of all hedges to be kept weed-free with a minimum of 4No. applications of systematic herbicide per growing season; or a combination of visits to manually remove weeds in conjunction with the use of herbicide, during the first three years. Thereafter the ground flora is to be allowed to develop naturally in order to contribute to the wildlife value of the hedgerow and managed as an existing hedgerow.

3.40. Any litter to be cleared at the same time as weed control operations.

3.41. All hedge lines shall be regularly watered in times of drought to field capacity and shall receive an application of slow-release fertiliser for the first three years.

3.42. Plants will remain upright and adjusted during treatment of weeds. Rabbit protection will be retained/replaced until no longer needed, when it will be removed from site and disposed of. This is to be checked annually.

3.43. All hedges shall be allowed to grow up to a minimum of 3m high and maintained at 3.5m or above. Any plants that fail to thrive shall be replaced with stock to the original specification.

3.44. Annual inspection is to be undertaken in September to replace dead/diseased plants at the end of each growing season and to be replaced within the first five years after planting. Pruning will be undertaken to promote healthy growth, where required, between late September – February to avoid bird breeding season.

3.45. Bark mulch to be topped up annually or as required, to maintain 50mm deep layer, until the plants have established.

3.46. Once new and infill sections of hedgerows have established, management operations are to reflect those as set out for existing hedgerows.

New Scrub Planting

3.47. Operations within new areas of scrub planting will ensure:

- dead, dying and diseased wood and suckers will be removed annually to promote healthy growth, a natural shape and to avoid health and safety concerns;
- dead, missing, dying or defective plants will be replaced annually for the first 5 years after implementation;
- plant protection will be maintained until no longer needed and then removed. This will be checked annually;
- weed-free ground, including the remove of invasive weeds, will be maintained with the use of translocated, non-residual herbicides, until the canopy closes, in order to avoid competition for water and nutrients. This will be done four times a year, reducing to two times a year when the canopy is closed;
- Any litter to be cleared at the same time as weed control operations;
- a slow release fertiliser (4:19:10) will be spread annually in early March in the first three years after planting or replanting after defects replacements;
- plants overhanging access roads will be trimmed back annually;
- self-sown trees will be removed annually by digging up or use of suitable herbicides; and
- plants will be watered in dry weather in the initial three year establishment period. Watering will be carried out twice a week to field capacity. Beyond the establishment period, watering will be in times of drought.
- If the scrub is being excessively poached by sheep grazing temporary protective fencing will be installed to allow the scrub to regenerate.

Grass areas outside the security fences

Mowing

3.48. The grass areas shall be mown under differing regimes for Year 1 after seeding and subsequent years, as detailed below.

3.49. Mowing will only take place during periods of dry weather to ensure that no waterlogged ground is damaged by machinery.

3.50. The grassland will not be improved by chemical fertilizer or slurry and nutrient levels in the soil should be allowed to reduce over time.

3.51. Cutting should be limited to a single cut of no less than 200 mm or if there is a need to mow to ground level, then cutting should be completed in phases to allow any animals present to disperse. The margins should be taken down to 200 mm and left for 24 hours before being taken down to ground level.

3.52. All arisings should remain on Site for three to five days following the cut to allow seeds to disperse, and then either removed from site or placed on habitat piles within field margins.

Year 1

3.53. Newly seeded grassland will be subject to regular cutting to a height of 20cm during the breeding bird season, during the first year of establishment in order to prevent annual weeds from establishing. This shall constitute a cut 6-8 weeks after sowing and then every month thereafter between May and September.

3.54. The frequency of cutting will be increased should annual weeds establish.

Subsequent Years

3.55. After the first year following seeding, grassland will be managed by mowing as per the schedule below:

January	No mowing required.
February	Cut can be undertaken (if necessary), to approx. 20cm
August-September	Cut to approx. 20cm during the breeding bird season (by mowing) once the wildflowers have seeded; cut grassland slowly and allow opportunities for animals and birds to escape.
Late September to end of December	No mowing required.

3.56. Cutting should adopt a systematic method (i.e. working outwards towards the boundary features); this will allow fauna to temporarily and safely vacate the area.

3.57. The management will take a flexible approach and the exact dates will be dependent upon weather conditions. A phased (rotational) cutting regime is recommended (i.e., ideally the entire area should not be cut at the same time) in order to allow a more varied structured grassland.

3.58. There may be circumstances when an additional selective summer cut is required to prevent vegetation obscuring panels, in such cases cuts should be 20cm and should be confined to areas close to panels where growth is causing shading. Other areas should be left uncut.

Re-seeding: Years 1 and 2

3.59. Newly seeded areas are unlikely to remain bare for extended periods of time. In the unlikely event that grassland fails to become established upon areas of bare ground created during the works, these areas should be lightly scarified and reseeded with the same seed mix used to seed the site at the during the construction phase. An inspection will be undertaken in early August following completion of the installation. Should the proportion of bare ground be greater than 20% then sowing should be repeated in these areas.

3.60. Reseeding in August is likely to be particularly appropriate where the months of May, June and July have been very dry.

Re-seeding: Year 5

3.61. If monitoring finds that by Year 5 following seeding the sward contains <10% cover by forbs, or that the sward contains <75% of the species which were included in the seed mix, then targeted re-seeding will be conducted.

Grass Areas within the security fences

Mowing:

3.62. The grass areas shall be mown during Year 1 after seeding and grazed by sheep during subsequent years, as detailed below.

Year 1:

3.63. The mowing regime during Year 1 shall mirror that set out above for Species Rich Wildflower Grassland.

Subsequent Years

3.64. After the first year following seeding, grassland will be managed by rotational low-intensity grazing in accordance with the landowners' requirements, either rotating sheep within the site through control with stock proof fencing or through rotational grazing using nearby fields.

3.65. Ideally, it is best to aim for a stocking rate just sufficient to maintain a varied structure, rather than the maximum that the grassland can support. Grazing density (As per the table below) is based on medium sized sheep (e.g. 60kg). It is important to constantly monitor the site to ensure the grassland is not under or over grazed and stock density and duration altered accordingly. The stocking density should be reduced in wet periods or in conditions when poaching would lead to a break-up of the sward and colonisation by aggressive weed species.

An indicative guide to stocking levels for lowland grassland (number of sheep per hectare). Adapted from the Lowland Grassland Management Handbook produced by Natural England.

Number of grazing weeks per year	Neutral Grassland (sheep per ha)
16	12.5
20	10
24	8
36	5.5
52	4

3.66. The following indicators will be used to review and amend stocking densities:

- An increase in the amount of uneaten grass, the accumulation of litter, an increase in vigorous rank and unpalatable grasses, and a reduction in low growing herbs, indicates stocking density is too low (need to increase density).
- A reduction in density/diversity of plants, excessive poaching, weed invasion and the development of bare patches, indicates stocking density is too high (need to reduce density).

3.67. Any herbicide applications to control weeds should be undertaken immediately after sheep have been removed from a grazing area.

3.68. The areas will be subject to light intermittent grazing by sheep between approximately September and January, where conditions allow. Moderate trampling will expose ground for colonisation by annuals the next spring; however, heavy trampling can lead to ground poaching and infestations by weed species that will be detrimental to the site. During the spring and summer (March to August), sheep will be removed, or stocking density reduced, to allow summer flowering plants to set seed. Grazing will be carefully monitored in the winter period in order to prevent excessive compaction of wet earth.

3.69. Cutting of any un-grazed areas will be in accordance with measures mentioned previously.

Surface Water Attenuation Feature

3.70. The attenuation feature would be managed in the same way as the grassland as set out above. Should the attenuation feature have water within it, maintenance operations would be delayed until such time as they could be undertaken safely.

Pond

3.71. Management operations will ensure:

- rubbish, vegetation and litter will be removed, including adjacent to any pipes, overflows or grates. This will be done biannually;
- marginals and aquatics will be cut back each year in early autumn. Dead flower stems will be removed;
- vegetation removed from ponds will be kept on the sides for 48 hours for invertebrates to crawl back into the water, and then be removed;
- peripheral scrub or hedgerow will not be allowed to encroach into open areas, or to cast too much shade over the water; and
- algae will be controlled annually, or as required, with the use of barley straw or biodegradable chemicals.

Wildlife Enhancements

3.72. The development will deliver opportunities for the enhancement of protected species through pond management and the provision of hibernation and additional nesting / roosting sites. Management working methods i.e. the creation of habitat piles using dead wood and grass cuttings will be implemented where appropriate (see Figure 1 in Appendix 2).

3.73. The management aims and objectives for these specific features are to:

- Install and maintain the habitat piles across the Site with advice from the project ecologist as required. Habitat piles can be constructed using the woody arisings from the hedgerow removal, or grass cuttings, placed in a sunny location and set within existing areas of long grass or scrub.
- Install and maintain bird and bat boxes on mature trees across the Site with advice from the project ecologist as required.
- Undertake remedial works as required after consultation with the project ecologist to ensure the continued integrity of the features created.

Pond enhancement

3.74. Ponds 15, 16, 17 and 18 will be enhanced to benefit great crested newts (GCN) and a range of other species. This work should be done under a working method statement to minimise the impacts on any potential GCN present and in the presence of a GCN licenced ecologist.

3.75. In order to improve the condition of the following actions should take place

- ponds scrub should be thinned and removed from the pond edge to improve the levels of light getting to the surface of the pond. This will allow the temperature of the water to increase and reduce the amount of vegetation shed into the water, thus making it more suitable for breeding populations of GCN.
- Excessive leaf litter, debris and silt should be removed from the pond basin using a small excavator, or by hand. Silt from the pond should be removed during early autumn or late winter, when the weather will be milder, to prevent hibernating animals at the bottom of the pond from being suddenly exposed to cold weather. It is

recommended that vegetation and silt removed from the pond is moved to an area of the site away from the area of works around the pond, where any amphibians are able to find suitable alternative shelter. Excavated silt should be left to on the side of the pond for 48 hours before being thinly spread on Site and ploughed into the fields during grassland creation.

- Deadwood should be stacked into habitat piles adjacent to the pond to enhance the terrestrial habitat for GCN.

3.76. The ponds should be checked on an annual basis to establish if / when any further management is required.

Creation of hibernation sites

3.77. Deadwood that has been removed from the working area during construction should be placed in habitat piles on within buffer areas, providing shelter for a variety of species.

3.78. Indicative locations for habitat piles have been included in Figure 1, Appendix 2.

Installation of bat and bird boxes

3.79. A single barn owl box should be installed on Site. It is recommended that a barn owl box is sourced directly from The Barn Owl Trust, to ensure the best quality box for nesting barn owls. An indicative location has been provided on Figure 1 in Appendix 2, however this should be ground-truthed by a barn owl licenced ecologist and the accurate location recorded on installation to ensure that the following criteria are met (based on advice from The Barn Owl Trust[1]);

- A mature tree with a thick trunk;
- Isolated in a hedgerow or woodland edge;
- Facing away from the prevailing weather i.e. the entrance should face East/NE/SE;
- A tree with a high canopy or few or no low branches;
- Where the nestbox access hole would be visible to a passing owl, even when the tree is in full leaf and seen from a distance; and
- Close to strips or patches of rough grassland.

3.80. The barn owl box should be checked annually by a barn owl licenced ecologist and cleaned out every one to three years depending on nesting status. The checks should occur between November and January to avoid disturbance of breeding barn owls, in good weather.

3.81. A single kestrel box should be installed on Site. It is recommended that a kestrel box is sourced from the RSPB. An indicative location has been provided on Figure 1 in Appendix 2,

[1] Available at: https://www.barnowltrust.org.uk/barn-owl-nestbox/owl-boxes-for-trees/

however this should be ground-truthed by an experienced ecologist and the accurate location recorded upon installation to ensure that the following criteria are met;

- The box should be sited high in a tree at least five meters above the ground;
- The box should be faced away from prevailing weather, with a good view of the surrounding landscape and clear flight path into the entrance, preferably along a woodland edge or on an isolated tree;
- The tree that the box is being sited on should have branches near by as perches for fledgling kestrels; and
- Avoid siting the box above water.

3.82. The kestrel box should be checked annually to ensure the box is clean and secure for the next breeding season. The checks should occur between November and January to avoid disturbance of breeding kestrels. It is recommended the check is carried out in good weather.

3.83. It is recommended that three bat boxes are installed on site to enhance the Site for use by bats, as follows:

- 1 x Schwegler 1FF Bat Box;
- 1 x Schwegler 2F General Purpose Bat Box; and
- 1 x Schwegler 2FN Special Woodland bat Box.

3.84. These bat boxes should be sited at least 3m above the ground on trees, and well connected to the landscape through connective features such as hedgerows. Indicative locations have been included on Figure 1 in Appendix 2, but precise locations should be advised by a bat licenced ecologist and the accurate locations recorded on installation.

3.85. The bat boxes should be checked annually and cleaned out if necessary, by a Natural England level 2 bat licenced ecologist. The checks should occur between November and January to avoid disturbing roosting bats and ensure the boxes are ready for the next season.

4. Maintenance Schedule for the First Five Years

4.1. The following maintenance schedule sets out all maintenance operations to be undertaken on the site for the initial five years. Unless otherwise amended as part of the monitoring the progress of management and maintenance on site, these operations should continue for the lifetime of the development.

	Operation Phase											
Prescriptions	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Management of Wildflower and Grazing Grassland (including attenuation feature) – YEAR 1 *Cutting of newly seeded grassland to prevent unwanted weeds.* *Re-seed as necessary.*												
Management of Wildflower Grassland (including attenuation feature) – SUBSEQUENT YEARS *Re-seed as necessary.*		*Grass cut*		*Flowering season – no management*				*Grass cut*				
Management of Grazing Grassland - SUBSEQUENT YEARS *Re-seed as necessary.*	*Light rotational grazing*								*Light rotational grazing*			
Management of Injurious Weeds for Wildflower Grassland, Grazing Grassland, Scrub & Hedgerows – Existing and Proposed				*Check for injurious weeds*		*Check for injurious weeds*		*Check for injurious weeds*				

Prescriptions	Operation Phase											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Existing Hedgerow Management *Rotational Cutting every 2/3 years. No more than 1/3 cut in any one year.*	*Trimmed to a minimum height of 3m*								*Trimmed to a minimum height of 3m*			
New/Infill Hedgerow Management and Scrub Management *Slow-release fertiliser for the first 3 years.* *Replace dead/diseased plants for first 5 years.* *Prune as required annually.* *Weed control 4 times per year.*	*Trimmed/ Pruning to a minimum height of 3m*		*Slow release fertiliser applied*	*Weeding over growing period*					*Trimmed/ Pruning to a minimum height of 3m*			
	Replacement of poor stock and adjusting guards								*Inspection of planting*			*Replacement of poor stock and adjusting guards*
Pond Remove rubbish, vegetation and litter. Cut back marginals, aquatics, overhanging vegetation. Remove algae growth annually as required.	*Remove rubbish, vegetation and litter*			*Remove algae growth*					*Cut back vegetation. Remove rubbish, vegetation and litter*			

	Operation Phase											
Prescriptions	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Monitoring *in years 1, 3, 5 and 10 by a suitably experienced consultant.*								*Inspection and annual report by consultant*				

5. Management Responsibilities and Monitoring

Responsibilities

5.1. The overall responsibility for the implementation and management of the proposed development will be the Developer of the site, working in conjunction with the landowners and/or appointed management organisation. Implementation and maintenance works will be undertaken by a suitably qualified landscape contractor. Specialist ecological or arboricultural input or implementation may also be required.

Monitoring

5.2. In order to ensure that the objectives of the development are achieved, and to inform any changes in management that may be required, it is essential that monitoring is undertaken in years 1, 3, 5 and 10 and every 5 years thereafter for the lifetime of the development. Monitoring should be undertaken by a suitably qualified consultant and include a site visit and supporting note/report.

5.3. A review of the scope of management works will be undertaken in conjunction with monitoring. The review will identify where the existing maintenance regime requires modification to meet management objectives.

5.4. The landscape contractor responsible for the maintenance and management will submit maintenance inspection reports annually to the developer and landowner for each visit undertaken.

5.5. Any issues arising during each visit by the landscape contractors shall be raised immediately to the developer and landowner, preferably whilst still on site.

Appendix 1 – Detailed Landscape Proposals (Drawing No. P22-0915_04)

Refer to Inset for continued landscape proposal

Existing track to be widened

Close board timber gate to restrict views

Proposed 3.5m hedgerow to screen views from adjacent PRoW, offset 4m from security fencing.

Existing solar panels

Infill hedgerow planting

Proposed 3.5m hedgerow to screen views from adjacent PRoW, offset 4m from security fencing.

Existing hedgerow to be maintained at 3.5m

Proposed 3.5m hedgerow and to screen views from adjacent PRoW, offset 4m from security fencing.

Indicative location of proposed pond

Existing hedgerow to be maintained at 3.5m

Inset

Proposeed Access Road - compacted crushed aggregate (permeable)

Existing grassland to be reinstated

Existing track to be widened

Existing track to be widened

PROPOSED PLANTING SCHEDULE

PROPOSED HEDGEROW PLANTING

To be planted at 5 per linear metre in double staggered rows, rows will be 40cm apart or as appropriate where infilling gaps in existing hedgerows

Species	Common Name	Mix (%)	Height (cm)	Form	Age/ Times transplanted	Root Condition
Acer campestre	Field maple	20	60-80	Transplant	1+1	B
Cornus sanguinea	Dogwood	5	60-80	Transplant	1+1	B
Corylus avellana	Hazel	5	60-80	Transplant	1+1	B
Crataegus monogyna	Common Hawthorn	40	60-80	Transplant	1+1	B
Prunus spinosa	Blackthorn	20	60-80	Transplant	1+1	B
Salix fragilis	Crack willow	10	60-80	Cutting	0/1	B

KEY

CONSTRAINTS

- **Site Boundary**
- **Existing Overhead Power Lines**
- **Existing Gas Lines**
- **Existing Telecom line**
- **Public Right of Way**
- **Existing vegetation with RPA retained and maintained to existing levels.** Refer to Arboricultural Report by Barton Hyett Associattes for details
- **Existing vegetation to be removed**
- **Existing solar panel**
- **Ditches**

HARD LANDSCAPE PROPOSALS

- **Security Fence**
- **Gates within security fence**
- **CCTV**
- **Temporary Compound**
- **Indicative Solar PV Array**
- **Access Road/Hard standing**
- **Existing Access Road**
- **Spare Container**
- **Inverter**
- **Substation compound**
- **Sheep handling system**
- **Close board timber gate**

SOFT LANDSCAPE PROPOSALS

- **Emorsgate EM2 Standard General Purpose Meadow Mixture –** or similar approved sown at 4g/m2. To be sown over existing areas under arable
- **Emorsgate EMF2 Standard General Purpose Wildflowers –** or similar approved sown at 1.5g/m2. To be sown over existing pastures.
- **Proposed New Hedgerow Planting** Maintained at max height of 3.0m Species to match existing hedgerows on site. BR Transplant stock, 60-80cm high
- **Proposed Scrub planting**
- **Surface water attenuation**
- **Indicative location of proposed pond**

Revisions:
First Issue- 19/10/2022 LAB
A - (21/10/2022 LAB) Landscape proposal updated to client comment
B - (24/10/2022 LAB) Landscape proposal updated to client comment
C - (31/10/2022 LAB) Landscape proposal updated to client and ecologist comment
D - (09/12/2022 LAB) Landscape proposal updated to AIA Tree Removal Plan and client comment, grass mixes updated to ecologist recommendation

Landscape Strategy
Varley Solar Farm

Client: RES

DRWG No: P22-0915_04 Sheet No:_ REV: D

Drawn by : LAB Approved by: RC

Date: 09/12/2022

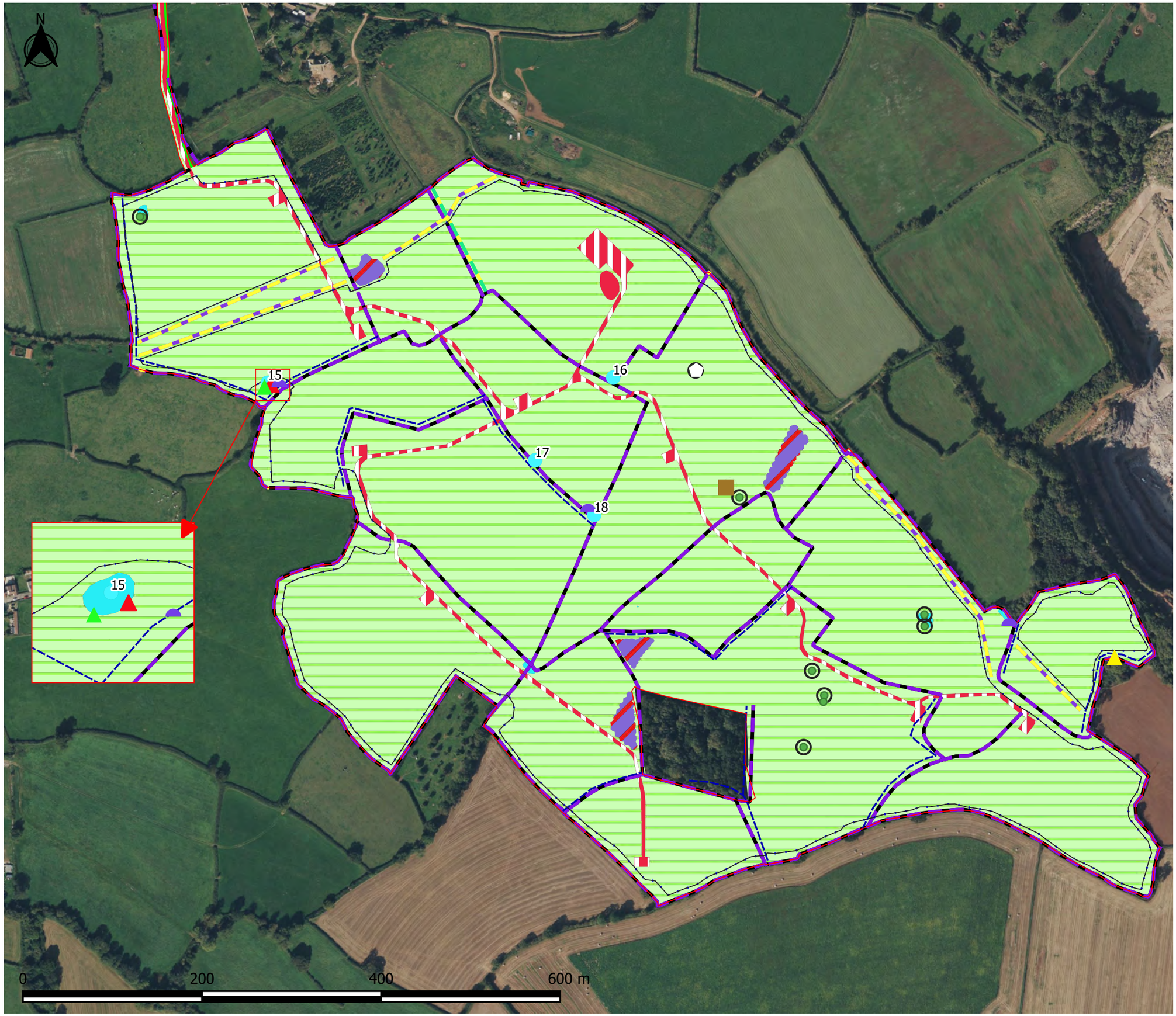
Scale: 1:2,000 @ A1

Pegasus Design

0 100m

N

Appendix 2 – Figure 1. Indicative locations of ecological enhancements



Legend

Proposed enhancements

- 1FF bat box
- 2f bat box
- 2FN bat box
- Barn owl box
- Habitat pile
- Kestrel box
- Ponds to enhance

Proposed Plan

- Existing large tree
- Existing medium tree
- Existing small tree
- Native Hedgerow
- Native Species Rich Hedgerow with trees
- Native Species Rich Hedgerow with trees Associated with bank or ditch
- Blackthorn scrub
- Developed land; sealed surface
- Modified grassland
- Other neutral grassland
- Ponds (Non Priority Habitat)
- Sustainable urban drainage feature
- Ditches
- Dry ditch
- Varley Farm Fenceline
- Site boundary

BSG | ecology

OFFICE: NEWPORT
T: 01633 509000

JOB REF: P22-254

PROJECT TITLE

VARLEY FARM

DRAWING TITLE

Figure 1: Ecological enhancements

DATE: 05/12/2022 CHECKED: OG SCALE: 1:4500

DRAWN: RS APPROVED: RS VERSION:1.1

Projection: OSGB 1936/British National Grid - EPSG 27700

Sources: BSG Ecology survey data

Graphics Ref. No.: 02058

Town & Country Planning Act 1990 (as amended)
Planning and Compulsory Purchase Act 2004

Expertly Done.

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